

# Report

Report no. 15/24

## **Hazard classification and labelling of petroleum substances in the European Economic Area - 2024**



# Hazard classification and labelling of petroleum substances in the European Economic Area - 2024

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This report was prepared by E. Di Caprio and C. Mertl at the request of Concawe Special Task Force on Classification and Labelling (STF-23).

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## ABSTRACT

This report updates Concawe's classification and labelling recommendations Report No. 9/23 to address latest updates to Concawe dossiers and changes to CLP regulation.

Furthermore this report introduces to new hazard introduced by Delegated Regulation (EU) 2023/707 and includes 6 new renewable UVCB hydrocarbon substances that were recently added in the Concawe portfolio as renewable fuels.

## KEYWORDS

Hazard, health, environment, physical, flammability, petroleum and UVCB hydrocarbon substances, classification, packaging, labelling, REACH, GHS, CLP.

## INTERNET

This report is available as an Adobe pdf file on the Concawe website ([www.concawe.eu](http://www.concawe.eu)).

### NOTE

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Version	Major Changes	Date
15/24	<ul style="list-style-type: none"> <li>• Review of Concawe dossier content updates 2024</li> <li>• 6 new renewable UVCB hydrocarbon substances added in the portfolio (section 8, Appendix 1, Appendix 6)</li> <li>• MK1 incorporated into the Kerosines category</li> <li>• Solvent naphtha removed from the Naphtha category and created as a stand-alone substance, sub-chapter 8.23 (section 8, Appendix 1, Appendix 6)</li> <li>• Created 5 new subchapters (8.24 to 8.28) for the 5 new renewable UVCB hydrocarbon substances: CPGOAV, CPGOPW, CPGOTP, CPNAV, CPNTP. The sixth new substance, CPKAV belongs to the Kerosines' category.</li> <li>• Section 8, Appendix 1, Appendix 6 checked for consistency with the current CSRs</li> <li>• Appendix 4: review and update of the text</li> <li>• Appendix 5: revision of the text including a general discussion of the results generated by an EOGRTS according to OECD TG 443</li> <li>• Added Muta.2 classification to UATO, UDAE, CRACKEDGO, HFO</li> </ul>	16.01. 2025
9/23	<ul style="list-style-type: none"> <li>• Review of Concawe dossier content updates 2022 and 2023</li> <li>• Removal of Petroleum Gases and Other Petroleum Gases (worst-case C&amp;L recommendations in sections 7.2 and 7.3 and permutations from Appendix 6)</li> <li>• Removal of Petroleum Cokes (section 7.24 and Appendix 1 and 6)</li> <li>• Changes in Concawe substance inventory (Appendix 1)</li> <li>• Addition of 18<sup>th</sup> ATP to CLP (cumene Carc. 1B re-classification) in sections 2, 6, and addition of a footnote in sections 8.2 (Naphtha), 8.3 (Kerosine) and 8.4 (MK1) of the report. Addition of new C&amp;L permutations in Appendix 6.</li> </ul>	14.11. 2023

Version	Major Changes	Date
	<ul style="list-style-type: none"> <li>• Introduction to new hazard classes in CLP Regulation (Delegated Regulation (EU) 2023/707) in section 4.</li> <li>• Addition of two (2) new renewable UVCB hydrocarbon substances (section 8, Appendix 1, Appendix 6)</li> </ul>	
<b>1/22</b>	<ul style="list-style-type: none"> <li>• Latest amendments of the CLP Regulation (EC) No 1272/2008 (EU, 2008) up to and including the 17<sup>th</sup> ATP and Corrigendum to Annex VI</li> <li>• Addition of Petroleum Gases (7.2) and Other Petroleum Gases (7.3) to the report and Appendix 6</li> <li>• 2021 changes in Concawe substance inventory (Appendix 1)</li> <li>• Concawe's and LOA Consortium's dossier content updates 2021</li> </ul>	<b>3.3.2022</b>
<b>10/20</b>	<ul style="list-style-type: none"> <li>• Revision of Appendix 6 (C&amp;L Permutations)</li> <li>• Latest amendments of the CLP Regulation (EC) No 1272/2008 (EU, 2008) up to and including the 13<sup>th</sup> ATP</li> <li>• List of petroleum substances in Appendix 1 updated according to active registrations in the Concawe substance portfolio.</li> </ul>	<b>22.10. 2020</b>
<b>13/17</b>	<ul style="list-style-type: none"> <li>• Updated text according to implementation of the 8<sup>th</sup> ATP to the CLP regulation.</li> <li>• Addition of Petroleum Gases and Other Petroleum Gases categories (worst-case C&amp;L recommendations).</li> <li>• Revision of Appendix 6 (C&amp;L Permutations).</li> <li>• Alignment of human health information within categories justifying rationale for classification.</li> </ul>	<b>11.2017</b>
<b>9/15</b>	<ul style="list-style-type: none"> <li>• Updated C&amp;L recommendations to address the repeal of the DSD (Directive 67/548/EC) and DPD (Directive 1999/45/EC) as repealed by EU Regulation on Classification, Labelling and Packaging ((EC) No 1272/2008, as amended) on 1<sup>st</sup> June 2015</li> </ul>	<b>12.2015</b>
<b>10/14</b>	<ul style="list-style-type: none"> <li>• Updated C&amp;L recommendations to reflect the publication of the 4<sup>th</sup> Adaptations to Technical Progress (ATP) of the EU</li> </ul>	<b>09.2014</b>

Version	Major Changes	Date
	Regulation on Classification, Labelling and Packaging ((EC) No 1272/2008) that shall apply in respect of substances from 1 December 2014 and in respect of mixtures from 1 June 2015.	
<b>8/12</b>	<ul style="list-style-type: none"> <li>Updated C&amp;L recommendations to reflect the publication of the 2<sup>nd</sup> and 3<sup>rd</sup> Adaptations to the EU Regulation on Classification, Labelling and Packaging ((EC) No 1272/2008).</li> </ul>	<b>11.2012</b>
<b>11/10R (11/10)</b>	<ul style="list-style-type: none"> <li>Update Concawe classification and labelling recommendations from 2005, which were based on the data available at the time compared to criteria established in Annex VI of the Dangerous Substances Directive (DSD) (Directive 2001/59/EC).</li> <li>Assessments of additional and new data on hazard properties of petroleum substances and comparison with both the DSD and Classification, Labelling and Packaging (CLP) ((EC) No 1272/2008) criteria.</li> </ul>	<b>05.2012 (12/2010)</b>

The Concawe's C&L Report has a long history, with its first issue dating back in 1998, as recommended classification and labelling of petroleum substances according to the EU Dangerous Substances Directive (DSD).

Starting with 2010, with CLP Regulation enforced and DSD repealed, the Report continued to be updated regularly, as to timely reflect the regulatory transition and further implementation of subsequent ATPs to CLP Regulation.

This report also include 6 new fuels renewable UVCB Hydrocarbon substances that were recently added in Concawe portfolio as renewable fuels.

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## SUMMARY

The Concawe recommendations on classification and labelling (C&L) were last updated in November 2023 (Concawe, 2023).

This report updates the dossier changes made in 2023-2024 impacting C&L recommendations of UVCB hydrocarbon substances as follows:

- Chapter 8 totally reviewed and information revised according to the updated CSR dossiers;
- MK1 was incorporated in the Kerosines category, and the corresponding information in Appendixes 1 and 6 was modified accordingly;
- Solvent naphtha was removed from the Naphtha category and a new subchapter was created for this substance (subchapter 8.23). Appendixes 1 and 6 were modified accordingly;
- A new renewable UVCB substance was introduced into the Kerosine's category: 'Petroleum kerosene fraction, co-processed with renewable hydrocarbons of plant and/or animal origin'. Appendixes 1 and 6 were modified accordingly;
- Created five new subchapters (8.24 to 8.28) to account for the five new renewable UVCB hydrocarbon substances: CFGOAV, CPGOPW, CPGOTP, CPNAV and CPNTP. Appendixes 1 and 6 were modified accordingly to include information on these new substances;
- Appendix 4 information revised and updated;
- Appendix 5 information revised and a general discussion of the results generated by an EOGRTS according to OECD TG 443 was included.

In addition,

- References to the Delegated Regulations published in 2023 implementing the 19<sup>th</sup> and 20<sup>th</sup> ATP to the CLP Regulation were included in both chapter 2 and 7 of this report;
- References to the Delegated Regulations published in 2024 implementing the 21<sup>st</sup> and 22<sup>nd</sup> ATP to the CLP Regulation were included in both chapter 2 and 7 of this report;
- Reference to the updated ECHA Guidance on the application of the CLP criteria published in November 2024 is included in chapter 1, 4 and 7 of this report.

Classification and labelling recommendations are included in specific chapters of this report.



## 1. INTRODUCTION

The EU regulation on classification, labelling and packaging of substances and mixtures, known as the ‘CLP’ Regulation (EC) No 1272/2008 entered into force on 20 January 2009 (EU, 2008). This Regulation has subsequently been subject to several legislative Adaptations to Technical Progress (ATPs) and Corrigenda to Annex VI of ECHA. CLP applies the terminology, evaluation principles and criteria of the United Nations Globally Harmonized System (GHS) of Classification, Labelling and Packaging of Chemicals (UN, 2023). The stated purpose of CLP is to ensure a high level of protection of human health and the environment as well as the free movement of substances, mixtures and articles.

UN GHS is intended to provide a common basis globally, to define and classify chemicals according to their hazards and to communicate this information via labels and safety data sheets. As such, target audiences include consumers, workers and emergency responders.

In 1992, the United Nations Conference on the Environment and Development (UNCED) established a programme to strengthen national and international efforts related to the environmentally sound management of chemicals. Due to the disparity of existing regional systems, the need for a globally harmonised hazard classification and labelling system for chemicals was identified. The World Summit on Sustainable Development held in 2002, encouraged implementation of the GHS as soon as possible, with a view to having the system fully operational by 2008. Work to update ‘Globally Harmonized System’ continues with publication of the tenth revised edition of the UN GHS document, known as the ‘purple book’, in 2023 (UN, 2023). The 12<sup>th</sup> ATP of CLP implements the 6<sup>th</sup> and 7<sup>th</sup> version of the GHS in the EU.

Although the UN GHS provides a common basis for hazard classification and communication for transport and supply and use, it also includes a “building block” approach. Since it is recognised that UN GHS will not be completely “harmonised” at first, these building blocks will facilitate implementation by individual countries or regions. The UN states that “...countries are free to determine which of the building blocks will be applied in different parts of their systems . . . While the full range is available to everyone . . . the full range does not have to be adopted”. It is intended that the UN GHS document will be updated every two years to reflect the technical changes needed. CLP applies the building block approach in seeking to align EU legislation as far as possible with the UN GHS, whilst maintaining some elements from previous Community legislation, that are not currently addressed in UN GHS. Also, the EU has already started work on the process to the inclusion of the new hazard classes, already adopted at EU level (EU, 2023), in UN GHS.

Manufacturers and importers (or groups of manufacturers and importers) who place hazardous substances on the market, will also have to notify ECHA of certain information within one month of placing on the market, in particular the substance identity and the classification and labelling of each hazardous substance, unless this information has already been submitted as part of a registration dossier under REACH (EU, 2006). ECHA will then include the notified information in the C&L Inventory.

Guidance on the application of CLP in the context of REACH has been developed by ECHA 2024 and its updated version (ECHA, 2024) was published in ECHA’s website in November 2024, which includes the new hazard classes.

The purpose of this report is to provide guidance on the classification and labelling of substances produced by the EU refineries and placed on the market, according to the requirements of CLP.

The provisions of CLP also apply to classification, labelling and packaging of mixtures that are placed on the market. Detailed guidance regarding mixtures is not however within the scope of this report as duly described and maintained in the CLP Regulation itself.

## 2. SCOPE OF THIS REPORT

This report contains an assessment of the hazardous properties of UVCB hydrocarbon substances based on their REACH registration dossiers or C&L notifications (art. 40 CLP) with the criteria of the CLP Regulation ((EC) No 1272/2008) up to and including the 18<sup>th</sup> ATP (EU, 2022) to CLP. The 18<sup>th</sup> ATP upgrades the harmonised classification of cumene as Carcinogenic 1B, by December 1<sup>st</sup>, 2023. The impact on the Concawe naphtha and kerosine dossiers has been assessed, and the Concawe classification recommendations are published in the current version of the report as the revised dossiers have been released.

In 2023, the Delegated Regulation (EU) 2023/707 amending CLP Regulation is adopted as to set out new hazard classes and criteria for the classification, labelling and packaging of substances and mixtures (EU, 2023a). This EU legislation is binding to manufacturers, importers, downstream users and distributors placing substances on the European Union market and are to be referred to harmonised classification and labelling.

Also in 2023, the 19<sup>th</sup> ATP and 20<sup>th</sup> ATP to the CLP Regulation were published as Commission Delegated Regulations: Delegated Regulations (EU) 2023/1434 (EU, 2023b) and (EU) 2023/1435 (EU, 2023c), respectively. With these two acts, new notes to Part 1, section 1.1.3 of Annex VI were added and some entries to this Annex were modified.

In 2024, two other Delegated Regulations (EU) 2024/197 (21<sup>st</sup> ATP) (EU, 2024a) and (EU) 2024/2564 (22<sup>nd</sup> ATP) (EU, 2024b) amending CLP Regulation were adopted. The first introduces a new list of harmonised substance classifications which will be legally enforced beginning of 1 September 2025. The latter introduces 27 new entries, 16 amended entries and 7 removed entries to Part 3, Table 3 of Annex VI to the CLP Regulation. It will apply from 1 May 2026.

This report has been developed as industry guidance for the classification, labelling and packaging of UVCB hydrocarbon substances under CLP, which introduces the GHS into the European legislative framework.

This report outlines the objectives and principles of CLP and the classification and labelling requirements that it introduces; its entry and phased implementation into EU legislation; specific issues that apply to UVCB hydrocarbon substances; and Concawe recommendations for classification, labelling, and packaging of UVCB hydrocarbon substances.

The classification recommendations have been updated from the previous Concawe guidance to reflect new information in their registration dossiers, changes in classification criteria and to accommodate REACH categories of UVCB hydrocarbon substances (EU, 2006).

These recommendations apply to UVCB hydrocarbon substances produced in the refinery but **do not** cover formulated UVCB hydrocarbon substances products placed on the market which are considered mixtures. An updated Concawe guidance on safety data sheets (Concawe, 2022b) is published on the Concawe website (<https://www.concawe.eu/publications/concawe-reports/>).

Substances of similar chemical composition and/or similar hazard profiles can be collected together in categories. With the exception of sulphur, most of oil refining industry substances are Substances of Unknown or Variable composition, Complex reaction products or Biological materials (UVCB). A category approach allows data on individual category members to be applied to other members of the category for which complete data may not be available or are impractical to obtain.

It is important to note that for each category, the most severe hazard classification and labelling recommendation is presented as the default recommendation in the body of the report. However, based on the application of regulatory or oil industry notes, concentration limits and physical-chemical properties (e.g., flashpoint, viscosity), several classification and labelling permutations may be possible within a category. In those cases where EU harmonised classifications for certain endpoints exist, the EU harmonised classifications are supplemented with self-classifications for all other endpoints (see section 4.4) as required by the CLP regulation.

The following categories and stand-alone substances are covered in this report. Full names and the acronyms ('short names') used in the REACH registration dossiers are provided.

Full name	Short name
Crude oils (stand-alone)	Crudeoil
Low Boiling Point Naphthas (Gasolines)	Naphtha
Kerosines	Kerosine
Straight-run Gas Oils	SRGO
Cracked Gas Oils	CrackedGO
Vacuum Gas Oils, Hydrocracked Gas Oils & Distillate Fuels	VHGO
Other Gas Oils	OtherGO
Heavy Fuel Oil Components	HFO
Unrefined / Acid Treated Oils	UATO
Highly Refined Base Oils	HRBO
Lubricant Base Oils	LBO
Untreated Distillate Aromatic Extracts	UDAE
Treated Distillate Aromatic Extracts	TDAE
Residual Aromatic Extracts	RAE
Slack Waxes	Slackwax
Paraffin and Hydrocarbon Waxes	Paraffinwax
Foots Oils	Footsoil
Petrolatums	Petrolatum
Bitumens	Bitumen
Oxidized Asphalt (stand-alone)	OxiAsph
Sulfur (stand-alone)	Sulfur
Renewable hydrocarbon (deoxygenate diesel type fraction) (stand alone)	RenewDD
Solvent naphtha (stand alone)	Solvent naphtha
Co-processed gas oil from plant/animal origin (stand-alone)	CPGOAV
Co-processed (thermal cracking) gas oil from waste plastics (stand-alone)	CPGOPW
Co-processed diesel/gas oil from thermally cracked plastics (stand-alone)	CPGOTP
Co-processed (hydrotreated) naphtha from plant/animal origin (stand-alone)	CPNAV
Co-processed naphtha from thermally cracked plastics (stand-alone)	CPNTP

The following categories are not covered herein: lubricant greases; used oils; re-refined oils; reclaim petroleum substances, other petroleum substances, synthetic hydrocarbons



and hydrocarbon solvents<sup>1</sup>. Manufacturers of these substances need to classify their materials according to legislative requirements.

Changes since last report 9/23 (Concawe, 2023a): 6 new renewable UVCB hydrocarbon substances were added in the portfolio (section 8, Appendix 1 and Appendix 6 updated accordingly): 5 new renewable UVCB hydrocarbon substances: CPGOAV, CPGOPW, CPGOTP, CPNAV and CPNTP. The sixth new substance, CPKAV was incorporated into the Kerosines' category. MK1 was incorporated into the Kerosines category as well, as it no longer exists as a stand-alone substance. Solvent naphtha was removed from the Naphtha category and created as a stand-alone substance (section 8, Appendix 1 and Appendix 6 were updated accordingly). Appendix 4 was reviewed and the text was updated. The text of Appendix 5 was also reviewed, which included a general discussion of the results generated by an EOGRTS according to OECD TG 443.

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<sup>1</sup> This report addresses the classification and labelling of groups of UVCB substances which are the primary products of petroleum refining. It should be recognized that some of these groups contain UVCB substances which may also be identified as hydrocarbon solvents. Hydrocarbon solvents are derived, among others, from refinery streams by further refining e.g. redistillation, hydrogenation, and extraction. As a result, the composition of hydrocarbon solvents may differ significantly from refinery streams. The classification and labelling of hydrocarbon solvents are not considered further in this report.

### 3. CLASSIFICATION APPROACH ACCORDING TO CLP

#### 3.1. CLASSIFICATION OF SUBSTANCES

CLP distinguishes three hazard types (physical, health and environmental hazards), with their respective “classes” (endpoints). In most cases, hazard classes are further subdivided into hazard categories (EU, 2008).

Not all GHS endpoints have been adopted by CLP in line with the ‘Building Block’ approach. Below in the table, there are indicated differences in hazard class/categories between GHS and CLP regulation.

GHS v. 10 (2023) Hazard Category	CLP Hazard Category (GHS v.7, as up to 20 <sup>th</sup> ATP)
Flammable gases and chemically unstable gases:	Flammable gases and chemically unstable gases:
Flammable Gas 1A Pyrophoric Gas Chemically Unstable Gas A Chemically Unstable Gas B	Flammable Gas 1A Pyrophoric Gas Chemically Unstable Gas A Chemically Unstable Gas B
Flammable Gas 1B	Flammable Gas 1B
Flammable Gas 2	Flammable Gas 2
Gases under pressure:	Gases under pressure:
Compressed Gas	Compressed Gas
Liquefied Gas	Liquefied Gas
Refrigerated Liquefied Gas	Refrigerated Liquefied Gas
Dissolved Gas	Dissolved Gas
Flammable liquids:	Flammable liquids:
Flam. Liq. 1	Flam. Liq. 1
Flam. Liq. 2	Flam. Liq. 2
Flam. Liq. 3	Flam. Liq. 3
Flam. Liq. 4	
Acute toxicity (oral):	Acute toxicity (oral):
Acute Tox 1	Acute Tox 1
Acute Tox 2	Acute Tox 2
Acute Tox 3	Acute Tox 3
Acute Tox 4	Acute Tox 4
Acute Tox 5	
Acute toxicity (dermal):	Acute toxicity (dermal):
Acute Tox 1	Acute Tox 1
Acute Tox 2	Acute Tox 2
Acute Tox 3	Acute Tox 3
Acute Tox 4	Acute Tox 4
Acute Tox 5	
Acute toxicity (gases/vapours/dusts and mists - inhalation):	Acute toxicity (gases/vapours/dusts and mists - inhalation):
Acute Tox 1	Acute Tox 1
Acute Tox 2	Acute Tox 2
Acute Tox 3	Acute Tox 3
Acute Tox 4	Acute Tox 4
Acute Tox 5	

GHS v. 10 (2023) Hazard Category	CLP Hazard Category (GHS v.7, as up to 20 <sup>th</sup> ATP)
<b>Skin corrosion/irritation:</b>	<b>Skin corrosion/irritation:</b>
Skin Corrosion 1	Skin Corrosion 1
Skin Corrosion 1A	Skin Corrosion 1A
Skin Corrosion 1B	Skin Corrosion 1B
Skin Corrosion 1C	Skin Corrosion 1C
Skin Irritation 2	Skin Irritation 2
Mild Skin Irritation 3	
<b>Serious eye damage/eye irritation:</b>	<b>Serious eye damage/eye irritation:</b>
Serious Eye Damage 1	Serious Eye Damage 1
Eye Irritation 2	Eye Irritation 2
Eye Irritation 2A	
Eye Irritation 2B	
<b>Respiratory sensitisation:</b>	<b>Respiratory sensitisation:</b>
Resp. Sens. 1	Resp. Sens. 1
Resp. Sens. 1A	Resp. Sens. 1A
Resp. Sens. 1B	Resp. Sens. 1B
<b>Skin sensitisation:</b>	<b>Skin sensitisation:</b>
Skin Sens. 1	Skin Sens. 1
Skin Sens. 1A	Skin Sens. 1A
Skin Sens. 1B	Skin Sens. 1B
<b>Germ cell mutagenicity:</b>	<b>Germ cell mutagenicity:</b>
Muta. 1	Muta. 1
Muta. 1A	Muta. 1A
Muta. 1B	Muta. 1B
Muta. 2	Muta. 2
<b>Carcinogenicity:</b>	<b>Carcinogenicity:</b>
Carc. 1	Carc. 1
Carc. 1A	Carc. 1A
Carc. 1B	Carc. 1B
Carc. 2	Carc. 2
<b>Reproductive toxicity:</b>	<b>Reproductive toxicity:</b>
Repr. 1	Repr. 1
Repr. 1A	Repr. 1A
Repr. 1B	Repr. 1B
Repr. 2	Repr. 2
Lactation	Lactation
<b>Specific target organ toxicity - Single Exposure:</b>	<b>Specific target organ toxicity - Single Exposure:</b>
STOT SE 1	STOT SE 1
STOT SE 2	STOT SE 2
STOT SE 3	STOT SE 3
<b>Specific target organ toxicity - Repeated Exposure:</b>	<b>Specific target organ toxicity - Repeated Exposure:</b>
STOT RE 1	STOT RE 1
STOT RE 2	STOT RE 2
<b>Aspiration toxicity:</b>	<b>Aspiration toxicity:</b>
Asp. Tox. 1	Asp. Tox. 1
Asp. Tox. 2	
<b>Hazardous to the aquatic environment, short-term (Acute):</b>	<b>Hazardous to the aquatic environment, short-term (Acute):</b>
Aquatic Acute 1	Aquatic Acute 1
Aquatic Acute 2	

GHS v.10 (2023) Hazard Category	CLP Hazard Category (GHS v.7, as up to 20 <sup>th</sup> ATP)
Aquatic Acute 3	
Hazardous to the aquatic environment, long-term (Chronic):	Hazardous to the aquatic environment, long-term (Chronic):
Aquatic Chronic 1	Aquatic Chronic 1
Aquatic Chronic 2	Aquatic Chronic 2
Aquatic Chronic 3	Aquatic Chronic 3
Aquatic Chronic 4	Aquatic Chronic 4

Furthermore, not all CLP hazard classes can be found in GHS. They originate in some R-phrases under former DSD and are included as supplemental hazard statements (EUH) in Part 1 of Annex II to CLP.

Additionally, the newly introduced hazard classes in the CLP revision process (EU, 2023) also currently not in GHS are represented by new EUH statements included in Part 1 of Annex II to CLP, with effect from April 20<sup>th</sup> 2023.

### 3.1.1. CLP Hazard / Precautionary Statements

The CLP regulation uses hazard statements (H-statements). For example, eye irritation category 2 H319 ‘Causes serious eye irritation’. CLP Annex III lists the correct wording of the hazard statements, as these should appear on the label.

Furthermore, labelling advice to prevent or minimise adverse effects to human health or environment is communicated under CLP through the use of precautionary statements (P-statements). CLP Annex IV Part II, as amended, lists the correct wording of the precautionary statements, as they should appear on the label.

Classification of a substance for a specific hazard “class” and “category” is thus accompanied by specific H- and P-statements. These are specified at the end of every section dealing with classification criteria.

These statements are assigned a unique alphanumerical code, which consists of one letter (H = Hazard, P = Precautionary) and three digits, as follows:

- One digit to designate the class (type) of hazard, e.g. ‘2’ for physical hazard
- Two further digits corresponding to the sequential numbering of statements as follows:

Hazard (H)
200 - 299 : Physical Hazard
300 - 399 : Health Hazard
400 - 499 : Environmental Hazard

Precautionary (P)
100 - 199 : General
200 - 299 : Prevention
300 - 399 : Response
400 - 499 : Storage
500 - 599 : Disposal

Several of these P-statements are incomplete and require completion by the classifying entity. For example: P264 reads “Wash ... thoroughly after handling” meaning that the words “hands” and/or “affected skin areas” should be inserted to replace “...”.

### 3.2. HAZARD CLASSIFICATION CRITERIA

Classification is based on comparison of test data against criteria for each of the hazard classes/categories. The criteria for classification are found in CLP Annex I.

### 3.2.1. Physical Endpoints

Data are used to assess the physical hazards (e.g. flammability) and help predict possible toxicological or environmental hazards, fate and behaviour. They are used for the purposes of safe handling and to help in the identification of risks posed to humans and the environment from all stages of a substance life cycle.

For UVCB hydrocarbon substances, some physical endpoints as required under CLP are not applicable or relevant; alternative endpoints should be used (e.g. Initial Boiling Point instead of Boiling point range).

Due to their inherent properties and chemical structure considerations, the following hazard categories do not apply or are considered irrelevant for UVCB hydrocarbon substances:

- Explosive
- Oxidising (gas, liquid, solid)
- Pyrophoric (gas, solid, liquid)
- Self-reactive and Self-heating
- Organic Peroxide
- Corrosive to Metal
- Substance which in contact with water emits flammable gas

As amended by the 12<sup>th</sup> ATP to CLP (EU, 2019), to classify petroleum gases for flammability it is necessary to evaluate their flammable range with air at 20 °C and a standard pressure of 101,3 kPa.

Classification criteria	Cat. 1A	Cat. 1B	Cat. 2
Flammable gases	(a) ignitable when in a mixture of $\leq 13\%$ v/v in air; or (b) flammable range with air of $\geq 12\%$ points regardless of the LFL, unless data show the criteria for Cat. 1B are met.	flammability criteria for Cat. 1A met, not chemically unstable nor pyrophoric and at least either: (a) LFL $> 6\%$ v/v in air; or (b) fundamental burning velocity $< 10$ cm/s.	other than those of Cat. 1A or 1B, with a flammable range while mixed in air.

LFL= Lower Flammability Limit

When packaged under pressure, petroleum gases have to be classified, according to their physical state, in one of four groups:

Group	Criteria - when packaged under pressure, the gas is
Compressed gas	Entirely gaseous at $-50^{\circ}\text{C}$ , including all gases with a critical temperature $\leq -50^{\circ}\text{C}$ .
Liquefied gas	Partially liquid at temperatures $> -50^{\circ}\text{C}$ , split as: <ul style="list-style-type: none"> <li>• high pressure liquefied gas: critical temperature between <math>-50^{\circ}\text{C}</math> and <math>+65^{\circ}\text{C}</math>; and</li> <li>• low pressure liquefied gas: critical temperature <math>&gt; +65^{\circ}\text{C}</math>.</li> </ul>

Group	Criteria - when packaged under pressure, the gas is
Refrigerated liquefied gas	Partially liquid because of its low temperature
Dissolved gas	Dissolved in a liquid phase solvent

In classifying liquid UVCB hydrocarbon substances for flammability it is necessary to evaluate information on flash point and initial boiling point.

Classification criteria	Cat. 1	Cat. 2	Cat. 3
Flash point °C	< 23	< 23	≥ 23 and ≤ 60
Initial boiling point °C	≤ 35	> 35	

It should be recognised that under CLP, gas oils, diesel, and light heating oils having a flash point between ≥ 55 °C and ≤ 75 °C may be regarded as flammable liquid Category 3.

### 3.2.2. Health Endpoints

#### 3.2.2.1. Acute Toxicity

Under CLP, acute toxicity hazard is differentiated into oral, dermal and inhalation routes of exposure. CLP uses acute lethality e.g. LD<sub>50</sub> (oral, dermal) or LC<sub>50</sub> (inhalation) values, to assess acute toxicity. CLP divides acute toxicity into 4 categories: Category 1 to 4. For the inhalation route, there are three different types of exposure: gases, vapours and dusts/mists which have different cut-off values in CLP.

Acute toxicity cut-off values in CLP are shown in the following table.

Exposure route	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Oral (LD <sub>50</sub> mg/kg <sub>bw</sub> )	≤ 5	> 5 - ≤ 50	> 50 - ≤ 300	> 300 - ≤ 2000
Dermal (LD <sub>50</sub> mg/kg <sub>bw</sub> )	≤ 50	> 50 - ≤ 200	> 200 - ≤ 1000	> 1000 - ≤ 2000
Gases (LC <sub>50</sub> ppmV) <sup>2</sup>	≤ 100	> 100 - ≤ 500	> 500 - ≤ 2500	> 2500 - ≤ 20000
Vapours (LC <sub>50</sub> mg/l) <sup>3</sup>	≤ 0.5	> 0.5 - ≤ 2	> 2 - ≤ 10	> 10 - ≤ 20
Dusts and mists (LC <sub>50</sub> mg/l) <sup>4</sup>	≤ 0.05	> 0.05 - ≤ 0.5	> 0.5 - ≤ 1	> 1 - ≤ 5

#### 3.2.2.2. Irritation/Corrosion

##### Skin

CLP distinguishes between corrosion and irritation of the skin. The legislative text regards corrosion as the irreversible destruction of skin tissue within an exposure period of up to 4 hours, and irritation as a reversible effect after 4 hours exposure.

<sup>2</sup> For gases the measurement units are ppmV. It must be noted that CLP specifies that for a vapour which is near the gaseous phase, classification shall be based on ppmV.

<sup>3</sup> Vapours are defined as: the gaseous form of a substance or mixture released from its liquid or solid state.

<sup>4</sup> Dusts (suspended solid particles, from mechanical processes) and mist (suspended liquid droplets, from condensation of supersaturated vapours or physical shearing of liquids) are defined as generally having particle sizes in a range from <1 to ca. 100 µm.

CLP emphasises the use of a tiered approach for classification and labelling under this endpoint. Use of existing human, animal and validated *in vitro* data can be used to perform a weight-of-evidence decision for hazard classification.

In the absence of existing data, for corrosion in particular, the use of extreme pH values as a surrogate to predict corrosion for the purpose of classification is also outlined (pH range, strong acid or alkali reactions at  $\text{pH} \leq 2$  or  $\geq 11.5$  respectively). Buffering effects should be taken into account, and if data suggest the substance is unlikely to be corrosive despite the low or high pH value, then further testing (preferably by validated *in vitro* test) should be carried out prior to assigning a classification.

The cut-off values for classification are based on the criteria set in the CLP. They are a combination of the exposure period, the persistence of the effect during the observation period, as well as mean values of erythema/eschar and oedema scores.

The 8<sup>th</sup> ATP to the CLP has included an additional category for Skin Corrosion. Where data are available, sub-categorisation will be applied as shown in the table below. Where data are not available, it is possible to select Category 1. For example in cases when it is evident that corrosive effects will occur (e.g. extreme pH) or have occurred but there is no information available on exposure time or the observation period.

### Corrosion

Category	Exposure time: t	Observation period
Cat. 1	Corrosive effects observed, after exposure $\leq 4$ h and no information on length of observation period	
Cat. 1A	$t \leq 3$ min	$\leq 1$ hour
Cat. 1B	$3 \text{ min} < t \leq 1$ hour	$\leq 14$ days
Cat. 1C	$1 \text{ hour} < t \leq 4$ hours	$\leq 14$ days

Other effects such as hyperplasia, hyperkeratosis, scaling, fissures, scab formation and alopecia are also taken into account in the overall evaluation of skin effects at the end of the observation period.

Skin irritation for reversible effects is assessed after a semi-occluded exposure of up to 4 hours. After exposure, erythema and/or oedema are assessed according to scores after 24, 48, and 72 hours.

Skin irritation studies of some UVCB hydrocarbon substances (e.g. distillate aromatic extracts and straight-run gas oils) have been performed under non-guideline conditions, such as exposure for up to 24 hours, under occluded conditions. The mean scores for erythema and oedema need to be assessed against the deviations in methodology. Following that, expert judgement should be used to decide whether irritation, sufficient for classification purposes would be expected, if the test had been conducted under guideline conditions. Data from repeat exposure tests can also be considered as part of a weight of evidence approach, and may be used as the basis for classification in the absence of other more definitive data.

Under CLP the major criteria for the irritant category are:

- At least 2 of 3 tested animals have a mean score of  $\geq 2.3$  -  $\leq 4.0$  for erythema / eschar or for oedema.
- Reversibility of skin lesions is another consideration in evaluating irritant responses. When inflammation persists to the end of the observation period in 2 or more test animals, taking into consideration alopecia (limited area), hyperkeratosis, hyperplasia and scaling, then a material shall be considered irritant.

## Irritation

	Erythema or oedema mean value	Reading times
Cat. 2	$\geq 2.3 - \leq 4.0$	24, 48, 72 hours and: a) delayed reactions on 3 consecutive days b) persisting inflammation for 14 days in at least 2 animals particularly taking into account alopecia (limited area), hyperkeratosis, hyperplasia, and scaling reactions c) very definite positive effects of pronounced variability of response, less than the criteria above.

## Eye

CLP criteria are based on the severity of the effect in the eye, namely whether they are reversible or irreversible within 21 days of application.

According to the OECD test guideline 405 Category 1 (serious eye damage) covers substances having potential to seriously damage the eyes. Category 2 (eye irritation) covers substances that have the potential to induce reversible eye irritation.

Classification is based on the severity of effects on either the cornea and/or iris, and/or the severity of conjunctival redness and/or oedema, which is assessed by calculating the respective mean scores at each of the reading times (24, 48, 72 hours) for that effect and taking into account the number of animals in which an effect was observed. Please refer to the legislative text for the specific criteria.

Effect	Irreversible	Reversible
	Cat.1	Cat.2
Cornea opacity	$\geq 3.0$	$\geq 1.0$
Iris lesion	$> 1.5$	$\geq 1.0$
Conjunctival redness	-	$\geq 2.0$
Conjunctival oedema (chemosis)	-	$\geq 2.0$

- For classification purposes CLP allows the use of human experience to assess the degree of the effects.
- Validated *in vitro* data should be used to make classification and labelling decision instead of conducting new animal tests (where available).
- Materials corrosive to skin are classified as causing irreversible ocular damage, hence extreme pH values are important considerations in this respect.

### 3.2.2.3. Sensitisation

Through implementation of the 2<sup>nd</sup> ATP, CLP introduces the concept of potency using two new subcategories (1A - strong sensitisers, 1B - moderate sensitisers) for both respiratory and skin sensitisation using primarily animal data. Potency is the concentration at which a substance induces sensitisation and is described by dose-response relationships at either the induction or the elicitation phase (EU, 2011).



### Respiratory sensitisation

Under CLP evidence that a substance can induce specific respiratory hypersensitivity will normally be based on human experience. Although there is no validated OECD animal test for this endpoint, CLP accepts animal data with measurements on specific markers as evidence of potential hazard.

### Skin sensitisation

Animal studies for identification of skin sensitisation hazard, in contrast to respiratory sensitisation have been validated and are commonly used.

When assessing potency, cut-off values are applied to animal test results (mainly guinea pig tests or local lymph node assay). However, this sub-categorisation can only be applied where sufficient data exist to make the distinction; where the data are insufficient, the classification in Category 1 should be maintained.

CLP allows the use of human data for classification purposes. It must be pointed out that according to Article 7(3) of CLP, tests on humans shall not be performed for the purposes of classification. However, data obtained from other sources, such as clinical studies, can be used.

In the case of conflicting results with human and animal data, CLP has explicit text dealing with this issue. In brief, positive evidence from animal studies is regarded as more reliable than evidence from human studies. Evaluation of human data must be carried out with caution, since negative human data cannot normally be used to negate positive results from animal studies.

Following the criteria used in CLP, the respective classifications for respiratory and skin sensitisation are summarised in the following table:

Respiratory sensitisation	Category 1	Sub-category 1A
		Sub-category 1B
Skin sensitisation	Category 1	Sub-category 1A
		Sub-category 1B

#### 3.2.2.4. Germ Cell Mutagenicity

Under CLP this hazard class is primarily concerned with substances that may cause mutations in the germ cells of humans that can be transmitted to the progeny.

The categories for classification are shown in the following table.

Cat. 1		Cat. 2
Cat. 1A	Cat. 1B	

Evaluation of the test results for UVCB hydrocarbon substances requires expert judgement taking into account all the available data in arriving at a classification.

The “Modified Ames Test” (Blackburn G.R. *et al*, 1986) is often used to assess the *in vitro* mutagenic activity of petroleum substances. The test was developed to maximise detection sensitivity of mutagenic activity in petroleum substances that is mediated by polycyclic aromatic compounds. Results are expressed as a Mutagenicity Index (MI), which represents the slope of the mutagenic dose response relationship. A positive result in this test indicates *in vitro* gene mutation.

Data from Mouse Lymphoma Assays (MLA) need to be evaluated with caution. Mouse lymphoma assays (MLAs) have historically exhibited a lack of performance and acceptability standards, hence the validity of MLA data has been questioned, and the possibility that the positive results in these studies are not actually evidence of *in vitro* mutagenic activity must be considered.

Some UVCB hydrocarbon substances are classified and labelled as carcinogenic and it is generally accepted that carcinogenic activity is sometimes mediated via a genotoxic mechanism. Classification as a genotoxic carcinogen does not however automatically prompt additional classification as a germ cell mutagen since the criteria for germ cell mutagen classification require evidence of heritable damage, i.e. evidence that the substance is a somatic mutagen and the substance or a relevant metabolite can reach the germ line cells in the reproductive organs. Most petroleum carcinogenesis studies assess skin tumour induction, so any potential *in vivo* mutagenic activity is limited to the site of application and does not explicitly imply systemic effects. The mere presence of Polycyclic Aromatic Compounds (PAC) in petroleum streams are not necessarily an indication of hazard, because the complex nature of the substance may inhibit or enhance mutagenic activity. Thus, individual levels of PAC are not regarded as adequate surrogates for hazard evaluation.

As a consequence, unless there is clear evidence that germ cells are affected in germ cell assays, UVCB hydrocarbon substances which have been classified as carcinogenic are not also classified as germ cell mutagens.

**3.2.2.5. Carcinogenicity**

Under CLP this hazard concerns whether a substance has the potential to induce cancer or increase its incidence. Substances that have induced benign and malignant tumours in well-performed experimental studies on animals are considered to be presumed or suspected human carcinogens unless there is strong evidence that the mechanism of tumour formation is not relevant for humans.

The categories for classification are shown in the following table.

Cat. 1		Cat. 2
Cat. 1A	Cat. 1B	

Carcinogenicity classification for UVCB hydrocarbon substances may also be dependent on data from other predictive tests. The IP346 assay (IP, 1993) is a measure of the dimethyl sulfoxide (DMSO) extractables, results which have an established relationship with the outcome in in carcinogenicity mouse skin painting studies for certain categories of UVCB hydrocarbon substances. When the weight percent of extractables is less than three percent of the total weight of the extracted material, then the substance is not classified. When the weight percent is three or greater, then the substance becomes classified as a carcinogen. The IP346 assay is used as a predictive test for classification for Other Lubricant Base Oils, Foots Oils, Slack Wax, Petrolatum and Treated Aromatic Extracts Concawe categories. It is important to note that IP346 is not a method intended to measure PAC levels, but rather an indirect assessment of refinement to manufacture non-carcinogenic products.

Another predictive test that is used for carcinogenic classification is the modified Ames test. Described above in the germ cell mutagenicity section, this test is a measure of the *in vitro* genotoxic potential. In order to assess the carcinogenic potential of Residual Aromatic Extracts, the results of the assay, namely the MI value, have been correlated with mouse skin painting data, and a classification cut-point has been established. If the MI is less than 0.4, no classification is required.

These predictive tests and their impact on classification have been captured in EU Regulatory Notes and/or Oil Industry Notes for the appropriate categories (**Appendix 2**).

### 3.2.2.6. Reproductive Toxicity

#### Reproductive and developmental toxicity

Under CLP reproductive toxicity includes adverse effects on sexual function and fertility (adult males and females), as well as developmental toxicity in the offspring. The induction of genetically based heritable effects in the offspring is addressed under Germ Cell Mutagenicity and is not part of the scope of the reproductive toxicity endpoint.

The developmental effects of substances must be evaluated carefully to eliminate the possible confounding effects of maternal toxicity on the developing foetus. Generic guidance on this is given in **Appendix 5**.

Under CLP reproductive toxicity is subdivided under two main headings:

- Adverse effects on sexual function and fertility.
- Adverse effects on development of the offspring.

The categories for classification are shown in the following table.

Cat. 1		Cat. 2	Effects on or via lactation
Cat. 1A	Cat. 1B		

In cases where there are no clear data to the contrary, the hazard statement specifying both 'damage to fertility' AND 'damage to the unborn child' should be assigned. It is possible to omit the specific hazard statement for fertility or developmental effects, in cases where there are clearly negative results.

#### Effects during lactation

Under CLP, adverse effects on or via lactation are included under reproductive toxicity, but for classification purposes such effects are treated separately. This is because it is desirable to be able to classify substances specifically for an adverse effect on lactation ("Effects on or via lactation, H362") so that a specific hazard warning about this effect can be provided for lactating mothers independently of whether the substance is classified for reproductive toxicity.

Accordingly, in CLP, the assignment of H362 ("May cause harm to breast-fed children") is independent of consideration of effects on development or fertility, and hence a substance can be assigned H362 whether or not the substance is also classified for reproductive toxicity.

### 3.2.2.7. Specific Target Organ Toxicity

Under CLP, reference is made to those specific effects caused by single or repeated exposure to a substance (Specific Target Organ Toxicity or STOT).

These effects refer to significant systemic effects that can impair function, that may be reversible or irreversible, immediate and/or delayed, or which are not specifically addressed by another hazard class (e.g. reproductive toxicity, irritation, carcinogenicity).

Specific target organ toxicity can occur by any route that is relevant for humans, i.e. oral, dermal or inhalation.

### Specific Target Organ Toxicity - Single Exposure (STOT-SE)

Specific target organ toxicity (single exposure) is defined as specific, non-lethal target organ toxicity arising from a single exposure to a substance or mixture. STOT-SE should only be assigned when another hazard class (e.g. irritation, acute toxicity) does not cover the observed toxicity more appropriately.

The hazard class Specific Target Organ Toxicity - Single Exposure is differentiated into:

- STOT - Single Exposure, Category 1 and 2; for non-lethal “significant and/or severe toxic effects”
- STOT - Single Exposure, Category 3; for “transient effects” after single exposure, specifically respiratory tract irritation and narcotic effects

Note that there are no guideline values for Category 3, as this is done on a case by case basis using human data and relevant animal studies, according to the classification criteria under CLP.

In order to help reaching a decision about whether a substance shall be classified or not, and to what degree it shall be classified (Category 1 or Category 2), dose/concentration ‘guidance values’ are provided for consideration of the dose/concentration which has been shown to produce significant health effects. The principal argument for proposing such guidance values is that all substances are potentially toxic and there has to be a reasonable dose/concentration above which a degree of toxic effect is acknowledged.

Exposure route	Dose unit	Classification cut-off guideline (LOAEL)		
		Cat. 1	Cat. 2	Cat. 3
Oral (rat)	mg/kg <sub>bw</sub>	$C \leq 300$	$300 < C \leq 2000$	expert judgement
Dermal (rat or rabbit)	mg/kg <sub>bw</sub>	$C \leq 1000$	$1000 < C \leq 2000$	
Inhalation (rat) (gas)	ppmV/4 hrs	$C \leq 2500$	$2500 < C \leq 20000$	
Inhalation (rat) (vapour)	mg/l/4 hrs	$C \leq 10$	$10 < C \leq 20$	
Inhalation (rat) (dust/mist/fume)	mg/l/4 hrs	$C \leq 1$	$1 < C \leq 5$	

### Specific Target Organ Toxicity - Repeated Exposure (STOT-RE)

This endpoint relates to specific target organ effects arising from repeated exposure to a substance or mixture. All significant health effects that can impair function, that are reversible or irreversible, immediate and/or delayed are classified into either Category 1 or 2. Specific target organ toxicity can occur by any route that is relevant for humans, i.e. oral, dermal or inhalation.

According to CLP, STOT-RE should only be assigned where the observed toxicity is not covered more appropriately by another hazard class (e.g. carcinogenicity, reproductive toxicity).

The purpose of STOT-RE is to identify the primary target organ(s) of toxicity for inclusion in the hazard statement.

In order to help reaching a decision about whether a substance shall be classified or not, and to what degree it shall be classified (Category 1 or Category 2), dose/concentration 'guidance values' are provided for consideration of the dose/concentration which has been shown to produce significant health effects. The principal argument for proposing such guidance values is that all substances are potentially toxic and there has to be a reasonable dose/concentration above which a degree of toxic effect is acknowledged.

Also, repeated-dose studies conducted in experimental animals are designed to produce toxicity at the highest dose used in order to optimise the test objective and so most studies will reveal some toxic effect at least at this highest dose. What is therefore to be decided is not only what effects have been produced, but also at what dose/concentration they were produced and how relevant is that for humans.

The guidance values refer to effects seen in a standard 90-day toxicity study conducted in rats. They can be used as a basis to extrapolate equivalent guidance values for toxicity studies of greater or lesser duration, using dose/exposure time extrapolation similar to Haber's rule for inhalation, which states essentially that the effective dose is directly proportional to the exposure concentration and the duration of exposure. The assessment shall be done on a case-by-case basis; for a 28-day study the guidance values below is increased by a factor of three.

The following table provides classification cut-off values for STOT-RE.

Exposure route	Classification cut-off guideline (LOAEL)		
	Dose unit	Cat. 1	Cat. 2
Oral (rat)	mg/(kg <sub>bw</sub> /day)	$C \leq 10$	$10 < C \leq 100$
Dermal (rat or rabbit)	mg/(kg <sub>bw</sub> /day)	$C \leq 20$	$20 < C \leq 200$
Inhalation (rat) (gas)	ppmV for 6 hrs/day	$C \leq 50$	$50 < C \leq 250$
Inhalation (rat) (vapour)	(mg/l) for 6 hrs/day	$C \leq 0.2$	$0.2 < C \leq 1.0$
Inhalation (rat) (dust/mist/fume)	(mg/l) for 6 hrs/day	$C \leq 0.02$	$0.02 < C \leq 0.2$

### 3.2.2.8. Aspiration hazard

'Aspiration' means the entry of a liquid or solid substance directly through the oral or nasal cavity, or indirectly from vomiting, into the trachea and lower respiratory tract. Aspiration of certain UVCB hydrocarbon substances may result in severe acute effects, such as chemical pneumonitis, varying degrees of pulmonary injury or death. This property relates to the potential for low viscosity material to spread quickly into the deep lung and cause severe pulmonary tissue damage.

Classification of a hydrocarbon substance for aspiration hazard is based on reliable animal test data, human evidence or physical properties, specifically if it has a kinematic viscosity of 20.5 mm<sup>2</sup>/s or less, measured at 40°C. Substances which meet these criteria are classified in Category 1 for aspiration hazard. It is important to note that classification is mandatory for substances which meet the physical/chemical property criteria, and does not require confirmation in standard toxicology studies in animals.

The classification of a substance which exists as an aerosol or mist for example, as found in pressurised cylinders, is made on the basis of whether or not the substance has the potential to form a pool of liquid in the mouth, and thereby be aspirated. A fine aerosol

or mist may not form a pool of liquid and is therefore unlikely to present an aspiration hazard.

Aspiration of a substance can occur during ingestion and also if it is vomited following ingestion. Safe handling information, for example on labels or in safety data sheets, should reflect this potential hazard.

### 3.2.3. Environmental Endpoints

#### 3.2.3.1. Hazardous to the aquatic environment

In CLP, there are basically four classifications available: Acute 1, Chronic 1, Chronic 2, or Chronic 3 (dependent on a combination of the acute or chronic toxicity value with evidence to show a  $\log K_{ow} \geq 4$  and/or not rapid biodegradability) and/or with a BCF  $\geq 500$  l/kg.

For substances that are not acutely toxic but meet the  $\log K_{ow}$  and or biodegradability criteria, a safety net for chronic classification (Chronic 4) is used.

Under CLP, organic substances are considered as 'rapidly biodegradable' if one of the following three criteria are met:

- a) if the substance degrades at least 70% (based on dissolved organic carbon) or 60% (based on oxygen depletion or carbon dioxide generation) in 28-day ready biodegradation studies. These levels of biodegradation must be achieved within 10 days of the start of degradation. However, for UVCB substances, the 10 day window condition may be waived; or
- b) if the ratio of  $BOD_5 / COD$  is  $\geq 0,5$  where only BOD and COD data are available; or
- c) if there is other convincing scientific evidence available that the substance can be degraded (biotically and/or abiotically) in the aquatic environment to a level  $> 70\%$  within a 28-day period. In CLP, a Multiplying (M) factor has been introduced (CLP Annex I) which is a weighting factor for substances which meet the criteria for classification in Acute Category 1 or Chronic Category 1. The M factor is derived from the lowest toxicity value (e.g.  $LC_{50}$  or NOEC) for the substance, and is used for the purposes of calculating the toxicity of mixtures.

The lowest of the available toxicity values between and within the different trophic levels (fish, crustacean, algae/aquatic plants) shall normally be used to define the appropriate hazard category(ies). There are circumstances, however, when a weight of evidence approach is appropriate.

The criteria for classification of a substance as Acute 1 are defined on the basis of acute aquatic toxicity data only ( $EC_{50}$  or  $LC_{50}$ ). Note that, due to the typical use of water accommodated fractions (WAFs) for the dosing of hydrocarbon UVCBs into aquatic media, the toxicity data are reported as  $EL_{50}$  (effect loading) or  $LL_{50}$  (lethal loading) instead of  $EC/LC_{50}$  (effect concentration or lethal concentration). The criteria for classification of a substance into Chronic 1 to 3 follow a tiered approach where the first step is to see if available information on chronic toxicity merits long-term (chronic) hazard classification. With the implementation of the 2<sup>nd</sup> Adaptation to Technical Progress (ATP) to CLP, chronic toxicity data are used (if available) to determine chronic classification. In absence of adequate chronic toxicity data (i.e. data for all three trophic levels), the subsequent step is to combine two types of information, i.e. acute aquatic toxicity data and environmental fate data (degradability and bioaccumulation data).

The following tables provide classification cut-off values for environmental classification.

Short-term (acute) aquatic data available; adequate chronic data not available

log K <sub>ow</sub> and biodegradability	< 4 and rapidly biodegradable	≥ 4 and/or not rapidly biodegradable and/or the experimentally determined BCF ≥ 500			
Eco-toxicity Fish 96 h, Crustacea 48h, Algae 72/96h (mg/l)	LL/EL/ErL50 ≤ 1	LL50 ≤ 1	1 < LL50 ≤ 10	10 < LL50 ≤ 100	LL50 > 100
Classification	Acute 1	Chronic 1	Chronic 2	Chronic 3	Chronic 4

If adequate chronic data are available:

Biodegradability	Rapidly biodegradable			Not rapidly biodegradable	
Eco-toxicity (mg/l)	NOEL or EL <sub>x</sub> ≤ 0.01	0.01 < NOEL or EL <sub>x</sub> ≤ 0.1	NOEL or EL <sub>x</sub> ≤ 1	NOELR or EL <sub>x</sub> ≤ 0.1	0.1 < NOELR or EL <sub>x</sub> ≤ 1
Classification	Chronic 1	Chronic 2	Chronic 3	Chronic 1	Chronic 2

Justification for not classifying in Chronic Category 4 is based on measured BCF data ≤ 500 l/kg or a chronic toxicity value of > 1 mg/l. Since bio-concentration studies for Petroleum UVCB substances are not feasible, chronic studies at the limit of water solubility are required to support non classification.



## 4. NEW HAZARD CLASSES

The four new hazard classes introduced as an amendment to CLP Regulation (EU, 2023) are (in part 3 and 4 of Annex I):

- ED HH - Category 1 and Category 2 (Endocrine disruption for human health)
- ED ENV - Category 1 and Category 2 (Endocrine disruption for the environment)
- PBT (Persistent, Bioaccumulative, Toxic), vPvB (very Persistent, very Bioaccumulative)
- PMT (Persistent, Mobile, Toxic), vPvM (very Persistent, very Mobile)

While the PMT/vPvM hazards are new in EU legislation, the others are already partially covered in other regulatory areas: endocrine disruptors by Plant Protection Products and Biocidal Products Regulations and PBT/vPvB by REACH Regulation.

Companies need to comply with the new rules and update the classification and labelling as following:



An update of the Guidance on the Application of the CLP criteria (ECHA, 2024) - which includes the new hazard classes - was prepared and published in ECHA's website in November 2024.

### Endocrine disruption for human health

The Commission Delegated Regulation (EU) 2023/707 introduced new hazard classes. in part 3 of Annex I to CLP Regulation the new hazard class has been added: endocrine disruption for human health.

Endocrine disruptor means a substance or a mixture that alters one or more functions of the endocrine system and consequently causes adverse effects in an intact organism, its progeny, populations or subpopulations.

Classification shall be made on the basis of specific criteria and a weight of evidence determination of each of the criteria and an overall weight of evidence determination.

Classification as an endocrine disruptor for human health is made on the basis of an assessment of the total weight of evidence using expert judgment; this means that all available information that bears on the determination of endocrine disruption for human health is considered together.



Substances classified as a function of endocrine interference for human health shall be allocated to one of two categories.

<b>Category 1</b>	Known or presumed endocrine disruptors for human health
<b>Category 2</b>	Suspected endocrine disruptors for human health

Hazard class and category	H-statement	
ED HH 1	EUH380	May cause endocrine disruption in humans
ED HH 2	EUH381	Suspected of causing endocrine disruption in humans

### Endocrine disruption for the environment

“Endocrine disruption” means the alteration of one or more functions of the endocrine system caused by an endocrine disruptor - a substance or a mixture that alters one or more functions of the endocrine system and consequently causes adverse effects in an intact organism, its progeny, populations or subpopulations.

Classification shall be made on the basis of specific criteria and a weight of evidence determination of each of the criteria and an overall weight of evidence determination.

Classification as an endocrine disruptor for the environment is made on the basis of an assessment of the total weight of evidence using expert judgment; this means that all available information that bears on the determination of endocrine disruption for the environment is considered together.

Substances classified as a function of endocrine interference for the environment shall be allocated to one of two categories.

<b>Category 1</b>	Known or presumed endocrine disruptors for the environment
<b>Category 2</b>	Suspected endocrine disruptors for the environment

Hazard class and category	H-statement	
ED ENV 1	EUH430	May cause endocrine disruption in the environment
ED ENV 2	EUH431	Suspected of causing endocrine disruption in the environment

### Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative properties

A substance is considered a PBT substance when it fulfils the persistence, bioaccumulation and toxicity criteria simultaneously.

The CLP criteria for Persistence (P), Bioaccumulation (B) and Toxicity (T) are almost identical to the ones currently in Annex XIII of the REACH Regulation; the main difference is that according to the CLP a substance shall be considered to fulfil the toxicity criterion (T) if the substance meets the criteria for classification as endocrine disruptor for humans or the environment. Additional guidance on evaluating these properties also under CLP - i.e. how to compare evidence with the CLP criteria - is under development at ECHA.

This hazard class (Persistent, Bioaccumulative and Toxic (PBT) or Very Persistent, Very Bioaccumulative (vPvB) properties) shall apply to all organic substances, including organo-metals.

#### Persistence

The “Persistent” criterion (P) is fulfilled when any of the following conditions is met:

The degradation half-life in:				
marine water	fresh or estuarine water	marine sediment	fresh or estuarine water sediment	in soil
is higher than				
60 days	40 days	180 days	120 days	120 days

The “very Persistent” criterion (vP) is met when any of the following conditions is met:

The degradation half-life in:		
marine, fresh or estuarine water	marine, fresh or estuarine water sediment	in soil
is higher than		
60 days	180 days	180 days

#### Bioaccumulation

The “Bioaccumulative” criterion (B) is fulfilled when the bioconcentration factor (BCF) in aquatic species is higher than 2 000.

The “very Bioaccumulative” criterion (vB) is met when the bioconcentration factor (BCF) in aquatic species is higher than 5 000.

A substance shall be considered a vPvB substance when it fulfils both criteria for “very persistent” and “very bioaccumulative”.

#### Toxicity

The “Toxic” criterion (T) is met in any of the following situations:

- the long-term no-observed effect concentration (NOEC) or ECx (e.g. EC10) for marine or freshwater organisms is less than 0,01 mg/l;
- substance is classified carcinogenic (cat. 1A or 1B), germ cell mutagenic (cat. 1A or 1B), or toxic for reproduction (cat.1A, 1B, or 2) ;

- there is other evidence of chronic toxicity, as identified by the substance being classified as STOT RE category 1 or 2;
- the substance is classified as endocrine disruptor (category 1) for humans or the environment

Hazard class and category	H-statement	
PBT	EUH440	Accumulates in the environment and living organisms including in humans
vPvB	EUH441	Strongly accumulates in the environment and living organisms including in humans

### Persistent, Mobile and Toxic or Very Persistent, Very Mobile properties

A substance shall be considered a PMT substance when it fulfils the persistence, mobility and toxicity criteria simultaneously.

**Persistence** (P and vP) and **Toxicity** (T) criteria are the same as described above.

This hazard class (PMT and vPvM properties) shall apply to all organic substances, including organo-metals.

### Mobility

The “Mobile” criterion (M) is met when the log K<sub>oc</sub> is less than 3. For an ionisable substance, the mobility criterion shall be considered fulfilled when the lowest log K<sub>oc</sub> value for pH between 4 and 9 is less than 3.

The “very Mobile” criterion (vM) is met when the log K<sub>oc</sub> is less than 2. For an ionisable substance, the mobility criterion shall be considered fulfilled when the lowest log K<sub>oc</sub> value for pH between 4 and 9 is less than 2.

A substance shall be considered a vPvM substance when it fulfils both criteria for “very Persistent” and “very Mobile”.

Hazard class and category	H-statement	
PMT	EUH450	Can cause long-lasting and diffuse contamination of water resources
vPvM	EUH451	Can cause very long-lasting and diffuse contamination of water resources

## 5. SPECIAL CONSIDERATIONS FOR CONCAWE UVCB HYDROCARBON SUBSTANCES

UVCB hydrocarbon substances are complex combinations of individual hydrocarbons, which present a number of challenges when applying the methods and legislative criteria developed for the hazard classification of single chemical substances. The EU refiners has developed approaches and methodologies to characterise the hazard potential of their substances. These are described below along with other important considerations from CLP relating to the petroleum industry.

### 5.1. GROUPING/CATEGORY APPROACH

Refiners take feedstocks from many sources to process into valuable products. Historically these feedstocks have been crude oil and natural gas condensates but increasingly include alternative sources, such as fatty acid-based oils and fats, waste or byproduct bio-oils, the products of pyrolysis of biomass and waste plastics, and chemical feedstocks such as methanol.

In refining operations, feedstocks are subject to fractionation, conversion and treating processes that yield hydrocarbon substances. These hydrocarbon substances are complex combinations of hydrocarbons consisting predominantly of saturated, olefinic and aromatic hydrocarbons, but may also contain small amounts of nitrogen, oxygen and sulphur compounds. Hydrocarbon substances are used in a variety of applications, with the major proportion being used in the production of hydrocarbon transport fuels.

Due to their method of production and complex composition, it is not possible to characterise hydrocarbon substances in terms of their exact chemical composition, molecular formula or structure. They are grouped together according to the process by which they are being manufactured and basic physical-chemical properties. Similar conversion and/or separation processes will result in hydrocarbon substances of broadly similar composition. The resulting groups of hydrocarbon substances have been used by the European Commission for the purposes of compiling Annex 1 to the Existing Substances Regulation (published in the Official Journal L84 on 5 April 1993), Annex XVII of REACH and Annex VI of CLP. The groups have also been used during discussions on EU harmonised classification and labelling and for some endpoints (particularly carcinogenicity) harmonised 'group' classifications have been applied to individual hydrocarbon substances. In the USA, hydrocarbon substances have also been grouped in categories for the purposes of the High Production Volume (HPV) Chemicals programme. The approach is broadly similar to that used in Europe, and has been accepted by the US EPA.

Under REACH, it is possible to group together into the same category substances whose physicochemical, toxicological and ecotoxicological properties are likely to be similar or follow a regular pattern as a result of structural similarity.

The similarities may be based on any of the following:

- Common functional group (s) (e.g., aldehyde, epoxide, ester, specific metal ion, etc.);
- Common constituents or chemical classes, similar carbon chain length (e.g., for UVCBs);

- Common precursors and/or the likelihood of common breakdown products through physical and biological processes, which result in structurally similar chemicals (i.e. similarity through (bio) transformation);
- Constant pattern in the changing of the potency of the properties across the category (e.g., a category with increasing chain-length), often observed in physico-chemical properties such as boiling point range and/or biological properties.

For UVCB substances, structural similarity must be established on the basis of similarities in the structure of the constituents, together with the concentration of these constituents and the variability in the concentration of these constituents. However, “UVCBs” are often substances that cannot be sufficiently identified by the identification parameters in Annex VI, Section 2 to the REACH Regulation. UVCBs often cannot be sufficiently identified by their chemical composition, because the number of constituents is relatively large and/or the composition is, to a significant part, unknown and/or the variability of composition is relatively large or poorly predictable. On the other hand, there are UVCBs which are quite well characterised in terms of their composition. This adds further complexity to the category approach.

Furthermore, for a category approach, whether quantitative variations in the properties among the category members are observed or not must be taken into account as well.

However, structural similarity alone is not sufficient to justify the possibility to predict property(ies) of the target substance by read-across. A read-across hypothesis needs to be provided. This hypothesis establishes why a prediction for a toxicological, ecotoxicological or environmental fate property is possible and should be based on recognition of the structural aspects the chemical structures have in common and the differences between the structures of the source and target substances.

Once the category/grouping of substances is established, the most appropriate “scenario” (used as the basis for assessment) needs to be selected to address the appropriate scientific aspects of the case. The scenarios are developed for evaluating read-across prediction of properties and they may differ as they reflect different types of read-across approaches. Each scenario comprises a series of dedicated assessment elements (AEs) which represent crucial scientific aspects of the individual scenarios to be addressed during the assessment. A total of six scenarios are described in the ECHA Guidance on ‘Read-Across Assessment Framework (RAAF)’

In this report, the category approach has been applied to physical, toxicological and ecotoxicological endpoints for the purposes of hazard classification. To take account of the variable composition of UVCB hydrocarbon substances hazard properties of the category are determined, and a precautionary approach is used to assign the most severe potential hazard classification appropriate for the category, unless specific derogation conditions (designated by Notes or classification criteria) are met.

## 5.2. CLASSIFICATION AND LABELLING OF UVCB HYDROCARBON SUBSTANCES - ‘SPECIAL TESTING CONSIDERATIONS’

The inherent compositional variability of UVCB hydrocarbon substances means that use of conventional testing methodologies may not provide the most reliable data from which to derive hazard classification. This is particularly true for physical/chemical properties which are better characterized as ranges than single point values and for environmental

endpoints which are difficult due to the complex compositions of the substances and the variable water solubility of individual constituents. In contrast, the conventional toxicological testing methodologies can normally be used without modification.

For health and environmental testing of UVCB hydrocarbon substances, the outcome depends upon the nature and concentration of the substance to which the organism or test system is exposed. Testing methodologies have been modified to take these factors into account (e.g., the modified Ames test and Water Accommodated Fraction approach to aquatic toxicity testing). For the environment, models to predict aquatic toxicity of hydrocarbon UVCBs, based on Quantitative Structure Activity Relationships (QSARs), have recently become available. However, only experimental data are used to determine the classification of UVCB hydrocarbon substance categories following a worst case approach.

### **5.3. HARMONISED CLASSIFICATIONS**

The EU harmonised classification of UVCB hydrocarbon substances, where these are established, are included in Table 3 of Annex VI to CLP, which indicate the mandatory classification of substances, for the specified endpoints, according to CLP criteria. The harmonised classifications must be used, except where a regulatory Note applies (Annex VI, 1.1.3).

In addition, for hazard endpoints where no EU harmonised classification exists, this report provides proposals for the self-classification of UVCB hydrocarbon substances in the EU/EEA. This is in line with the provisions of Article 4 (3) of CLP.

### **5.4. SELECTION OF PRECAUTIONARY STATEMENTS**

CLP requires the allocation of selected precautionary statements (P-statements) for use on labels. These are standardised phrases describing the recommended handling measures required to minimise or prevent adverse environmental, health or physical effects resulting from exposure to a hazardous substance or mixture during its use or disposal.

Container labels should include relevant P-statements (as defined in CLP, Article 22). The complete set of P-statements associated with each specific hazard classification, can be found in CLP Annex I, as amended, parts 2 to 5.

The hazard classification of the substance determines the applicable P-statements. Normally, no more than six P-statements should appear on the label, unless necessary to reflect the nature and the severity of the hazards. Guidance on the selection of P-statements has been published by ECHA (ECHA, 2021). This guidance identifies each P-statement for each hazard class and category as either: Highly Recommended, Recommended or Optional, and indicates that suppliers need to allocate statements based on knowledge of substance use and hazard profile.

When a hazardous substance is supplied to the general public, one P-statement addressing the disposal of that substance or mixture as well as the disposal of packaging shall appear on the label. However, a P-statement addressing disposal shall not be required when it is clear that the disposal of the substance or the packaging does not present a hazard to human health or the environment.

CLP (Annex IV) lists the correct wording of the P-statements as they should appear on the label. H- and P-statements should be grouped together on the label.

Furthermore, flexibility in the application of precautionary phrases is provided, by possible combinations or consolidations of listed P-statements if deemed to ensure

improved readability, clarity and comprehensibility of label information. Also, P-statements on labels or in safety data sheets may incorporate minor textual variations from those set out in Annex IV provided that they assist in communicating safety information and the safety advice is not diluted or compromised (e.g. spelling variations, synonyms or equivalent terms appropriate to the region where the product is supplied and used; EU, 2019).

In the category specific recommendations in this report, all associated P-statements are shown for completeness. Those selected statements have been recommended by Concawe for the label.

Please note that several P-statements (e.g., P210, P241, P264, P280, P321, P501, etc.) are incomplete and require the manufacturer/supplier to supplement the phrase with the required information.

## 5.5. REGULATORY AND OIL INDUSTRY NOTES

The preferred method for hazard classification of UVCB hydrocarbon substances is to use data on the UVCB substance itself, where available (see examples in **Appendix 4**). For certain human health hazard endpoints classification is driven by the presence of specific hazardous constituents that are themselves classified, and for which general or specific concentration limits exist. An example is the classification of naphtha petroleum streams as carcinogens on the basis of their benzene content.

For some categories of UVCB hydrocarbon substances, ‘markers’ have been identified which take into account the variable compositions of UVCB hydrocarbon substances; for these substances, human health hazard classification is addressed by the use of “Notes”. The regulatory Notes, as laid down in Annex VI to CLP, are applicable to the classification of certain UVCB hydrocarbon substances as described in **Appendix 2**.

It is important to recognise that these regulatory Notes only apply to specific UVCB hydrocarbon substances in Annex VI to CLP. In addition to the regulatory Notes, Concawe has developed a series of Oil Industry Notes (OIN), which also deal with hazardous properties which may be associated with UVCB hydrocarbon substances and need to be considered when determining the hazard classifications. As a worst-case, the most severe hazard classifications must be applied, unless the conditions of the OIN have been met. This is consistent with the approach used with the regulatory Notes. The OINs are also listed in **Appendix 2**.

For example, regulatory Note P applies to most of the CAS RNs in the Low Boiling Point Naphthas (Gasoline) Category that appear in Annex VI. OIN P was developed for the remaining CAS RNs in the Low Boiling Point Naphthas (Gasoline) Category not covered by the regulatory Note P.

Additionally, new OINs are developed for the C&L permutations based on cumene content for Kerosines (Kerosine) Category as well as for substances in Low Boiling Point Naphthas (Gasoline) Category when the regulatory Note P or OIN P apply (benzene content <0,1%w/w).

## 6. GLOSSARY

ATPs	Adaptations to Technical Progress
CLP	Classification, Labelling and Packaging
DMSO	dimethyl sulfoxide
EC	Effect Concentration
ECHA	European Chemicals Agency
EL	Effect Level
EUH	supplemental hazard statements
GLP	Good Laboratory Practice
ILO	International Labour Organization
IUCLID	International Uniform Chemical Information Database
LC	Lethal Concentration
LD	Lethal Dose
LL	Loading Level
LOAEL	Lowest Observed Adverse Effect Level
LOEL	Lowest Observed Effect Level
M factor	Multiplying factor
MI	Mutagenicity Index
MLA	Mouse Lymphoma Assays
NOAEL	No Observed Adverse Effect Level
NOEL	No Observed Effect Level
NOELR	No Observed Effect Loading Rate
OECD	Organization for Economic Cooperation and Development
OIN	Oil Industry Note
PAC	Polycyclic Aromatic Compounds
PAHs	Polycyclic Aromatic Hydrocarbons
QSARs	Quantitative Structure Activity Relationships
RE	Repeated Exposure
REACH	Registration, Evaluation and Authorisation of Chemicals
SDSs	Safety Data Sheets



SE	Single Exposure
SIEF	Substance Information Exchange Fora
STOT	Specific Target Organ Toxicity
UNCED	United Nations Conference on the Environment and Development
UN GHS	United Nations Global Harmonised System
UNSCGHHS	United Nations Sub-Committee of Experts on the Global Harmonized System
UNSCETDG	United Nations Sub-Committee of Experts on the Transport of Dangerous Goods
UVCB substances	Substances of Unknown or Variable composition, Complex reaction products or Biological materials

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EU (2021b) Commission Delegated Regulation (EU) 2021/849 of 11 March 2021 amending, for the purposes of its adaptation to technical and scientific progress, Part 3 of Annex VI to Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures; Official Journal of the European Union No. L188, 28.05.2021 (17<sup>th</sup> ATP to CLP)

EU (2022) Commission Delegated Regulation (EU) 2022/692 of 16 February 2022 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures; Official Journal of the European Union No. L 129, 3.5.2022 (18<sup>th</sup> ATP to CLP)

EU (2023a) Commission Delegated Regulation (EU) 2023/707 of 19 December 2022 amending Regulation (EC) No 1272/2008 as regards hazard classes and criteria for the classification, labelling and packaging of substances and mixtures Official Journal of the European Union No. L 93, 31.3.2023

EU (2023b) Commission Delegated Regulation (EU) 2023/1434 of 25 April 2023 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures as regards the addition of notes to Part 1, section 1.1.3, of Annex VI; Official Journal of the European Union No. L 176, 11.07.2023 (19<sup>th</sup> ATP to CLP)

EU (2023c) Commission Delegated Regulation (EU) 2023/1435 of 2 May 2023 amending Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures as regards the modification of entries in Part 3 of Annex VI for 2-ethylhexanoic acid and its salts, boric acid, diboron trioxide, tetraboron disodium heptaoxide hydrate, disodium tetraborate anhydrous, orthoboric acid sodium salt, disodium tetraborate decahydrate, and disodium tetraborate pentahydrate; Official Journal of the European Union No. L 176/6, 11.07.2023 (20<sup>th</sup> ATP to CLP)

EU (2024a) Commission Delegated Regulation (EU) 2024/197 of 19 October 2023 amending Regulation (EC) No 1272/2008 as regards the harmonised classification and labelling of certain substances; Official Journal of the European Union No. L 2024/197, 05.01.2024 (21<sup>st</sup> ATP to CLP)

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## 8. CLASSIFICATION AND LABELLING RECOMMENDATIONS

The classification and labelling recommendations found in the following sections reflect the ‘default’ hazard classifications that are recommended for all substances in the category. Concawe has decided to define the default as the most severe classification for the category based on the identified hazards. In order to ‘downgrade’ to a less severe classification, it is necessary to ensure that the appropriate classification criteria and/or conditions specified in the applicable regulatory Notes and Oil Industry Notes have been satisfied. If a less severe classification is applied, this will reduce the number of H- and P-Statements, which will change the information that needs to appear in the safety data sheets and on the labels.

This report provides a framework to achieve an industry harmonised hazard classification for UVCB hydrocarbon substances in the EU, where appropriate. Concawe recommends that Companies apply the ‘default’ hazard classifications included in this report and only vary the classification if the conditions of the regulatory and Oil Industry Notes are met.

### 8.1. CRUDE OILS (CRUDEOIL)

**Definition / Domain:** Raw petroleum extracted in natural state from the ground is a complex combination of hydrocarbons containing predominantly aliphatic, alicyclic, and aromatic hydrocarbons within carbon number range from C4 to C60+. It may also contain small amounts of nitrogen, oxygen, and sulphur compounds. It may also contain parts-per-million of organometallic complexes, especially of nickel and vanadium, and dissolved gases, such as hydrogen sulfide.

Similar constituents are present in all Crudeoil but their proportions can vary widely depending on the source.

As shown in **Appendix 1**, in spite of the complex composition, Crudeoil is assigned a single EC number (232-298-5); if not chemically modified, it is exempt from REACH registration but still subject to CLP notification.

#### Part 1 - Classification Endpoint Rationale / Data Summary

##### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Crudeoil is liquid.

**Aerosol:** Not relevant - Crudeoil is liquid.

**Flammable Liquid:** Crudeoil is liquid, with flash point < 23°C and initial boiling point ≤ 35°C as well as spanning the range to flashpoints >60°C.

**Flammable Solid:** Not relevant - Crudeoil is liquid.

**Oxidising Gas:** Not relevant - Crudeoil is liquid.

**Oxidising Liquid:** Crudeoil is not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - Crudeoil is liquid.

**Pyrophoric Liquid:** Crudeoil does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - Crudeoil is liquid.



**Self-reactive Substance:** Crudeoil is not self-reactive. It does not undergo exothermic decomposition when heated.

**Self-heating Substance:** Crudeoil does not react exothermically.

**Gas under Pressure:** Not relevant - Crudeoil is liquid.

**Organic Peroxide:** Crudeoil does not meet the definition of a peroxide.

**Corrosive to Metal:** Crudeoil does not meet the criteria for corrosion of metal.

**Substance which in contact with water emits flammable gas:** Crudeoil does not react with water.

**Desensitised Explosives:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Crude oils have been tested for acute toxicity and were associated with low toxicity in all species via a variety of routes and endpoints. The results indicate that acute exposures to crude oils did not produce significant systemic toxicity by the dermal route (Mobil 1984a,b,c,d,e,f; Mobil 1990a,b):

Rabbit dermal                      LD<sub>50</sub> > 2000 mg/kg<sub>bw</sub>

Exploration, production, and transport of crude oil can result in significant levels of hydrogen sulfide and/or VOCs in some situations (i.e., enclosed spaces). The acute inhalation hazard of Crudeoil is primarily from hydrogen sulfide. The inhalation acute toxicity of hydrogen sulfide assessed in rats, resulted in a calculated LC<sub>50</sub> for a 4-hour inhalation exposure of 444 ppm. Volatile organic compounds from Crudeoil are similar to the hydrocarbons found in gasoline blending streams; for these, testing results indicate no acute toxicity by inhalation exposure route (API 2011):

Rat inhalation      LC<sub>50</sub> > 5000 mg/m<sup>3</sup> (in the absence of hydrogen sulfide)

The oral route toxicity of crude oils has also been studied, but it is considered an unrealistic route of administration (API, CAD for Crude Oil). Also, due to the extremely high doses used, the Petroleum HPV Testing Group recommends that they not be used for hazard or risk evaluation of crude oil. Results of these testing indicate the following (Mobil 1984a,b; Mobil 1985a,b; Mobil 1990a,b):

Rat oral                                      LD50 > 5000 mg/kgbw

**Skin Corrosion / Irritation:** Skin irritation was tested in rabbits and the results indicate that acute exposures to crude oils induced only minimal skin irritation (Mobil, 1984a,b; 1985a,b; 1990a,b). Upon repeated exposure Crudeoil may cause skin dryness or cracking (Mobil 1985d,e,f; Mobil 1990a,b).

**Serious Eye Damage / Eye Irritation:** Data indicate Crudeoil has the potential to cause eye irritation, as evidenced in rabbit studies by the presence of redness of the conjunctiva at 24 hours with a score of 3.7 (Mobil 1985a,b; Mobil 1990a,b).

**Respiratory or Skin Sensitization:** Evaluation of Crudeoil for dermal sensitization in the guinea pig, using the Buehler method, indicates that it was unlikely to cause sensitization (Mobil 1991a,b).

**Germ Cell Mutagenicity:** In vitro gene mutation has been demonstrated in bacterial assays for extracts of a variety of crude oils (Mobil, 1984; Mobil, 1990c). Predictive modeling based on analytical determination of their PAC profile also demonstrates that crude oil is typically expected to be an in vitro mutagen and potential dermal carcinogen (Roy et al. (1985; 1988)). Generally, standard in vitro tests performed without extraction or optimization of test conditions with crude oils in bacterial or mammalian cells did not demonstrate genetic toxicity (Petrilli et al., 1980; Lockard et al., 1982; Vandermeulen et al., 1985).

The "in vivo" micronucleus assay does not demonstrate cytogenetic activity from crude oil exposure either by the dermal route, the most relevant to man, or by the more extreme intraperitoneal route (Mobil, 1990c; 1991e; Lockard et al., 1982). The results of micronucleus tests on a range of petroleum HPV category substances in addition to crude oil support the conclusion that clastogenic effects are unlikely to be induced by crude oils. (McKee et al, 2010).

**Carcinogenicity:** The carcinogenicity of Crudeoil has been tested in mouse skin painting studies. Based on the available data Crudeoil is considered to be carcinogenic. (Lewis *et al*, 1984; Clark *et al*, 1988; Renne *et al*, 1981).

Numerous studies have shown that the mutagenic and carcinogenic potential of complex petroleum-related substances, all of which are derived from crude oil, correlates with the presence of 3-7 ring PAC (Roy et al, 1988; Blackburn et al., 1984; Cruzan et al., 1986; Blackburn et al., 1986). Further studies have shown these PAC can be absorbed through the skin and enter the general circulation (Roy et al., 1996; Roy et al., 1998).

**Reproductive Toxicity:** Crudeoil is not expected to produce significant reproductive toxicity since long-term repeated dermal exposures have not produced adverse effects in the sperm or the reproductive organs of the rats (Mobil 1992a, b; Feuston *et al*. 1997). The same was observed for inhalation exposure studies, were no specific adverse effects on male or female reproductive organs were produced (Dorman et. al., 2000; Dorman et. al., 2004).

#### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity, other than a potential to cause narcosis / CNS depression at higher exposure concentrations (Mobil 1984a,b,c,d,e,f; Mobil 1985a,b,c,d,e,f; Mobil 1990a,b).

**Repeated Exposure:** Repeated exposure to Crudeoil by the oral or dermal routes has demonstrated systemic toxicity. Target tissues were blood, liver, spleen and thymus (Leighton 1990; Feuston *et al*. 1994,1997; Mobil 1992a,b).

**Aspiration hazard:** Crudeoil is liquid with viscosity values  $\leq 20.5$  mm<sup>2</sup>/s or  $> 20.5$  mm<sup>2</sup>/s at 40°C, meeting the classification criteria of the CLP Regulation ((EC) No. 1272/2008) (EU, 2008) for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies in fish, invertebrates and algae on samples of Crudeoil were performed. A generalization of the acute aquatic toxicity based on the data indicates that when based on total crude oil loadings in water, aquatic invertebrates are more sensitive than fish to crude oil exposure, and the lowest EL50 values may approach 10 mg/L. The lowest acute EL50 among the cited studies was 12.48 mg/L (Rhoton, 1999). When toxicity endpoints are based on measured concentrations of hydrocarbons in the dissolved phase of the exposure solutions, aquatic invertebrates still appeared to be more sensitive than fish or algae. The lowest EC50 value was 0.56 mg/L (Fuller and Bonner, 2001). All acute endpoints for fish were  $>1$  mg/L when based on measured dissolved hydrocarbons. For algae, one test endpoint yielded an EC50 of 0.94 mg/L, but other data all fell within the range of 6 to 11 mg/L. In general, aquatic toxicity of crude oil is not likely to be any greater than that represented by the most toxic fraction. For concentrations presented as loading rates, acute toxicity could potentially fall within the range of 1 - 10 mg/L.



Acute aquatic toxicity studies in fish, invertebrates and algae on samples of Crudeoil show acute toxicity values greater than 1 mg/l and mostly in the range of 2 - >100 mg/l. These tests were carried out on the water accommodated fraction (EMBSI 2002 a,b; Concawe 2001).

**Long-term (chronic) Aquatic Hazard:** A review of data published in the scientific literature indicates that chronic adverse effects to aquatic organisms are caused by exposure to crude oil, and the effects cover a range of chronic toxicity endpoints such as growth, embryo and larval survival, fecundity, gametophyte viability, developmental processes, cardiac arrhythmia, and osmoregulation (Pollino and Holdway, 2002; Perkins et al., 2003; Holdway, 2002; Din and Abu, 1992; Moffitt et al., 1992; Rhodes et al., 2005; Lockhart et al., 1996; Incardona et al., 2009). Chronic toxicity values vary with species and type of exposure, e.g., WAF, WSF, etc., but adverse effects have been reported at WAF loading rates of <1 mg/L.

There are no chronic toxicity studies available for Crudeoil, and QSAR toxicity predictions are not used to determine environmental classification.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Crudeoil is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance. Crudeoil is not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of Crudeoil show predicted values for log  $K_{ow}$  ranging from less than 4 to greater than 6 and are considered potentially bioaccumulative. **Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data

### Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the 'worst-case' C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

Due to the variability of crude oil composition, the environmental toxicity may differ from that given below; therefore, crude oils can be classified using specific experimental data on the actual type of crude oil under consideration.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.

Hazard class	Hazard category	Hazard statement
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P331: Do NOT induce vomiting.  
P337 + P313: If eye irritation persists: Get medical advice/attention.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.2. LOW BOILING POINT NAPHTHAS (GASOLINES) (NAPHTHA)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced, the predominant hydrocarbon classes present, the boiling point range and the carbon number range as follows:

- Derived from crude petroleum or separated as a liquid from natural gas.
- Refinery processes
  - atmospheric distillation
  - alkylation
  - isomerisation
  - catalytic cracking
  - thermal cracking
  - catalytic reforming
  - (catalytic) polymerisation
  - sweetening / mercaptan conversion
  - neutralisation
  - solvent extraction
  - blending
  - hydrotreatment / hydrodesulfurisation
  - hydrocracking
  - coking
- Hydrocarbon types: saturated, olefinic, aromatic
- Typical boiling point range: approximately 25°C to 200°C
- Typical carbon number range: predominantly C<sub>4</sub> to C<sub>12</sub>

Appendix 1 lists only those Naphtha substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Naphtha substances are liquids.

**Aerosol:** Not relevant - Naphtha substances are not in aerosol form.

**Oxidising Gas:** Not relevant - Naphtha substances are liquids.

**Gas under Pressure:** Not relevant - Naphtha substances are liquids.

**Flammable Liquid:** Naphtha substances are flammable liquids of variable flash point / initial boiling points.

**Flammable Solid:** Not relevant - Naphtha substances are liquids.

**Self-reactive Substance:** Naphtha substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Naphtha substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - Naphtha substances are liquids.

**Self-heating Substance:** Naphtha substances do not react exothermically.



**Substance which in contact with water emits flammable gas:** Naphtha substances do not react with water.

**Oxidising Liquid:** Naphtha substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - Naphtha substances are liquids.

**Organic Peroxide:** Naphtha substances do not meet the definition of a peroxide.

**Corrosive to Metals:** Naphtha substances are liquids and do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of gasoline and other naphtha substances have been tested in acute oral, dermal and inhalation studies. The results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (UBTL, 1986a).
Rat inhalation (vapour)	LC <sub>50</sub> > 5610 mg/m <sup>3</sup> air (analytical) (UBTL, 1992).
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (UBTL, 1986b).

Although these studies were conducted many years ago, they were generally conducted in accordance with regulatory guidelines and good laboratory practice recommendations. The data is thus considered adequate for regulatory purposes and no additional testing is warranted.

Especially for the acute inhalation toxicity, it is acknowledged that the key study was only tested up to a targeted nominal concentration of 5 mg/L (at the time the study was conducted, the recognised limit value). This study, along with the weight of evidence from supporting studies, show no mortality at this dose level. Additionally, there are two inhalation repeated tox studies of good reliability where rats were exposed 6 hours per day for 13 weeks to vapor concentration of naphtha up to levels of 20 mg/L, with no treatment related mortalities. Therefore, no classification for acute inhalation toxicity is warranted.

**Skin Corrosion / Irritation:** Samples of gasoline and a number of other naphtha streams have been tested in New Zealand White rabbit skin irritation studies. The majority of the data were derived using a 24 hour occluded exposure protocol. The degree of dermal irritation observed was variable, ranging from slight to moderate/severe, normally persisting for up to 14 days. There was no evidence of skin corrosion when applied to rabbit skin. Heavier, aromatic materials caused more irritation than lighter, paraffinic streams (API, 1995).

The data can be used without restriction for regulatory purposes and support the classification of gasoline and naphtha streams as Skin Irrit. 2; H315 according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Serious Eye Damage / Eye Irritation:** The effects of gasoline and naphtha streams have been investigated in New Zealand White rabbits' eyes using a number of samples. There is some evidence of eye irritation associated with vapor exposure at levels equal to and greater than 200 ppm, but the effects were mild, and the dose-response information was not conclusive. There was very little evidence of irritation when these materials were instilled into rabbit eyes (UBTL, 1985).

Gasoline and naphtha streams do not meet the criteria for classification as an eye irritants according to the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Respiratory or Skin Sensitization:** Tests in guinea pigs with gasoline and a number of other Naphtha streams showed no evidence of skin sensitization (UBTL, 1986c). There are no reports available to indicate that Gasoline or other Naphtha streams have the potential to cause respiratory sensitization.



The data can be used without restriction for regulatory purposes and does not support classification as a sensitiser according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Germ Cell Mutagenicity:** The mutagenic potential of gasoline and other naphtha substances has been extensively studied in a range of *in vivo* and *in vitro* assays. Although blended gasoline was not mutagenic, either with or without metabolic activation, in *in vitro* test systems, the naphtha streams produced mixed results in *in vitro* gene mutation assays but negative results in *in vivo* assays. The majority of the studies showed no evidence of mutagenic activity (API, 1977; Phillips Petroleum Company, 1985; API, 2005 by Huntingdon Life Sciences Laboratory).

Gasoline and other naphtha streams can contain benzene, a constituent that is classified as a germ cell mutagen. Although the data does not support classification of gasoline per se for genotoxic potential according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008), there is a regulatory requirement to classify as genotoxic the gasoline and naphtha streams containing  $\geq 0.1\%$  w/w benzene.

**Carcinogenicity:** The carcinogenic potential of gasoline and other naphtha substances has been investigated in rats and mice following inhalation exposure for 2 years. In rats, there was an increased incidence of kidney tumours in males and in mice there was an increased incidence of liver tumours in females (Kitchen, 1984; IRDC, 1984). Further work has shown that these tumours are sex and species specific and are not considered relevant to humans (Short *et al.*, 1989). Results of 2 year skin painting studies with gasoline and naphtha blending streams have shown either no or weak potential (low incidence and long latent period) for the development of skin tumours. Additional work has shown that where tumours arise they are most likely a result of a non-genotoxic response due to dermal irritation (API, 1983).

Gasoline and other naphtha streams can contain benzene, a constituent that is classified as a human carcinogen. According to EU CLP Regulation ((EC) No. 1272/2008 (EU, 2008)), the data does not support classification of gasoline per se for carcinogenic potential, although there is a regulatory requirement to classify as carcinogenic the gasoline and naphtha streams containing  $\geq 0.1\%$  w/w benzene and/or cumene.<sup>5</sup>

**Reproductive Toxicity:** Results of guideline developmental toxicity studies on gasoline and OECD developmental toxicity screening studies with other naphtha substances showed no evidence of developmental toxicity in Sprague-Dawley rats (Roberts *et al.*, 2001; Mobil, 1988). Similarly, studies in Sprague-Dawley rats with gasoline did not show any effect on fertility performance (McKee *et al.*, 2000; Research Pathology Services, 1998).

Gasoline and other naphtha streams can contain amounts of toluene and/or n-hexane, constituents that are classified as reprotoxicants. Although the data does not provide a basis for classification of gasoline per se for reproductive toxicity potential according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008)) and there is no need for additional reproductive toxicity studies to be conducted, there is a regulatory requirement to classify as reprotoxic the gasoline and naphtha streams containing  $\geq 3\%$  w/w toluene and/or n-hexane.

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity, other than a potential to cause narcosis / Central Nervous System (CNS) depression at higher exposure concentrations (Drinker *et al.*, 1943; Davis *et al.*, 1960).

**Repeated Exposure:** The repeat dose toxicity of gasoline and other naphtha streams has been studied in rats following oral, inhalation and dermal exposure for periods between 10 days and up to 2 years. The effects of repeated inhalation exposure of primates to gasoline have also been studied. No adverse effects were observed via oral route (Halder *et al.*, 1985). Repeated inhalation exposure causes 'light hydrocarbon nephropathy' in male rats, an effect which is

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<sup>5</sup> The 18th ATP upgrades the harmonised classification of cumene as Carcinogenic 1B by 1<sup>st</sup> December 2023. The impact on Concawe kerosine and naphtha dossiers has been assessed, and the Concawe classification recommendations are included in the report, as the revised dossiers are released.

considered to be both sex and species specific (MacFarland *et al.*, 1984, Kuna and Uhlrich, 1984). Dermal studies indicate that gasoline has a very low potential for systemic toxicity. However, repeated treatment at high levels can produce severe dermal effects at the application site (API, 1983; UBTL, 1986d).

According to EU CLP regulation ((EC) No.1272/2008) (EU, 2008), the classification for repeated exposure systemic toxicity is only warranted when naphtha streams contain  $\geq 10\%$  w/w benzene. See also **Appendix 4**, which provides some additional context relating to the lack of classification of Low Boiling Point Naphthas containing  $\geq 1\%$  w/w but  $< 10\%$  w/w benzene for STOT Repeated Exposure.

In addition, Concawe believes that dermal is the most relevant exposure route. However, the primary objective of the testing required for REACH is the identification of hazard, for which the default exposure route under the regulation is oral as this is considered to maximise systemic exposure. To address the regulatory exposure route issue, Concawe will also conduct a number of oral OECD 422 studies on prioritized substances in each relevant category.

**Aspiration Hazard:** Gasoline and other naphtha substances are low viscosity mobile hydrocarbon liquids with a kinematic viscosity at 40°C of  $< 20.5$  mm<sup>2</sup>/s, meeting the classification criteria of the CLP Regulation ((EC) No. 1272/2008) (EU, 2008) for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Acute (short-term) Hazard:** Acute aquatic toxicity studies with fish, invertebrates and algae on samples of gasoline and other naphtha substances show acute toxicity values in the range 1-10 mg/l. These tests were carried out on water accommodated fractions and in closed systems to prevent evaporative loss (EBSI 1995a,b,c; Concawe, 1996; Petroleum Product Steward Council, 1995).

**Long-term (chronic) Aquatic Hazard:** Chronic toxicity studies on invertebrates (daphnia) exposed to naphtha substances are available, with a lowest NOELR (21 days) value of 2.6 mg/l. This data has been applied as read across for the chronic fish toxicity (Springborn Laboratories, 1999a). The NOELR for algae was determined to be 0.5mg/l (Concawe, 1995).

The low boiling point naphthas meet the criteria for classification as toxic to aquatic life with long lasting effects; H411 according to the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008)).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Naphtha substances are hydrocarbon UVCBs. Standard tests for biodegradation / bioaccumulation are intended for single substances and are not appropriate for complex substances. They are characterized using quantitative structure property relationships for representative hydrocarbon structures that comprise the hydrocarbon blocks used to assess the environmental risk with the PETRORISK model. Based on compositional information available and measured or predicted data on key constituents, gasoline and other naphtha substances are not expected to meet the criteria for ready degradability but are inherently biodegradable (Solano-Serena *et al.*, 1999; Springborn Laboratories, 1999b,c,d). Calculated log Pow values for constituents of naphtha substances, range between 1.99 and 18.02. Calculated BCF values for constituents of naphtha substances range between 0.4 and 6280 l/kg and they are considered as potentially bioaccumulative (BCFBAF, 2012).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

## 1.4 Additional Hazards

Hazardous to the Ozone Layer: No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

### Hazard pictogram:



### Hazard statements:

H224: Extremely flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*):  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

To provide flexibility in the application of precautionary phrases, combinations or consolidations of precautionary statements are encouraged to save label space and improve readability. The matrix and the Tables in Part 1 of this Annex include a number of combined precautionary statements. However, these are only examples and suppliers may further combine and consolidate phrases where this contributes to clarity and comprehensibility of label information in accordance with Articles 22 and 28(3).

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water / ... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**In accordance with Annex VI of the CLP Regulation (inclusion from 5<sup>th</sup> ATP to CLP), the following additional classification applies only to the substance with EC No 265-185-4, CAS No 64742-82-1.**

Hazard class	Hazard category	Hazard statement
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Central nervous system	H372: Causes damage to central nervous system through prolonged or repeated exposure.

**Note:** Additional classification and labelling STOT RE 1 applies case-by-case if benzene content is >10% in Naphtha category substances.

Additional precautionary statements associated to this additional classification are:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions*)

P270: Do not eat, drink or smoke when using this product.

P314: Get medical advice/attention if you feel unwell.

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### 8.3. Kerosines (Kerosine)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced. The distillation range of Kerosine substances is such that components of specific toxicological concern such as benzene (boiling point 80 °C) and n-hexane (boiling point 69 °C) are typically only present at trace concentrations. The boiling points of 3 to 7 fused-ring polycyclic aromatic hydrocarbons (PAHs) are above the boiling range of Kerosine substances.

- Derived from crude petroleum
- Refinery processes:
  - atmospheric distillation
  - catalytic cracking
  - thermal cracking
  - hydrocracking
  - hydrotreatment / hydrodesulfurization
  - sweetening / mercaptan conversion
  - catalytic reforming
  - coking
- Hydrocarbon types: the major components include branched and straight chain paraffins and naphthenes (cycloparaffins), and aromatic hydrocarbons (alkylbenzenes and alkylnaphthalenes).
- Typical boiling point range: approximately 90 °C to 320 °C
- Typical carbon number range: predominantly C<sub>6</sub> to C<sub>17</sub>

Appendix 1 lists only those Kerosine substances with active registrations at the time of issuing this report.

#### Part 1 - Classification Endpoint Rationale / Data Summary

##### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Kerosine substances are liquids.

**Aerosol:** Not relevant - Kerosine substances are not in aerosol form.

**Oxidising Gas:** Not relevant - Kerosine substances are liquids.

**Gas under Pressure:** Not relevant - Kerosine substances are liquids.

**Flammable Liquid:** Kerosine substances are liquids of variable flash point. Typically with a flash point range of  $\geq 23^{\circ}\text{C}$  and  $\leq 70^{\circ}\text{C}$ .

**Flammable Solid:** Not relevant - Kerosine substances are liquids.

**Self-reactive Substance:** Kerosine substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Kerosine substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - Kerosine substances are liquids.

**Self-heating Substance:** Kerosine substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** Kerosine substances do not react with water.

**Oxidising Liquid:** Kerosine substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - Kerosine substances are liquids.

**Organic Peroxide:** Kerosine substances do not meet the definition of a peroxide.

**Corrosive to Metals:** Kerosine substances are liquids and do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of Thermocracked kerosine, Straight run kerosine and other kerosine substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (ARCO, 1992c)
Rat inhalation (vapour)	LC <sub>50</sub> > 5.28 mg/l (API, 1987)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (ARCO, 1992b)

**Skin Corrosion / Irritation:** Samples of Kerosine / heating oil have been tested in rabbit skin irritation studies. These animal studies demonstrate that kerosine was found to be irritating to rabbit skin (similar to OECD) (ARCO 1986). The degree of irritancy is substance-, dose- and exposure-time and methodology dependent. The kerosines and jet fuels range from essentially non-irritating after 4 hours of semi-occlusive exposure to severely irritating after 24 hours of occluded exposure. There was no evidence of skin corrosion.

**Serious Eye Damage / Eye Irritation:** The effects of Thermocracked kerosine, Jet Fuel and other Kerosine substances on the eye have been investigated in rabbits using a number of samples. These tests indicate that none of the kerosines and jet fuels tested were more than slightly irritating to the eyes ((ARCO, 1992e).

**Respiratory or Skin Sensitization:** Tests in guinea pigs with Thermocracked kerosine and a number of other Kerosine substances showed no evidence of skin sensitization (ARCO, 1992d). There are no reports available to indicate that Jet Fuel or other Kerosine substances have the potential to cause respiratory sensitization.

**Germ Cell Mutagenicity:** The mutagenic potential of Hydrodesulfurised kerosine and other Kerosine substances has been extensively studied in a range of *in vivo* and *in vitro* assays. All *in vitro* assays were negative for genotoxicity, except for one assay done with straight run kerosine which was positive (similar to OECD 471, 476, 479). All *in vivo* chromosome aberration and dominant lethal assays were negative for genotoxicity (OECD 475, 478), while one *in vivo* sister chromatid exchange assay (modified OECD 479) was positive for genotoxicity in male, but not in female mice. Because most studies were negative and the data on various individual components of kerosines and jet fuels were negative, the overall conclusion is that kerosines and jet fuels are not mutagenic or genotoxic. (API, 1973; API, 1977; API, 1978; API, 1979; API, 1980; API, 1984; API, 1985; API, 1988; Mobil, 1991; Concawe, 1991; Blackburn 1986; Blackburn, 1994)

**Carcinogenicity:** Kerosine is not carcinogenic when animals are exposed via the oral or inhalation route. However, chronic skin contact with kerosines and jet fuel may lead to tumour formation as a consequence of repeated cycles of irritation, skin damage and repair. Jet fuels and kerosines were not found to be mutagenic or genotoxic, and the observations from animal studies confirm the non-genotoxic nature of the skin tumour formation. Although dermal irritation alone seems not sufficient to cause dermal tumourigenicity, studies clearly show that dermal irritation and inflammation are prerequisites for dermal carcinogenicity. In studies where dermal irritation and/or inflammation were prevented but other factors, such as dermal uptake of polycyclic aromatic compounds were kept

identical, no skin tumours were observed. Based on this data, kerosines are classified as non-carcinogenic (EBSI, 1996; Freeman JJ *et al*, 1993; Clark CR *et al*, 1988; API, 1989a; API, 1989b; NTP, 1986; Blackburn GR *et al*, 1986; Concawe, 1996).<sup>6</sup>

Some Kerosines may require classification for carcinogenicity based on the content of cumene they contain. Where cumene is present at 0.1 wt% or more as a constituent in kerosines, the substances are classified as Carc. 1B H350.

**Reproductive Toxicity:** In accordance with Section 1.2 of REACH Annex XI, testing does not appear to be scientifically necessary as the weight of evidence indicates no concern for developmental toxicity effects from Kerosenes. This is based on the lack of activity observed in several similar substances.

In a reproductive/developmental toxicity screening study reported in IUCLID (Schreiner *et al.*, 1997), Sprague Dawley rats were treated dermally with hydrodesulfurised kerosine for a minimum of 6 hours, 7 days/week beginning 14 days pre-mating, during the 14-day mating period and through 20 days of gestation. There is no offspring LOAEL, based on the lack of any effects noted in the offspring. Other developmental toxicity study (Cooper and Mattie, 1996) was also performed in Sprague Dawley rats. The test compound did not significantly increase the incidence of malformations or variations compared to the control nor was the sex ratio altered. Other studies also confirm the lack of developmental toxicity in similar petroleum streams (Sasol, 1995; ExxonMobil 1980; Boogaard *et al* 2017).

Taken together it is considered that the above provides sufficient evidence to conclude that Kerosenes are unlikely to alter foetal development.

#### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of target organ toxicity (ARCO, 1992c; API, 1987; ARCO, 1992b). In 2011, ECHA's Committee for Risk Assessment (RAC) issued an opinion stating that certain petroleum substances in the Naphtha and Kerosine categories presented a hazard of chronic toxicity to the central nervous system. As other Kerosine substances can have composition ranges significantly overlapping those of the substances specified in the Opinion, the advice is applied to all Kerosine substances.

**Repeated Exposure:** A number of subacute and subchronic studies with kerosines and jet fuels are available. The repeated inhalation and oral studies of kerosine in rats produced no consistent toxicological effects other than changes in male rat kidneys that are not considered relevant to humans. In dermal studies, no significant effects other than irritation at the site of application were observed; the only observed effect was slight dermal irritation seen in all male treated groups. ( Mattie DR *et al*, 1991; Mattie DR *et al*, 2000; Battelle, 1997).

**Aspiration Hazard:** Low viscosity hydrocarbon liquids such as kerosine can cause aspiration lung damage if liquids enter the lung (Gerarde, H.W., 1959).

**Endocrine Disruption for Human Health: No data.**

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** In a semi-static 96 -hour acute rainbow trout , 7 animals/dose were exposed to solvent, naphtha (petroleum), heavy aromatic kerosine. Some fish were observed swimming abnormally and immobilisation was also observed. The LL50 was 2 to 5 mg/L. The NOEL is 2.0 mg/L (Shell, 1994). In a static 48 -hour acute daphnid test, 20 animals/dose were exposed to kerosine petroleum, hydrodesulfurised. The EL50 was 1.4 mg/L with a 95% confidence interval of 1.0

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<sup>6</sup> The 18<sup>th</sup> ATP upgrades the harmonised classification of cumene as Carcinogenic 1B by 1<sup>st</sup> December 2023. The impact on Concawe kerosine and naphtha dossiers has been assessed, and the Concawe classification recommendations are included in the report, as the revised dossiers have been released.

to 2.0 mg/L. The No Observed Effect Loading (NOEL) rate was 0.3 mg/L determined by immobilisation (Exxon, 1995d).

**Long-term (chronic) Aquatic Hazard:** The aquatic toxicity was estimated using the PETROTOX computer model, which combines a partitioning model with the Target Lipid Model. The estimated freshwater fish NOEL (No Observed Effect Level) value is 0.098 mg/L based on mortality (Redman et al., 2010b). In a 21-day semi-static chronic reproductive toxicity test on *Daphnia magna*, hydrosulfurised kerosine was evaluated using water accommodated fraction methodology. Under the conditions of this test, the 21-day chronic reproductive NOEL for kerosine is 0.48 mg/L. The LOEL is 1.2 mg/L. The EL50 based on reproduction is 0.89 mg/L (ExxonMobil, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Kerosine substances are hydrocarbon UVCBs. Standard tests for biodegradation / bioaccumulation are intended for single substances and are not appropriate for complex substances. Based on compositional information available and measured or predicted data on key constituents, Jet Fuel and other Kerosine substances are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of Kerosine substances show measured or predicted values for log  $K_{ow}$  greater than 4 and are considered potentially bio-accumulative.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

### Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P331: Do NOT induce vomiting.

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

### General:

P102: Keep out of reach of children. (In case of consumer use P102 should be added on the label)

### Prevention:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

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## 8.4. STRAIGHT-RUN GAS OILS (SRGO)

**Definition / Domain:** The domain of this category is established by the refining process by which the category members are produced and the boiling point and the carbon number range, as follows:

- Derived from crude petroleum and/or natural gas condensate
- Refinery process
  - Atmospheric distillation
- Hydrocarbon types: straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes, aromatics and mixed aromatic cycloalkanes.
- Boiling point range: 150 - 399C
- Carbon number range: predominantly C<sub>9</sub> to C<sub>25</sub>

Appendix 1 lists only those SRGO substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - SRGO substances are liquids.

**Aerosol:** Not relevant - SRGO substances are liquids.

**Oxidising Gas:** Not relevant - SRGO substances are liquids.

**Gas under Pressure:** Not relevant - SRGO substances are liquids.

**Flammable Liquid:** SRGO substances are liquids of variable flash points with typical values > 56 °C.

**Flammable Solid:** Not relevant - SRGO substances are liquids.

**Self-reactive Substance:** SRGO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** SRGO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - SRGO substances are liquids.

**Self-heating Substance:** SRGO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** SRGO substances do not react with water.

**Oxidising Liquid:** SRGO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - SRGO substances are liquids.

**Organic Peroxide:** SRGO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** SRGO substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of SRGO substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1985a)
Rat inhalation (aerosol)	LC <sub>50</sub> > 2.53 mg/l (EMBSI, 1991)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1985a)

Based on evaluation of all the acute toxicity data, Straight Run Gas Oils do not meet the criteria for classification as acute oral or dermal toxicants under the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008), because the LD<sub>50</sub> values are greater than the limits for classification defined in the legislation.

Straight Run Gas Oil aerosols are considered to meet the criteria for classification as an acute inhalation toxicant under the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008) and are classified as Acute Tox.4; H332.

**Skin Corrosion / Irritation:** Samples of SRGO substances have been tested in in New Zealand white rabbits skin irritation studies. Data was derived from studies in which 24 hour occluded exposure was employed instead of semi-occluded conditions for 4 hours. The degree of dermal irritation was variable but they are not expected to be irritating when animals are exposed for only 4 hours (API, 1985a). Upon repeated exposure SRGO substances may cause skin dryness or cracking. Straight Run Gas Oils do not meet the criteria for classification as skin irritants according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Serious Eye Damage / Eye Irritation:** The ability of SRGO substances to elicit eye irritation in New Zealand white rabbits has been investigated. None of the samples resulted in more than temporary redness or swelling (API, 1985a). None of the samples resulted in more than temporary redness or swelling (API, 1985a). Straight run gas oils do not meet the criteria for classification as an eye irritant according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Respiratory or Skin Sensitization:** No relevant information available for respiratory sensitization. For skin sensitization, SRGO substances tested in a Beuhler assay showed no evidence of skin sensitization to guinea pigs. (API, 1985a).

**Germ Cell Mutagenicity:** The mutagenic potential of SRGO substances has been extensively tested in both *in vivo* and *in vitro* tests. *In vitro* gene mutation assays in bacteria (modified) with straight-run gas oils were predominantly negative and *in vivo* chromosome aberration assays were negative (May, 2013; API, 1985c,d,e,f; Blackburn *et al.*, 1984; Blackburn *et al.*, 1986; Concawe, 1996; Jungen *et al.*, 1993; Nessel *et al.*, 1998, Deininger *et al.*, 1991). Based on the evidence, Straight Run Gas Oils are unlikely to be mutagenic in humans and do not meet the criteria for classification as defined in EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

Furthermore, a testing proposal has been submitted for an in-vivo alkaline comet assay (OECD TG 489) which will be combined with an in vivo micronucleus test (OECD TG474), subject to approval following ECHA/MSCAs review.

**Carcinogenicity:** Prolonged exposure to straight run gas oil can result in severe dermal irritation. This repeated dermal damage can result in the development of dermal tumours. In the absence of any significant dermal irritation, tumours are not observed (API, 1989; Concawe, 1996; Broddle *et al.*, 1996). Therefore, Straight Run Gas Oils do not meet the CRITERIA for classification as a carcinogen as laid down in the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

### Reproductive Toxicity:

OECD 422 studies by the oral dietary route have now been completed for the substances in this category, including one designed to act as range-finding for the EOGRTS (OECD 443) which is the subject of a testing proposal. In the oral reproductive screening study on CAS 68915-96-8 the NOAEL for reproductive

toxicity in Wistar Rats was determined to be 1000 mg/kg/day for males and 300 mg/kg/day for females (Eurofins 2024). This is the substance in the category provisionally selected for higher tier testing in the test proposals already submitted.

The key dermal developmental study on rats, reported a NOAEL of 50 mg/kg body weight/day based on significant decrease in pup body weight and increase in external, visceral, and skeletal malformation following repeated dermal application of straight-run petroleum gas oil. The maternal LOAEL was 50 mg/kg/day, based on dermal effects (ARCO, 1993a). Additional data support that straight run gasoils are not developmental toxicants (ARCO, 1993a,b; ARCO,1994a,b).

Nevertheless, a dermal Prenatal Developmental Toxicity Study (OECD 414) is proposed on one member of the SRGO category in order to fill data gaps and is subject to approval following ECHA/MSCA review.

Therefore, there is currently insufficient data to classify Straight Run Gas Oils as toxic for reproduction under the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

#### Specific Target Organ Toxicity (STOT):

**Single Exposure:** Acute exposure studies do not indicate any specific organ toxicity following single exposure to SRGO substances (API, 1985a; API, 1987).

**Repeated Exposure:** The repeated dose toxicity of SRGO substances has been studied in New Zealand white rabbits through dermal exposure and in Sprague-Dawley rats by oral, dermal and inhalation exposure. In a sub-acute oral study on CAS 68915-96-8 (conducted according to OECD TG 422), the NOAEL for systemic toxicity in Wistar Rats was determined to be 100 mg/kg/day for males and 300 mg/kg/day for females. This is the substance in the category provisionally selected for higher tier testing in the test proposals already submitted. (Eurofins, 2024).

Results from dermal exposure indicate irritation at the application site in addition to systemic effects observed at 125 mg/Kg bw/day in a read-across subchronic study (Mobil,1989). Effects observed in a supportive 28-day dermal toxicity study with New Zealand rabbits include increased liver and spleen weights, altered bone marrow function and liver histopathology LOAEL:2000 mg/kg bw/day for mortality,body weight,organ weights and LOAEL: 200 mg/kg bw/day for dermal effects (API, 1985b,c).

Repeated dose inhalation studies show hydrocarbon nephropathy in male/female Sprague-Dawley rats which is considered to be both sex and species specific but not relevant to humans (ORNL, 1984; Feuston et al, 1994; API, 1985a).

Based on the above, the Straight Run Gas Oils meet the criteria for classification for Specific Target Organ Toxicity (Repeated Exposure) as Category 2; H373 under the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Aspiration Hazard:** As members of this category may exist as low viscosity liquids that meet the criteria for aspiration hazard, substances in this category are classified for aspiration hazard unless the viscosity at 40°C is greater than the regulatory threshold.

Therefore, SRGO substances with kinematic viscosity  $\leq 20.5$  mm<sup>2</sup>/sec, are classified as aspiration hazards (H304) according to the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

#### Short-term (acute) Aquatic Hazard:

Acute aquatic toxicity studies on samples of SRGO substances are not available; however suitable read-across information from vacuum gas oils, hydrocracked gas oils and distillate fuels is available. These

studies, carried out using the WAF methodology, show acute toxicity values for fish, crustaceans and algae greater than 1 mg/l and mostly in the range of 2-100 mg/l (Girling,A and Cann,B, 1996;Shell report No 6304,1996; Redman,A.et al, 2010). Results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon composition.

**Long-term (chronic) Aquatic Hazard:**

There are no chronic toxicity studies available for SRGO substances. The aquatic toxicity was estimated using the PETROTOX computer model, which combines a partitioning Model with the Target Lipid Model. The estimated freshwater fish NOEL (No Observed Effect Level) value is 0.068 mg/l based on mortality. The estimated fresh water invertebrate NOEL (No Observed Effect Level) value is 0.167mg/l based on immobility.

The Straight Run Gas Oils meet the criteria for classification as Toxic to aquatic life with long lasting effects; H411 according to the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008). **Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** SRGO substances are hydrocarbon UVCBs and tests for these endpoints are not applicable. They are characterized using quantitative structure property relationships for representative hydrocarbon structures that comprise the hydrocarbon blocks used to assess the environmental risk with the PETRORISK model.

Degradation was achieved at varying levels in the available tests. Two tests indicate that these substances are readily biodegradable, ignoring the 10 day window which is not relevant to UVCBs (Lee, 1993; Canale, 1999; Anon, 2003; Clark et al., 2003; Battersby and Bumpus, 2001). Therefore, SRGOs are considered readily biodegradable. The calculated BCF factor for constituents of SRGOs is between 3.16-71100 l/kg (BCFBAF, 2012). This range should be treated with caution as it is the full range of predicted values.

Straight Run Gas Oils’ constituents have predicted log K<sub>ow</sub> values in the range 1.71 to 14.7 and are likely to bioaccumulate. It should be borne in mind that this is the full range of predicted values, and that this may be misleading or unrepresentative of the properties of the UVCB substance as a whole.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

**1.4 Additional Hazards**

**Hazardous to the Ozone Layer:** No data.

**Part 2 - Summary of Classification and Labelling Recommendations**

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Liver, spleen, bone marrow	H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

## Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H332: Harmful if inhaled.

H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/...(*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

## Full list of Precautionary statements

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P331: Do NOT induce vomiting.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.5. CRACKED GAS OILS (CRACKEDGO)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced and the boiling point and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - catalytic cracking
  - thermal cracking
  - hydrotreatment / hydrodesulfurisation
- Hydrocarbon types: aromatics, alkylated aromatics, mixed aromatic cycloalkanes, straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes.
- Boiling point range: 150 - 411 °C
- Carbon number range: predominantly C<sub>9</sub> to C<sub>30</sub>

Appendix 1 lists only those CrackedGO substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - CrackedGO substances are liquids.

**Aerosol:** Not relevant - CrackedGO substances are liquids.

**Oxidising Gas:** Not relevant - CrackedGO substances are liquids.

**Gas under Pressure:** Not relevant - CrackedGO substances are liquids.

**Flammable Liquid:** CrackedGO substances are liquids of variable flash points typically >56°C.

**Flammable Solid:** Not relevant - CrackedGO substances are liquids.

**Self-reactive Substance:** CrackedGO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** CrackedGO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - CrackedGO substances are liquids.

**Self-heating Substance:** CrackedGO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** CrackedGO substances do not react with water.

**Oxidising Liquid:** CrackedGO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - CrackedGO substances are liquids.

**Organic Peroxide:** CrackedGO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** CrackedGO substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of CrackedGO substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 4600 mg/kg <sub>bw</sub> (male), 3200 mg/kg <sub>bw</sub> (female)(API, 1985a)
Rat inhalation (aerosol)	LC <sub>50</sub> ≥ 4.65 mg/l (API, 1986)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1985a)

**Skin Corrosion / Irritation:** Samples of CrackedGO substances were tested in rabbit skin irritation studies. Results obtained indicate that exposure to CrackedGO substances results in skin irritation. There was no evidence of skin corrosion (EBSI, 1996a).

**Serious Eye Damage / Eye Irritation:** The ability of CrackedGO substances to elicit eye irritation in rabbits has been investigated. None of the samples were irritating to the eye (API, 1985c).

**Respiratory or Skin Sensitization:** No studies were located for respiratory sensitization. For skin sensitization CrackedGO substances were tested and showed no evidence of skin sensitization (API, 1985c).

**Germ Cell Mutagenicity:** The mutagenic potential of CrackedGO substances has been extensively tested in both *in vivo* and *in vitro* tests. The results of the studies were ambiguous *in vitro* and showed no evidence of *in vivo* mutagenic activity (API 1986b; API 1988). However, based on the positive outcome in modified Ames test and mammalian cell gene mutation assay, CrackedGO substances are considered to be germ cell mutagens (Covance 2021; API 1985e; Deininger *et al*, 1991).

**Carcinogenicity:** Repeated dermal application of CrackedGO substances to animals resulted in tumour formation. Based on data from the experiments conducted with CrackedGO substances they are considered to be carcinogens (EBSI, 1996b).

**Reproductive Toxicity:** No guideline or near-guideline studies were located that have examined the potential impact of CrackedGO substances on fertility, however gonadal histopathology and/or sperm parameters (counts; morphology) were among endpoints routinely included in sub-chronic dermal evaluations of some CrackedGO substances. There was evidence of developmental effects in animals but these were considered minor and were observed in the presence of maternal toxicity which is a confounding factor in determining toxicity (ARCO, 1994a; ARCO, 1994b; Mobil, 1990; ARCO, 1994c; Mobil, 1994; ARCO, 1993; Mobil, 1989; Mobil, 1987). Based on the available data CrackedGO substances are not considered to be reproductive toxicants.

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies do not indicate any specific organ toxicity following single exposure to CrackedGO substances (API, 1985c; API, 1986).

**Repeated Exposure:** The repeat dose toxicity of CrackedGO substances has been studied. Target organ toxicity has been observed in blood, thymus, and liver (ORNL, 1984; Cruzan, 1985; Mobil, 1990; API, 1985d). In a 90 day repeat dose dermal study, the NOEL was 25 mg/kg/day, with a LOEL of 125 mg/kg/day (Mobil, 1985). In another study the LOAEL is identified as 30 mg/kg/day (Mobil, 1991). Based on these data cracked gas oils are classified for repeat dose toxicity as STOT (repeated exposure) Cat 2, H373 according to EU CLP Regulation (EU, 2008) criteria.

**Aspiration Hazard:** CrackedGO substances span a range of viscosities with values reported as 1.1 - 4.5 mm<sup>2</sup>/s at 40 °C. Therefore, CrackedGO substances are classified as Aspiration Hazards (H304) according to the EU CLP Regulation (EU, 2008).

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies on samples of CrackedGO substances show LL50 values ranging from 0.22 mg/l for crustaceans to 8.82 mg/l for algae (EMBSI, 2011a-d; EMBSI, 2012a-d; EMBSI, 2012f-h; Redman and Yadav, 2010; Hydroqual, 2010).

**Long-term (chronic) Aquatic Hazard: Chronic aquatic toxicity:** Chronic aquatic toxicity studies on samples of CrackedGO substances show NOELR vales ranging from 0.05 mg/l for crustaceans and algae to 0.93 mg/l for algae (EMBSI, 2012e-h). Aquatic toxicity data for fish, Daphnia and algae are in range <1 mg/L for some Cracked Gas Oils. Some Cracked Gas Oils may not meet criteria for ready degradability and components have log  $K_{ow}$  values in the range 3.9 to greater than 6. Therefore Cracked Gas oils are classified as Aquatic Acute Toxicity 1 (H400: Very toxic to aquatic life) and Aquatic Chronic Toxicity 1 (H410: Very toxic to aquatic life with long lasting effects).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** CrackedGO substances are hydrocarbon UVCBs. Based on the known or expected properties of individual constituents, category members are not predicted to be readily biodegradable but are inherently biodegradable. Components of cracked gas oils are likely to bio-accumulate (log  $K_{ow} \geq 4$ ).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2	H373: May cause damage to blood, thymus and liver

	Affected organs: Blood, thymus, liver	through prolonged or repeated exposure.
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life (M-Factor =1).
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.

H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.



P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable condition.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.6. VACUUM GAS OILS, HYDROCRACKED GAS OILS & DISTILLATE FUELS (VHGO)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced and the boiling point and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - Atmospheric distillation
  - Vacuum distillation
  - Hydrocracking
  - Blending of petroleum substances to produce the following CAS RNs
    - 68334-30-5 Fuels, Diesel
    - 68476-30-2 Fuel Oil No. 2
    - 68476-31-3 Fuel Oil No 4
    - 68476-34-6 Fuels Diesel No 2
- Hydrocarbon types: straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes, aromatics and mixed aromatic cycloalkanes.
- Boiling point range: 141 - 462 °C
- Carbon number range: predominantly C<sub>9</sub> to C<sub>30</sub>

Appendix 1 lists only those VHGO substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - VHGO substances are liquids.

**Aerosol:** Not relevant - VHGO substances are liquids.

**Oxidising Gas:** Not relevant - VHGO substances are liquids.

**Gas under Pressure:** Not relevant - VHGO substances are liquids.

**Flammable Liquid:** VHGO substances are liquids of variable flash points with values > 56°C.

**Flammable Solid:** Not relevant - VHGO substances are liquids.

**Self-reactive Substance:** VHGO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** VHGO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - VHGO substances are liquids.

**Self-heating Substance:** VHGO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** VHGO substances do not react with water.

**Oxidising Liquid:** VHGO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - VHGO substances are liquids.

**Organic Peroxide:** VHGO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** VHGO substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of VHGO substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000mg/kg <sub>bw</sub> (API, 1980a, b)
Rat inhalation	LC <sub>50</sub> ≥ 4.1 mg/l (ARCO, 1988)
Rabbit dermal	LD <sub>50</sub> > 5 ml/kg <sub>bw</sub> (approx. 4300 mg/kg <sub>bw</sub> ) (API, 1980a, b)

**Skin Corrosion / Irritation:** Samples of VHGO substances were tested in rabbit skin irritation studies (24 hour occluded). These data indicate that exposure to VHGO substances can cause skin irritation (API, 1980a; API, 1980b). There was no evidence of skin corrosion.

**Serious Eye Damage / Eye Irritation:** The ability of VHGO substances to elicit eye irritation in rabbits has been investigated. None of the samples were irritating to the eye (API, 1980a; API, 1980b).

**Respiratory or Skin Sensitization:** No studies were located for respiratory sensitization. For skin sensitization VHGO samples were tested and showed no evidence of skin sensitization (API, 1980a; API, 1980b).

**Germ Cell Mutagenicity:** The mutagenic potential of VHGO substances have been extensively tested in both *in vivo* and *in vitro* tests. The *in vitro* results were ambiguous while the *in vivo* studies showed a lack of mutagenic activity. Based on the data available VHGO substances are not considered to be germ cell mutagens (Covance, 2021; Deininger *et al*, 1991; API, 1985). However, additional testing is planned to fill data gaps.

**Carcinogenicity:** Samples of VHGO substances show variable activity in skin painting bioassays. Skin irritation has been shown to contribute to the development of tumours. Based on the data available VHGO substances are considered as potentially carcinogenic (Biles *et al*, 1988).

**Reproductive Toxicity:** There are several studies available evaluating the effects on reproductive toxicity of VHGO substances. The data indicate these substances are not reproductive toxicants (Adgyl, 2023a; Adgyl, 2023c; Eurofins, 2023; Mobil, 1989a; API, 1979a; API, 1979b). Nevertheless, a testing proposal for reproductive toxicity has been included in the registration dossiers submitted to ECHA.

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies do not indicate any specific organ toxicity following single exposure to VHGO substances (API, 1980a; API, 1980b; ARCO, 1988).

**Repeated Exposure:** There are several key short-term repeated dose oral toxicity studies of VHGO substances, with NOAELs ranging from 100 - 1000 mg/kg bw/day (Adgyl, 2023a; Adgyl, 2023b; Adgyl, 2023c; Eurofins, 2023). A NOAEC of > 1710 mg/m<sup>3</sup> will be carried forward for risk characterisation of systemic effects following sub-chronic exposure to aerosolised diesel fuel (Lock, S. *et al* 1984). Following 13 week dermal exposure in Sprague-Dawley rats, thymus, liver, and bone marrow changes were noted in a dose dependent manner (ARCO, 1992; Mobil, 1989b; ORNL, 1984). In addition, one oral sub-chronic study is proposed on a VHGO substance containing high levels of PAH constituents. Based on these data cracked gas oils are classified STOT RE Cat 2, H373.

**Aspiration Hazard:** VHGO substances span a range of viscosities with values reported as ≥1.5 mm<sup>2</sup>/s at 40°C.



**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies on samples of VHGO substances, carried out using the WAF methodology, report acute toxicity values for fish, crustaceans and algae greater than 1 mg/l and mostly in the range of 2-100 mg/l (Girling. and Cann, 1996a,b; Redman and Yadav, 2010). The lowest LL50 was 2 mg/l for *Daphnia magna* (Febbo E, 2007).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity estimations, carried out using the PETROTOX model, report NOEL in the range from 0.083 mg/l (fish) to 0.2 mg/l (daphnia) (Redman and Yadav, 2010). The lowest reported NOEL for algae is 1mg/l (Clark et al, 2003; Palmer A G, 2001). Therefore Vacuum Gas oils would be classified as H411 under the EU CLP Regulation (EC) No 1272/2008 (EU, 2008).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** VHGO substances are hydrocarbon UVCBs. Based on the known or expected properties of individual constituents, VHGO substances are not predicted to be readily biodegradable but they are inherently biodegradable (The Petroleum HPV Testing Group, 2003; Mobil, 1999; Lee, 1993). Hydrocarbon constituents of VHGO substances have predicted log Kow values in the range 1.71 to 14.7 and are likely to bioaccumulate.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

### Although Part 3 of Annex VI of CLP includes Note N

("The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.") for the VHGO substance with EC 269-822-7, this Note is not applied in any of the C&L permutations and, therefore, all VHGO substances are classified as Carcinogenic Cat. 2.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.



Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, liver, bone marrow	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^\circ\text{C}$  and  $\leq 75^\circ\text{C}$  may be regarded as Category 3.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.7. OTHER GAS OILS (OTHERGO)

**Definition / Domain:** The domain of this category is established by the refining process by which the category members are produced and the boiling point and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - hydrotreating
- Hydrocarbon types: aromatics, alkylated aromatics, mixed aromatic cycloalkanes. straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes.
- Boiling point range: 172 - 379 °C
- Carbon number range: predominantly C<sub>9</sub> to C<sub>36</sub>

**Appendix 1** lists only those OtherGO substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - OtherGO substances are liquids.

**Aerosol:** Not relevant - OtherGO substances are liquids.

**Oxidising Gas:** Not relevant - OtherGO substances are liquids.

**Gas under Pressure:** Not relevant - OtherGO substances are liquids.

**Flammable Liquid:** OtherGO substances are liquids of variable flash points with values > 56 °C.

**Flammable Solid:** Not relevant - OtherGO substances are liquids.

**Self-reactive Substance:** OtherGO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** OtherGO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - OtherGO substances are liquids.

**Self-heating Substance:** OtherGO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** OtherGO substances do not react with water.

**Oxidising Liquid:** OtherGO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - OtherGO substances are liquids.

**Organic Peroxide:** OtherGO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** OtherGO substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of OtherGO substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1982a; API, 1982b)
Rat inhalation (aerosol)	LC <sub>50</sub> 4,6 mg/l (API, 1983c),
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1982a; API, 1982b)

**Skin Corrosion / Irritation:** Samples of OtherGO substances were tested in rabbit skin irritation studies. Results obtained were from 24h occlusion tests, and indicate that exposure to OtherGO substances results in skin irritation. When extrapolated to a 4 hour exposure, OtherGO substances are expected to be irritating that when extrapolated to a 4 hour exposure is expected to be irritating (API, 1982a; API, 1982b) There was no evidence of skin corrosion.

**Serious Eye Damage / Eye Irritation:** The ability of OtherGO substances to elicit eye irritation in rabbits has been investigated. None of the samples resulted in lasting irritation to the eye (API, 1982a; API, 1982b).

**Respiratory or Skin Sensitization:** No studies were located for respiratory sensitization. For skin sensitization samples were tested and showed no evidence of skin sensitization (API, 1984a; API, 1984b).

**Germ Cell Mutagenicity:** The mutagenic potential of OtherGO substances has been extensively tested in both *in vivo* and *in vitro* tests. The *in vitro* results were ambiguous while the *in vivo* studies showed a lack of mutagenic activity. Based on the data available, OtherGO substances are not considered to be germ cell mutagens (May K, 2013; Charles River, 2023).

**Carcinogenicity:** Based on data available, OtherGO substances may be considered carcinogenic dependent upon refining process (EMBSI, 1996; API, 1989).

**Reproductive Toxicity:** The impact of OtherGO substances on reproduction and developmental effects has been investigated in several OECD studies. The NOAEL for reproductive toxicity was determined to be 300 mg/kg/bw/day for female rats (Eurofins, 2022). An oral PNDT study in rats (conducted according to OECD TG 414) evaluated the developmental and maternal toxicity of Other Gas Oil (CAS No. 64742-79-6) administered to pregnant rats by the oral gavage route during Gestation Days (GD) 5 to 19. There were no treatment-related adverse effects on maternal or developmental toxicity and NOAELs for maternal toxicity, foetal development and teratogenicity were all set at 1000 mg/kg/day (Eurofins, 2023c). However, a final decision has been received to conduct a study in a second (non-rodent species); the second species study is under contract at a testing laboratory.

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies do not indicate any specific organ toxicity following single exposure to OtherGO substances (API, 1982a; API, 1982b; API, 1983c; API, 1987).

**Repeated Exposure:** The repeated dose oral toxicity of OtherGO substances has been studied in several OECD studies (Eurofins, 2023a; Eurofins 2023b; Adgyl 2024). Target organ toxicity has been observed in blood, thymus, and liver (API, 1986; API, 1983a; API, 1983b). Based on a NOAEL of 25 mg/kg/day in one 90-day dermal toxicity study (Mobil, 1985), and a LOAEL of 30 mg/kg/day from another 90 -day dermal toxicity study (Mobil, 1991), carcinogenic Other Gas Oils (see OIN 14) are classified for repeat dose toxicity as H373 according to the EU CLP Regulation ((EC) No 1272/2008) (EU, 2008).

**Aspiration Hazard:** OtherGO substances span a range of viscosities with values reported as 2.0 - 8.1mm<sup>2</sup>/s at 40 °C.

**Endocrine Disruption for Human Health:** No data.



### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies on samples of OtherGO substances are unavailable; however suitable read-across information from VHGO substances is available (Girling and Cann, 1996a,b). These studies, carried out using the WAF methodology, show acute toxicity values for fish, crustaceans and algae greater than 1 mg/l and mostly in the range of 2-100 mg/l. Results are consistent with the predicted aquatic toxicity of OtherGO substances based on their hydrocarbon composition (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Aquatic toxicity data for fish, daphnia and algae are in range 1-100 mg/l. Gas oils components have log  $K_{ow}$  values in the range 3.9 to greater than 6. Therefore Other Gas oils would be classified as H411 under the EU CLP criteria, (EC) No 1272/2008 (EU, 2008).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** OtherGO substances are hydrocarbon UVCBs. Based on the known or expected properties of individual constituents, category members are predicted to be readily biodegradable (Lee, 1993; The Petroleum HPV Testing Group, 2003; Mobil, 1999)<sup>7</sup>. Components of OtherGO substances are likely to bioaccumulate (log  $K_{ow}$  values  $\geq 4.0$ ).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). **Appendix 6** lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.

<sup>7</sup> Further data are currently being reviewed in the registration dossier, and the outcome as “inherently biodegradable” is expected.



Hazard class	Hazard category	Hazard statement
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H350: May cause cancer.

H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.8. HEAVY FUEL OIL COMPONENTS (HFO)

**Definition / Domain:** The domain of this category is defined as streams obtained as either distillates or residues from distillation and cracking processes and containing saturated, aromatic and olefinic hydrocarbons,

- Derived from crude petroleum

- Refinery processes
  - atmospheric distillation
  - residue distillation
  - thermal cracking
  - catalytic cracking
  - hydrotreatment / hydrodesulfurization
- Boiling point range: 160 to >750°C.
- Carbon number range: >C8

The most common components are:

- Long residue: the residue from the atmospheric distillation of crude oil.
- Short residue: the residue from the vacuum distillation of crude oil.
- Thermal cracker or visbreaker residue: the residue from thermal cracking processes.
- Cat cracker slurry oil (clarified oil): a heavy fraction from a catalytic cracking.
- Thermally cracked or visbreaker gas oil: a middle distillate fraction from thermal cracker or visbreaker units.
- Vacuum gas oil: a heavy gas oil fraction (vacuum distillate) from the vacuum column.
- Cat cracker cycle oil: a middle distillate fraction from the catalytic cracking unit.
- Gas oil: a heavier middle distillate fraction from the atmospheric column.

Appendix 1 lists only those HFO substances with active registrations at the time of issuing this report.

## Part 1 - Classification Endpoint Rationale / Data Summary

### 1.1 Physical Hazards

**Explosive:** Not considered explosive based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - HFO substances are liquids at ambient temperature.

**Aerosol:** Not relevant - HFO substances are not in aerosol form.

**Oxidising Gas:** Not relevant - HFO substances are liquids at ambient temperature.

**Gas under Pressure:** Not relevant - HFO substances are liquids at ambient temperature.

**Flammable Liquid:** HFO substances are liquids of variable flash point. Typical values reported are > 60°C.

**Flammable Solid:** Not relevant - HFO substances are liquids at ambient temperature.

**Self-reactive Substance:** HFO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** HFO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - HFO substances are liquids at ambient temperature.

**Self-heating Substance:** HFO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** HFO substances do not react with water.

**Oxidising Liquid:** HFO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - HFO substances are liquids at ambient temperature.

**Organic Peroxide:** HFO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** HFO substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of HFO substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> 4320 (females) mg/kg <sub>bw</sub> (API, 1982)
Rat inhalation (aerosol)	LC <sub>50</sub> 4.1 mg/l (ARCO, 1987)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1982)

**Skin Corrosion / Irritation:** Samples of HFO substances have been tested in rabbit skin irritation studies. The majority of the data were derived using a 24 hour occluded exposure protocol. Based on these studies HFO substances cause no more than moderate irritation. Upon repeated exposure some HFO substances may cause skin dryness or cracking. There was no evidence of skin corrosion in these studies (API, 1980).

**Serious Eye Damage / Eye Irritation:** The effects of HFO substances on the eye have been investigated in rabbits using a number of samples. None of the samples tested showed more than transient, fully reversible eye irritation (API, 1980).

**Respiratory or Skin Sensitization:** Samples of HFO substances have been tested in the guinea pig using a closed patch technique (Buehler method). These data show no evidence of skin sensitization (API, 1980). There are no reports available to indicate a potential to cause respiratory sensitization.

**Germ Cell Mutagenicity:** The mutagenic potential of HFO substances has been extensively studied in a range of *in vivo* and *in vitro* assays (API, 1985a; API, 1985b; API, 1986; Covance,). The majority of the studies showed no consistent evidence of mutagenic activity. However, the overall weight of evidence, mainly positive findings in the modified Ames test and carcinogenicity studies, allows to conclude on the endpoint of mutagenicity with regards to classification and labelling that the heavy gas oil substance is a dermal carcinogen, acting probably via genotoxic mechanisms, and therefore support a self-classification as Mutagen category 2 (H341).

**Carcinogenicity:** The carcinogenic potential of HFO substances has been investigated in animals following dermal exposure. These data indicate that HFO substances are carcinogenic (API, 1989).

**Reproductive Toxicity:** Results of developmental and reproductive toxicity studies on HFO substances showed evidence of developmental toxicity (Hoberman *et al*, 1995; ARCO, 1994).

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1980; ARCO, 1987).

**Repeated Exposure:** The repeat dose toxicity of HFO substances has been investigated following dermal exposure (ARCO, 1993a; ARCO, 1993b). These data indicate a potential to cause systemic injury, with the blood, thymus and liver being key target tissues.

**Aspiration Hazard:** HFO substances are hydrocarbon liquids of variable viscosity. Reported values for some HFO substances are <20.5 mm<sup>2</sup>/s at 40 °C, while others may be above 20.5 mm<sup>2</sup>/s at 40 °C.

**Endocrine Disruption for Human Health:** No data.



### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies with fish, invertebrates and algae on samples of HFO substances show variable acute toxicity, with the most sensitive species (algae) giving values less than 1 mg/l (EMBSI 2012). These tests were carried out on water accommodated fractions (EMBSI, 2008a, 2008b, 2008c; Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on algae gave an NOELR of 0.05 mg/l (EMBSI 2012). The high chronic aquatic toxicity was supported by PETROTOX calculations on fish and daphnia (Redman and Yadav, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** HFO substances are hydrocarbon UVCBs. Based on compositional information available and measured or predicted data, key constituents are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of HFO substances show measured or predicted values for log  $K_{ow}$  ranging from 1.71 to 14.7 and are thus considered potentially bioaccumulative.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Germ Cell Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life.



Hazard class	Hazard category	Hazard statement
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H332: Harmful if inhaled.

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.

H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

#### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

P391: Collect spillage.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.9. UNREFINED / ACID TREATED OILS (UATO)

**Definition / Domain:** The unrefined base oils, or vacuum distillate fractions, are complex aliphatic and aromatic hydrocarbon substances. They mostly comprise highly alkylated multi-ring structures and branched alkane constituents, along with some heteroatom (nitrogen, oxygen, sulphur) - containing species, including some gums and resins. The unrefined base oil fractions are subject to further refinery process (chemical or physical) steps to convert them into lubricating oils for commercial use. Treatment with sulphuric acid partially removes aromatics and sulphur-containing species, precipitate asphaltenes and gums, and improve colour and stability.

The UATO category domain is established by the refining processes by which the category members are produced, the predominant hydrocarbon classes present, the boiling point range and the carbon number range as follows.

- Derived from crude petroleum
- Refinery process
  - Produced by vacuum distillation of the residuum from atmospheric distillation
  - Vacuum distillation fractions with no further treatment (unrefined oils)
  - Vacuum distillate fractions with slight to moderate treatment with sulphuric acid to partially remove aromatics (acid treated oils)
  - Further treatment with sodium hydroxide to neutralize acid residues
- Hydrocarbon types: highly alkylated multi ring structures, branched alkanes, aromatic hydrocarbons.
- Typical boiling range: 210°C to 800°C
- Typical carbon number range: C<sub>15</sub> to C<sub>50</sub>

Appendix 1 lists only those UATO substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - UATO substances are liquids.

**Aerosol:** Not relevant - UATO substances are not in aerosol form.

**Oxidising Gas:** Not relevant - UATO substances are liquids.

**Gas under Pressure:** Not relevant - UATO substances are liquids.

**Flammable Liquid:** Non-flammable - UATO substances have flash point >98°C.

**Flammable Solid:** Not relevant - UATO substances are liquids.

**Self-reactive Substance:** UATO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** UATO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - UATO substances are liquids.

**Self-heating Substance:** UATO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** UATO substances do not react with water.

**Oxidising Liquid:** UATO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - UATO substances are liquids.

**Organic Peroxide:** UATO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** UATO substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** UATO substances have been tested in acute oral, dermal studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1986a)
Rat inhalation (aerosol)	LC <sub>50</sub> > 5000 mg/m <sup>3</sup> (ARCO, 1983)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1986a)

**Skin Corrosion / Irritation:** Samples of UATO substances have been tested in rabbit skin irritation non-guideline tests (24h exposure, occluded), which predicted irritation due to occluded conditions. Only slight irritation would be expected if tested under guideline conditions. Upon repeated exposure some UATO substances may cause skin dryness or cracking (API, 1986a).

**Serious Eye Damage / Eye Irritation:** A sample of an UATO substance tested in rabbits showed minimal redness which resolved quickly (API, 1986a).

**Respiratory or Skin Sensitization:** A sample of an UATO substance showed no evidence of skin sensitization in guinea pigs. There are no reports available to indicate that UATO substances have the potential to cause respiratory sensitization (API, 1986a).

**Germ Cell Mutagenicity:** The mutagenic potential of UATO substances has been extensively studied in a range of *in vivo* and *in vitro* assays (Blackburn *et al*, 1984, 1986; API, 1986c; ARCO, 1987; Covance 2021; Przygoda *et al*, 1999). *In vitro* gene mutation assays in bacteria (OECD 471) were generally positive. Cytogenicity assays in mammalian cells (OECD 473) and one *in vivo* gene mutation assay were negative, but *in vitro* gene mutation assay (OECD 476) in mammalian cells gave mixed results. Based on the available data, UATO substances are considered to be germ cell mutagens.

**Carcinogenicity:** The carcinogenic potential of UATO substances has been investigated in mouse skin painting studies. Results show that UATO substances are carcinogenic (Chasey and McKee, 1993).

**Reproductive Toxicity:** There are no developmental toxicity data for UATO substances, but their hazards are assumed to be similar to those of UDAE substances. In a read-across developmental study from UDAE substances, heavy paraffinic distillate furfural extract produced maternal, reproductive, and foetal toxicity in Sprague-Dawley rats (Mobil, 1990b). There are no data on fertility but based on evidence from repeated dose toxicity studies, no effects on reproductive organs are expected (Mobil, 1990a).

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1986a; ARCO, 1983).

**Repeated Exposure:** Read-across subchronic oral and dermal toxicity studies performed on UDAE substances resulted in specific target organ toxicity in the following tissues: adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus (Mobil, 1990a; Chasey and McKee, 1993).

**Aspiration Hazard:** UATO substances span a range of viscosities with values reported as  $>2 \text{ mm}^2/\text{s}$  at  $40^\circ\text{C}$ .

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** No acute toxicity studies are available for UATO substances, but suitable read-across data is available for UDAE substances. Read-across studies on acute aquatic toxicity with samples of UDAE substances show acute toxicity values greater than  $1000 \text{ mg/l}$  to fish (BP, 1994),  $35.9 \text{ mg/l}$  to *Daphnia* (EMBSI, 2010b) and  $18.8 \text{ mg/l}$  for algae (EMBSI, 2010a). Tests were carried out on the water accommodated fraction. Results are consistent with the predicted aquatic toxicity of UATO substances based on their hydrocarbon composition (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on *Daphnia magna* exposed to samples of UATO substances show variable chronic toxicity, with an NOELR of  $0.1 \text{ mg/l}$  (EMBSI, 2012 2012c and 2012d).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** UATO substances are hydrocarbon UVCBs. Based on the known or expected properties of individual constituents, category members are not predicted to be readily biodegradable, but are inherently biodegradable. Constituents of UATO substances show measured or predicted values for  $\log K_{ow}$  greater than 4 and are considered potentially bioaccumulative.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the 'worst-case' C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Germ Cell Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1A	H350: May cause cancer.

Hazard class	Hazard category	Hazard statement
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Oral and dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

Hazard pictogram:

GHS08: health hazard    GHS09: environment



Hazard statements:

H304: May be fatal if swallowed and enters airways.  
 H341: Suspected of causing genetic defects by dermal route.  
 H350: May cause cancer.  
 H361d: Suspected of damaging the unborn child.  
 H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.  
 H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
 P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
 P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
 P331: Do NOT induce vomiting.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.  
 Restricted to professional users due to classification as carcinogenic Category 1A.

## Full list of Precautionary statements

Prevention:

P201: Obtain special instructions before use.



P202: Do not handle until all safety precautions have been read and understood.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P270: Do not eat, drink or smoke when using this product.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P314: Get medical advice/attention if you feel unwell.  
P331: Do NOT induce vomiting.  
P391: Collect spillage.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## REFERENCES

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EMBSI (2010a) Alga - growth inhibition test. Study performed for Concawe. EMBSI Study No. 0834667. Annandale NJ: ExxonMobil Biomedical Sciences Inc.

EMBSI (2010b) Daphnia - acute toxicity test. Study performed for Concawe. EMBSI Study No. 0834642A. Annandale NJ: ExxonMobil Biomedical Sciences Inc.

EMBSI (2012) Daphnia magna, reproduction test; ExxonMobil Biomedical Sciences, Inc., Report no: 12TP14. Owner company; Concawe, Study number: 0834646

Mobil (1990a) Thirteen-week administration of 318 isthmus furfural extract to rats. Mobil Environ. and Health Sci. Lab. Study No. 61737. Princeton NJ: Mobil Oil Corporation

Mobil (1990b) Developmental toxicity study in rats exposed dermally to 318 isthmus furfural extract. Mobil Environ. and Health Sci. Lab. Study No. 62884. Princeton NJ: Mobil Oil Corporation

Przygoda, R.T. *et al* (1999) Assessment of the utility of the micronucleus test for petroleum-derived materials. *Mutation Research* 438, 145-153

Redman, A. and Yadav, B. (2010) Aquatic toxicity predictions using the PETROTOX model for petroleum substance categories. Report prepared for Concawe. Mahwah NJ: HydroQual Inc.

## 8.10. HIGHLY REFINED BASE OILS (HRBO)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced and the low level of poly-aromatic content present in the oils.

- Derived from crude petroleum or natural gas condensates
- Refinery processes
  - vacuum distillation
  - atmospheric distillation
  - hydrotreatment / hydrodesulfurization
  - acid treatment
  - severe solvent extraction
  - dewaxing (solvent or catalytic)
  - severe hydrotreatment or oleum treatment

*N.B.: some category members are subject to further intermediate processing such as chemical sweetening and/or chemical neutralisation to remove or convert residues of odorous sulphur compounds.*

- At a minimum, satisfies the requirements of the FDA 178.3620 B test elements:
  - UV Absorbance
  - Hot acid test
- Hydrocarbon types: saturated, naphthenic, iso-paraffinic
- Boiling point range: 218 to 800 °C
- Carbon number range: predominantly C<sub>12</sub> to C<sub>50</sub>
- Very low aromatic and sulphur content

Appendix 1 lists only those HRBO substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - HRBO substances are liquids.

**Aerosol:** Not relevant - HRBO substances are liquids.

**Oxidising Gas:** Not relevant - HRBO substances are liquids.

**Gas under Pressure:** Not relevant - HRBO substances are liquids.

**Flammable Liquid:** HRBO substances have flashpoints >112 °C.

**Flammable Solid:** Not relevant - HRBO substances are liquids.

**Self-reactive Substance:** HRBO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** HRBO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - HRBO substances are liquids.

**Self-heating Substance:** HRBO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** HRBO substances do not react with water.

**Oxidising Liquid:** HRBO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - HRBO substances are liquids.

**Organic Peroxide:** HRBO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** HRBO substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of HRBO substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (ARCO, 1987a)
Rat inhalation (aerosol)	LC <sub>50</sub> > 5 mg/l (ARCO, 1988)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (ARCO, 1987b,c)

**Skin Corrosion / Irritation:** Samples of HRBO substances were tested in rabbit skin irritation studies. Results obtained indicate that exposure to HRBO substances does not result in skin irritation (ARCO, 1987c). There was no evidence of skin corrosion.

**Serious Eye Damage / Eye Irritation:** HRBO substances were not irritating in a guideline test for eye irritation (ARCO, 1987d).

**Respiratory or Skin Sensitization:** No studies were located for respiratory sensitization. For skin sensitization HRBO substances were tested and showed no evidence of skin sensitization (ARCO, 1987e).

**Germ Cell Mutagenicity:** The mutagenic potential of HRBO substances has been tested via *in vitro* and *in vivo* tests. Results showed no evidence of mutagenic activity (EMBSI, 2003; EBSI, 1985; ARCO, 1987f; McKee *et al*, 1990). Based on the available data, HRBO substances are not considered to be germ cell mutagens.

**Carcinogenicity:** Carcinogenic bioassays have been conducted and confirm that HRBO substances are non-carcinogenic (EMBSI, 2001; Chasey and McKee, 1993).

**Reproductive Toxicity:** Results of guideline developmental and reproductive toxicity studies showed that HRBO substances are unlikely to alter reproductive fertility or foetal development. The NOAEL for effects on fertility via oral exposure is greater than or equal to 1000 mg/kg/bw/day and the NOAEL for dermal exposure is greater than or equal to 2000 mg/kg/bw/day (Mobil, 1987b; Schreiner *et al*, 1997; WIL Research Laboratories, 1995; Mobil, 1987c; McKee *et al*, 1987; Mobil, 1987a).

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies do not indicate any specific organ toxicity following single exposure to HRBO substances (ARCO, 1987a; ARCO, 1988).

**Repeated Exposure:** The repeat dose toxicity of HRBO substances has been studied. Based on the lack of adverse effects, even with the highest doses administered, HRBO substances are not classified for STOT RE (Smith *et al*, 1996; Firriolo *et al*, 1995; Trimmer *et al*, 2004; Dalbey *et al*, 1991; Mobil, 1988; API, 1985).

**Aspiration Hazard:** HRBO substances span a range of viscosities reported as >3mm<sup>2</sup>/s at 40°C.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies on WAF of HRBO substances report LL50 (96h) at >10,000 mg/l for fish (IWL, 1992). For aquatic invertebrates the LL50 (48h) was >100 mg/l (Petro-Canada, 2008a) and the weight of evidence indicates no toxicity to aquatic algae (Petro-Canada, 2008b).

**Long-term (chronic) Aquatic Hazard:** No chronic toxicity data is available for HRBO substances, but appropriate read-across data are available for LBO substances (Girling, 1995). The key study indicates a NOEL of 3 10 mg/l based on reproduction for aquatic invertebrates (Shell, 1995). This is supported by a QSAR prediction using PETROTOX, which indicates no chronic toxicity (Redman and Yadav, 2010).

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** HRBO substances are hydrocarbon UVCBs. Based on compositional information available and measured or predicted data on key constituents, HRBO substances are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of HRBO substances show measured or predicted values for log  $K_{ow}$  greater than 4 and are considered potentially bioaccumulative (Lampi *et al*, 2010).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H304: May be fatal if swallowed and enters airways.

### Precautionary statements:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label) \**  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P331: Do NOT induce vomiting.  
P405: Store locked up. \*  
P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

\* This P-statement is not automatically triggered by the classification and labelling rules for these substances, however based on its physical chemical properties having a viscosity  $\leq 20.5 \text{ mm}^2/\text{s}$  @  $40^\circ\text{C}$  it is advised when used in consumer products.

### Full list of Precautionary statements

#### General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label) \**

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P331: Do NOT induce vomiting.

#### Storage:

P405: Store locked up. \*

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

\* This P-statement is not automatically triggered by the classification and labelling rules for these substances, however based on its physical chemical properties having a viscosity  $\leq 20.5 \text{ mm}^2/\text{s}$  @  $40^\circ\text{C}$  it is advised when used in consumer products.

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ARCO (1987e) Dermal sensitisation study in albino guinea pigs administered with F-52-01 ARCOprime 70. Mideco Study No. 55925. Los Angeles CA: ARCO

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## 8.11. LUBRICANT BASE OILS (LBO)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced, the predominant hydrocarbon classes present, the boiling point range and the carbon number range as follows:

- Derived from crude petroleum which is refined by atmospheric and vacuum distillation
- Refinery processes
  - vacuum distillation
  - atmospheric distillation
  - solvent extraction (phenol, furfural and N-methyl pyrrolidone)
  - solvent deasphalting (precipitation with propane or butane)
  - solvent dewaxing (or precipitation with methyl ethyl ketone)
  - catalytic dewaxing (isomerisation)
  - acid treatment (sulphuric acid or oleum)
  - hydrocracking (hydrogenation and cracking combined)
  - hydrotreatment / hydrodesulfurization
  - hydro finishing
  - clay treatment
  - iso-dewaxing
- Hydrocarbon types: aromatics, paraffins, naphthenics
- Boiling point range: 200°C to 800°C
- Carbon number range: predominantly C<sub>12</sub> to C<sub>120</sub>

Appendix 1 lists only those LBO substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - LBO substances are liquids.

**Aerosol:** Not relevant - LBO substances are not in aerosol form.

**Oxidising Gas:** Not relevant - LBO substances are liquids.

**Gas under Pressure:** Not relevant - LBO substances are liquids.

**Flammable Liquid:** LBO substances typically have flash points >98°C.

**Flammable Solid:** Not relevant - LBO substances are liquids.

**Self-reactive Substance:** LBO substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** LBO substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - LBO substances are liquids.

**Self-heating Substance:** LBO substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** LBO substances do not react with water.

**Oxidising Liquid:** LBO substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - LBO substances are liquids.

**Organic Peroxide:** LBO substances do not meet the definition of a peroxide.

**Corrosive to Metals:** LBO substances are liquids and do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of LBO substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1982; API, 1986b)
Rat inhalation (aerosol)	LC <sub>50</sub> > 5.53 mg/l (EBSI, 1988)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1986a)

**Skin Corrosion / Irritation:** Samples of LBO substances have been tested in rabbit skin irritation studies. The majority of the data were derived using a 24 hour occluded exposure protocol. The study performed on the “insufficiently refined” LBO substances showed moderate irritation. The study was performed for 24 hours rather than 4 hours and consequently the result from a shorter exposure time is not expected to cause irritation. In studies on “sufficiently refined” LBO substances no irritation was observed. There was no evidence of skin corrosion (API, 1982; API, 1986b).

**Serious Eye Damage / Eye Irritation:** The effects of LBO substances on the eye have been investigated in rabbits using a number of samples. All of the LBO substances tested were non-irritating to the eyes (API, 1982; API, 1986b).

**Respiratory or Skin Sensitization:** Tests in guinea pig with LBO substances showed no evidence of skin sensitization (API, 1982; API, 1986b). There are no reports available to indicate a potential to cause respiratory sensitization.

**Germ Cell Mutagenicity:** The mutagenic potential of LBO substances has been extensively studied in a range of *in vivo* and *in vitro* assays. The majority of the studies showed no evidence of mutagenic activity (Blackburn *et al.*, 1984; Blackburn *et al.*, 1986; API, 1986d; API, 1986c; ARCO, 1987a; ARCO, 1987b; Przygoda *et al.*, 1999; McKee RH, *et al.*, 1990). Based on the available data, LBO substances are not considered to be germ cell mutagens.

**Carcinogenicity:** The carcinogenic potential of LBO substances has been investigated in animals following dermal exposure. Based on these findings, “insufficiently refined” LBO substances are carcinogenic and the “sufficiently refined” LBO substances are not carcinogenic (Doak, *et al.*, 1983; Chasey and McKee, 1993).

**Reproductive Toxicity:** Results of developmental and reproductive toxicity studies on “sufficiently refined” LBO substances show no evidence of developmental or reproductive toxicity in rats. (WIL Research Laboratories, 1995; Mobil, 1987) There are no developmental toxicity data for “insufficiently refined” LBO substances, but their hazards are assumed to be similar to those of UDAE substances. In a read-across developmental study from UDAE substances, heavy paraffinic distillate furfural extract produced maternal, reproductive, and foetal toxicity in rats (Schreiner, *et al.*, 1997; Mobil, 1989). Therefore, LBO substances are classified accordingly. For the “insufficiently refined” LBO substances, there are no data on fertility but based on evidence from repeated dose toxicity studies, no effects on reproductive organs are expected.

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1982; API, 1986b; API, 1987b; EBSI, 1988).

**Repeated Exposure:** The repeated dose toxicity of LBO substances has been investigated by oral, dermal and inhalation routes for periods between 4 weeks and up to 2 years. For "insufficiently refined" LBO substances, read-across subchronic studies performed on UDAE substances resulted unspecific target organ toxicity in the following tissues: adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus (Mobil, 1990; Chasey and McKee, 1993; API, 1986a). For "sufficiently refined" LBO substances, repeated dose inhalation and dermal studies showed no systemic effects (Dalbey *et al.*, 1991; API, 1987a; Mobil, 1983; EBSI, 1991).

**Aspiration Hazard:** LBO substances span a range of viscosities with values reported as >2 mm<sup>2</sup>/s at 40 °C.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** All acute aquatic toxicity studies with fish, invertebrates and algae on samples of LBO substances show acute toxicity values greater than 100 mg/l. These tests were carried out on water accommodated fractions (EBSI, 1995; Petro Canada, 2008; Croucher and Girling, 1988).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on samples of LBO substances show chronic toxicity values greater than 1 mg/l for invertebrates. These tests were carried out on water accommodated fractions (Shell 1994; Shell 1995).

**Endocrine Disruption for the Environment:**

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** LBO substances are hydrocarbon UVCBs. Based on compositional information available and measured or predicted data, key constituents are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of LBO substances show predicted values for log K<sub>ow</sub> ranging from 2 to greater than 6 and are considered potentially bioaccumulative (HydroQual, 2010).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the 'worst-case' C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.

Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child Route of exposure: Dermal	H361d: Suspected of damaging the unborn child by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by dermal route.

## Labelling

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H304: May be fatal if swallowed and enters airways.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child by dermal route.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by dermal route.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.12. UNTREATED DISTILLATE AROMATIC EXTRACTS (UDAE)

**Definition / Domain:** Distillate Aromatic Extracts is the generic name for extracts of a vacuum distillate produced as by-products in the refining of lube base oils and waxes. Vacuum distillates (lubricating oil basestocks) are extracted with a solvent to selectively remove the aromatic compounds (especially 3-7 fused ring PAC). The solvent is then stripped from the resulting extract, and the remaining aromatic concentrate (aromatic extract) is the untreated distillate aromatic extract (UDAE). This may be further processed and the result is a treated DAE (TDAE), which are included in a separate category. UDAE substances are not intentional mixtures of chemicals but are complex combinations of hydrocarbon species.

The category domain is established by the refining processes by which the category members are produced, the predominant hydrocarbon classes present, the boiling point range and the carbon number range as follows:

- Derived from crude petroleum
- Refinery process:
  - atmospheric distillation
  - vacuum distillation
  - Solvent extraction of vacuum distillate fractions (without further processing)
- Hydrocarbon types: mostly alkylated PAC, naphthenic and iso-paraffinic
- Typical boiling point range: 250°C to 640°C
- Typical carbon number range: C<sub>15</sub> to C<sub>50</sub>

**Appendix 1** lists only those UDAE substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - UDAE substances are liquids.

**Aerosol:** Not relevant - UDAE substances are not in aerosol form.

**Oxidising Gas:** Not relevant - UDAE substances are liquids.

**Gas under Pressure:** Not relevant - UDAE substances are liquids.

**Flammable Liquid:** UDAE substances typically have flash points >140°C.

**Flammable Solid:** Not relevant - UDAE substances are liquids.

**Self-reactive Substance:** UDAE substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** UDAE substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - UDAE substances are liquids.

**Self-heating Substance:** UDAE substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** UDAE substances do not react with water.

**Oxidising Liquid:** UDAE substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - UDAE substances are liquids.

**Organic Peroxide:** UDAE substances do not meet the definition of a peroxide.

**Corrosive to Metals:** UDAE substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of UDAE substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1986b)
Rat inhalation (aerosol)	LC50 > 5 mg/l (ARCO, 1983)
Rabbit dermal	LD50 > 3000 mg/kg <sub>bw</sub> (API, 1986b)

**Skin Corrosion / Irritation:** Samples of UDAE substances have been tested in rabbit skin irritation non-guideline tests (24h exposure, occluded), which over predict irritation due to occluded conditions. No more than slight irritation would be expected in a guideline study (API, 1986b). Upon repeated exposure some UDAE substances may cause skin dryness or cracking.

**Serious Eye Damage / Eye Irritation:** The effects of UDAE substances on the eye have been investigated in rabbits. Results showed minimal redness which resolved quickly (API, 1986b).

**Respiratory or Skin Sensitization:** Tested in guinea pigs, samples of UDAE substances showed no evidence of skin sensitization (API, 1986b). There are no reports available to indicate UDAE substances have the potential to cause respiratory sensitization.

**Germ Cell Mutagenicity:** The mutagenic potential of UDAE substances has been extensively studied in a range of *in vivo* and *in vitro* assays (Blackburn *et al.*, 1984 and 1986; API, 1986c; Mobil, 1987; Covance 2021). Despite negative and equivocal results in two *in vivo* chromosome aberration tests (OECD TG 475, by oral and dermal exposure) and *in vivo* mammalian erythrocyte micronucleus test (OECD TG 474), respectively, the positive outcome in the modified Ames test and mammalian cell gene mutation assay for unrefined light paraffinic oil and light paraffinic distillate solvent extract, respectively, are considered to demonstrate clear mutagenic potential. Based on the available data, UDAE substances are considered germ cell mutagens via the dermal route.

**Carcinogenicity:** The carcinogenic potential of UDAE substances has been investigated in mouse skin painting studies. Results show that UDAE substances are carcinogenic (API, 1989).

**Reproductive Toxicity:** In a developmental study a distillate aromatic extract caused maternal, reproductive, and foetal toxicity in rats (WIL, 2012). There are no data on fertility but based on evidence from repeated dose toxicity studies, effects on male reproductive organs were observed via oral exposure (Mobil, 1990).

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1986b; ARCO, 1983).

**Repeated Exposure:** The repeat dose toxicity of UDAE substances has been studied in a 28-day sub-acute study via dermal exposure. No evident effects were observed (API, 1986a). However, results from subchronic studies performed on UDAE substances via oral and dermal exposure resulted in specific target organ toxicity in the following tissues: adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus. Additional effects were observed in the prostate, testes and seminal vesicles in the subchronic study via oral exposure. The NOAEL was determined to be < 30 mg/kg<sub>bw</sub> (Mobil, 1990).

**Aspiration Hazard:** UDAE substances span a range of viscosities with values reported as  $>10 \text{ mm}^2/\text{s}$  at  $40^\circ\text{C}$ .

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Studies on acute aquatic toxicity with samples of UDAE substances show acute toxicity values greater than  $1000 \text{ mg/l}$  for fish (BP, 1994),  $35.9 \text{ mg/L}$  for *Daphnia* (EMBSI, 2010b) and  $18.8 \text{ mg/l}$  for algae (EMBSI, 2010a). Tests were carried out on water accommodated fractions.

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on *Daphnia magna* exposed to samples of UDAE substances show variable chronic toxicity, with NOEL values between  $0.1$  and  $1 \text{ mg/l}$  (EMBSI, 2012a and 2012b).

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** UDAE substances are hydrocarbon UVCBs. Based on the known or expected properties of individual constituents, UDAE substances are not predicted to be readily biodegradable but are inherently biodegradable. Constituents of UDAE substances show measured or predicted values for  $\log K_{ow} \geq 4$  and are considered potentially bioaccumulative.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Germ Cell Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.

Hazard class	Hazard category	Hazard statement
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard      GHS09: environment



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P270: Do not eat, drink or smoke when using this product.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P314: Get medical advice/attention if you feel unwell.  
P331: Do NOT induce vomiting.  
P391: Collect spillage.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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Mobil (1990) Thirteen-week administration of 318 isthmus furfural extract to rats. Mobil Environ. and Health Sci. Lab. Study No. 61737. Princeton NJ: Mobil Oil Corporation

WIL (2012) A Dermal Prenatal Developmental Toxicity Study of Extract, Light Paraffinic Distillate Solvent in Rats. Testing Laboratory: Wil Research Laboratories. Owner Company: American Petroleum Institute



### 8.13. TREATED DISTILLATE AROMATIC EXTRACTS (TDAE)

**Definition / Domain:** Distillate Aromatic Extracts is the generic name for extracts of a vacuum distillate produced as by-products in the refining of lube base oils and waxes. Vacuum distillates (lubricating oil basestocks) are extracted with a solvent to selectively remove the aromatic compounds (especially 3-7 fused ring PAC). The solvent is then stripped from the resulting extract, and the remaining aromatic concentrate (aromatic extract) is the untreated distillate aromatic extract (UDAЕ), which are included in a separate category. The distillate aromatic extract may be further processed and the result is a treated DAE (TDAE) produced to meet physical-chemical and technical specifications, rather than chemical composition. TDAE substances are not intentional mixtures of chemicals but are complex combinations of hydrocarbon species.

The category domain of TDAE substances is established by the refining processes by which the category members are produced, the predominant hydrocarbon classes present, the boiling point range and the carbon number range as follows:

- Derived from crude petroleum
- Refinery process:
  - Solvent extraction of vacuum distillate fractions and further processing such as:
    - hydrotreatment / hydrodesulfurization
    - Clay-treatment
    - Acid-treatment
    - Carbon-treatment
    - Further solvent extraction
- Hydrocarbon types: mostly alkylated PAC, naphthenic and iso-paraffinic. TDAE subjected to hydrotreatment may significantly decrease levels of PAC contained in them.
- Typical boiling point range: 250°C to 640°C
- Typical carbon number range: C<sub>13</sub> to C<sub>50</sub>

Appendix 1 lists only those TDAE substances with active registrations at the time of issuing this report.

#### Part 1 - Classification Endpoint Rationale / Data Summary

##### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - TDAE substances are liquids.

**Aerosol:** Not relevant - TDAE substances are not in aerosol form.

**Oxidising Gas:** Not relevant - TDAE substances are liquids.

**Gas under Pressure:** Not relevant - TDAE substances are liquids.

**Flammable Liquid:** TDAE substances typically have flash points >140°C.

**Flammable Solid:** Not relevant - TDAE substances are liquids.

**Self-reactive Substance:** TDAE substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** TDAE substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - TDAE substances are liquids.

**Self-heating Substance:** TDAE substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** TDAE substances do not react with water.

**Oxidising Liquid:** TDAE substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - TDAE substances are liquids.

**Organic Peroxide:** TDAE substances do not meet the definition of a peroxide.

**Corrosive to Metal:** TDAE substances are liquids and do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of TDAE substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1982a; ARCO, 1983b,1985a; UBTL, 1983a,b,c)
Rat inhalation (aerosol)	LC <sub>50</sub> > 5 mg/l (ARCO, 1983a,c,d; EBSI, 1988a,b)
Rabbit dermal	LD <sub>50</sub> >2000 mg/kg <sub>bw</sub> (1982, 1984a,b,c, 1985b;)

**Skin Corrosion / Irritation:** Samples of TDAE substances have been tested in rabbit skin irritation non-guideline tests (24h exposure, occluded), which over predict irritation due to occluded conditions. No more than slight irritation would be expected in a guideline study. Upon repeated exposure some TDAE substances may cause skin dryness and cracking (API, 1986a; API,1982b,c; Trimmer *et al.*, 1989).

**Serious Eye Damage / Eye Irritation:** The irritating potential of samples of TDAE substances has been investigated in rabbits. Results showed minimal conjunctival chemosis which resolved quickly (API, 1986a; API, 1982c).

**Respiratory or Skin Sensitization:** Tested in guinea pigs and human volunteers, samples of TDAE substances showed no evidence of skin sensitization. There are no reports available to indicate TDAE substances have the potential to cause respiratory sensitization (API, 1986a; API, 1982c; EBSI, 1988c, d; Trimmer *et al.* 1989).

**Germ Cell Mutagenicity:** The mutagenic potential of samples of TDAE substances has been extensively studied in a range of *in vivo* and *in vitro* assays. Based on the available data, TDAE substances are not considered germ cell mutagens (Blackburn *et al.*, 1984, 1986; API, 1986c, d; Mobil, 1987a; McKee, *et al.*, 1990).

**Carcinogenicity:** The carcinogenic potential of samples of TDAE substances has been investigated in mouse skin painting studies. Results suggest that TDAE substances with  $\geq 3\%$  DMSO extractables as measured by IP346 have the potential to cause skin tumours (API 1989; Gradiski *et al.*, 1983). Samples of TDAE substances with lower levels of polycyclic aromatic compounds (PAC) (with < 3% DMSO extractables) are not carcinogenic (Doak *et al.*, 1985).

**Reproductive Toxicity:** The reproductive toxicity of TDAE substances with less than 3% DMSO extractables is read-across to LBO substances. Results of developmental and reproductive toxicity studies on “sufficiently refined” LBO substances did not show any evidence of developmental or reproductive toxicity in rats (WIL Research Laboratories, 1995; Mobil, 1987b). There are no developmental toxicity data for TDAE substances, but their hazards are assumed to be similar to those of UDAE substances. In a read-across developmental study from UDAE substances, heavy paraffinic distillate furfural extract produced maternal, reproductive, and foetal toxicity in rats (Mobil, 1989). For TDAE substances with  $\geq 3\%$  DMSO extractables, there are no data on fertility but based on evidence from repeated dose toxicity studies of representative samples, no effects on reproductive organs are expected (Mobil, 1987b)

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1982; ARCO, 1983; EBSI, 1988).

**Repeated Exposure:** The repeat dose toxicity of samples of TDAE substances has been investigated by oral, dermal and inhalation routes for periods between 4 weeks and up to 2 years. For TDAE substances with  $\geq 3\%$  DMSO extractables, read-across subchronic studies resulted in specific target organ toxicity in the following tissues: adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus (Mobil, 1990; API, 1986a). For TDAE substances with  $< 3\%$  DMSO extractables, repeat dose inhalation and dermal studies showed no systemic effects (Dalbey *et al.*, 1991; Dalbey, 2001; API, 1987; Mobil, 1983; EBSI, 1991a, b; Whitman *et al.*, 1989).

**Aspiration Hazard:** TDAE substances span a range of viscosities with values reported as  $> 10 \text{ mm}^2/\text{s}$  at  $40^\circ \text{C}$ .

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies on samples of TDAE substances, carried out using the WAF methodology, report acute toxicity values for fish, crustaceans and algae greater than  $100 \text{ mg/l}$  (BP, 1994; BP, 1995; EMBSI, 2010a and 2010b).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on *Daphnia magna* exposed to a sample of a TDAE substance show a NOEL value above  $1000 \text{ mg/l}$  (BP, 1995).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** TDAE substances are hydrocarbon UVCBs. Based on the known or expected properties of individual constituents, TDAE substances are not predicted to be readily biodegradable but are inherently biodegradable. Constituents of TDAE substances show measured or predicted values for  $\log K_{ow} \geq 4$  and are therefore considered potentially bioaccumulative.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the 'worst-case' C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

## Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS08: health hazard



### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.14. RESIDUAL AROMATIC EXTRACTS (RAE)

**Definition / Domain:** The domain of this category is established by the refining process by which the category members are produced and the boiling point range and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - Atmospheric distillation
  - Vacuum distillation
  - Propane extraction (deasphalting)
  - Solvent extraction
- Hydrocarbon types: alkylated aromatics, mixed aromatic cycloalkanes, and cycloparaffins.
- Boiling point range: >380°C
- Carbon number range: predominantly > C<sub>25</sub>

Appendix 1 lists only those RAE substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - RAE substances are liquids at ambient temperature.

**Aerosol:** Not relevant - RAE substances are not in aerosol form.

**Oxidising Gas:** Not relevant - RAE substances are liquids at ambient temperature.

**Gas under Pressure:** Not relevant - RAE substances are liquids.

**Flammable Liquid:** RAE substances typically have flash points greater than 250°C.

**Flammable Solid:** Not relevant - RAE substances are liquids at ambient temperature.

**Self-reactive Substance:** RAE substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** RAE substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - RAE substances are liquids at ambient temperature.

**Self-heating Substance:** RAE substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** RAE substances do not react with water.

**Oxidising Liquid:** RAE substances are not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - RAE substances are liquids at ambient temperature.

**Organic Peroxide:** RAE substances do not meet the definition of a peroxide.

**Corrosive to Metals:** RAE substances do not meet the criteria for corrosion of metal.  
**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of RAE substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1986)
Rat inhalation (aerosol)	LC <sub>50</sub> > 5 mg/l (ARCO, 1983)
Rabbit dermal	LD <sub>50</sub> > 3000 mg/kg <sub>bw</sub> (API, 1986)

**Skin Corrosion / Irritation:** No primary skin irritation studies were located for RAE substances; however, a read-across skin irritation study from a UDAE substance was identified which was conducted under occluded conditions for 24 hours instead of semi-occluded conditions for 4 hours (API, 1986). No more than slight irritation is expected in a guideline study. Additionally, RAE substances did not elicit skin irritation based on observations made during repeated dermal exposure studies (API, 1986). There was no evidence of skin corrosion.

**Serious Eye Damage / Eye Irritation:** Based on read-across to studies conducted with UDAE substances, results indicate that RAE substances would not be expected to cause irritation (API, 1986).

**Respiratory or Skin Sensitization:** Based on a read-across study from a UDAE substance, RAE substances are not expected to be skin sensitizers (API, 1986). There are no reports available to indicate RAE substances have the potential to cause respiratory sensitization.

**Germ Cell Mutagenicity:** The mutagenic potential of RAE substances has been studied in both *in vitro* and *in vivo* investigations. Based on the available data, RAE substances are not considered to be germ cell mutagens (Blackburn *et al*, 1996; Petrolabs, 1998a, b, c; EBSI, 1997a, b; Institut Pasteur de Lille, 2000; CIT, 2001; Concawe, 2012; Charles River, 2021a, b).

**Carcinogenicity:** RAE substances have been tested in mouse skin painting assays. Results indicate that some RAE substances can cause dermal carcinogenic lesions. Carcinogenic activity is likely related to the content of biologically active polycyclic aromatic hydrocarbons, which can be predicted based on results from modified Ames tests. Based on the limited evidence available, the relevance of these data for humans remains inconclusive. Therefore, RAE substances should be suspected of causing cancer (EMBSI, 2005; Mobil, 2001; Kane *et al*, 1984; BP, 1991; Mobil, 1991).

**Reproductive Toxicity:** There are no data on fertility but based on evidence from repeated dose toxicity studies, there are no effects on reproductive organs (Mobil, 1990). In a developmental toxicity study conducted with a RAE substance, no effects were observed (Mobil, 1989). The first results of the testing proposal for reproductive toxicity are available for 4 key developmental toxicity studies (OECD 414) by oral route (PNDT study performed on each CAS, on both rat and rabbit). They confirm that RAEs are not classified as a developmental toxicant (Charles River, 2021e, f). However, a testing proposal for CAS 64742-10-5 has been made, which should be further investigated in a OECD 443 study.

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1986; ARCO, 1983).

**Repeated Exposure:** There are two key studies for oral exposure, NOAELs were 1000 mg/kg/day in one study and 100 (females) and 300 (males) mg/kg/day in the other study (Charles River, 2021c, d). There was no systemic toxicity in dermal repeat dose toxicity studies (Mobil, 1990). The results are supported by 2 year dermal carcinogenic studies indicate only dermal effects are likely (EMBSI, 2005; Mobil, 2001; Kane *et al*, 1984; BP, 1991; Mobil, 1991).

**Aspiration Hazard:** RAE substances span a range of viscosities with values reported as >2000 mm<sup>2</sup>/s at 40 °C.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Samples of RAE substances have been tested in acute studies with fish and daphnia. Results show the LL50 was >1000 mg/l (BP, 1994a; BP, 1994b). To assess the impact on algae a PETROTOX QSAR prediction was used, with an EL<sub>50</sub> (72h) of >1000 mg/l based on growth rate (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Samples of RAE substances have been tested in 21-day *Daphnia magna* reproduction toxicity tests, and the EL<sub>50</sub> was >1000 mg/l (BP, 1995). To assess the impact on fish a PETROTOX QSAR prediction was used, with an NOEL of 63 mg/l (Redman and Yadav, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** RAE substances are hydrocarbon UVCBs. Based on the known or expected properties of individual constituents, RAE substances are not predicted to be readily biodegradable but are inherently biodegradable. Constituents of RAE substances show measured or predicted values for log K<sub>ow</sub> ≥ 4 and are considered potentially bioaccumulative.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.

### Labelling

Signal word: Warning

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H351: Suspected of causing cancer.

### Precautionary statements:

P201: Obtain special instructions before use.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

#### Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### REFERENCES

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Charles River (2021c) A 90-Day Study of Residual Aromatic Extract (CAS number 64742-10-5) by Dietary Administration in Wistar Han Rats (study report). Study number: 20268315

Charles River (2021d) A 90-Day Study of Residual Aromatic Extract (CAS number 91995-70-9) by Dietary Administration in Wistar Han Rats (study report). Study number: 20268313

Charles River (2021e) Prenatal Developmental Toxicity Study of Residual Aromatic Extract (CAS number 64742-10-5) by Dietary Administration in Time-Mated Wistar Han Rats (study report). Study number: 20268322

Charles River (2021f) Prenatal Developmental Toxicity Study of Residual Aromatic Extract (CAS number 91995-70-9) by Dietary Administration in Time-Mated Wistar Han Rats (study report). Study number: 20268320

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## 8.15. SLACK WAXES (SLACKWAX)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced, the predominant hydrocarbon classes present, the melting point range and the carbon number range as follows:

- Derived from vacuum distilled fractions and separated as a semi-solid by chilling
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - hydrotreatment / hydrodesulfurization
  - solvent extraction
  - solvent dewaxing
  - chilling

*N-B.: some category members are subject to further intermediate processing such as de-oiling or treatment with acid, clay, active carbon or hydrogenation but without changing their hydrocarbon composition significantly.*

- Hydrocarbon types: The major components of all slack waxes are branched and straight chain paraffins and naphthenes (cycloparaffins), which normally account for at least 85% by volume of a wax process stream. Aromatic hydrocarbons, mainly alkylbenzenes and alkylnaphthalenes will not normally exceed 15% by volume of slack wax streams. The boiling points of hazardous, 3 to 7 fused-ring polycyclic aromatic hydrocarbons (PAHs) are in the boiling range of the petroleum waxes, but they are removed by solvent extraction before chilling and wax separation.
- Typical melting point range: predominantly 43 °C to 63 °C
- Typical boiling point range: predominantly 300 °C to 800 °C
- Typical carbon number range: predominantly C<sub>12</sub> to C<sub>120</sub>

Appendix 1 lists only those Slackwax substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Slackwax substances are solids.

**Aerosol:** Not relevant - Slackwax substances are solids.

**Oxidising Gas:** Not relevant - Slackwax substances are solids.

**Gas under Pressure:** Not relevant - Slackwax substances are solids.

**Flammable Liquid:** Not relevant - Slackwax substances are solids.

**Flammable Solid:** Slackwax substances do not meet the requirement for classification as a flammable solid.

**Self-reactive Substance:** Slackwax substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Not relevant - Slackwax substances are solids.

**Pyrophoric Solid:** Slackwax substances do not spontaneously ignite in contact with air.

**Self-heating Substance:** Slackwax substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** Slackwax substances do not react with water.

**Oxidising Liquid:** Not relevant - Slackwax substances are solids.

**Oxidising Solid:** Slackwax substances are not considered oxidising based on structural considerations.

**Organic Peroxide:** Slackwax substances do not meet the definition of a peroxide.

**Corrosive to Metals:** Slackwax substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of Slackwax substances have been tested in acute oral and dermal studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1982; API, 1986b)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1986b)

**Skin Corrosion / Irritation:** Slackwax substances from carcinogenic or unknown feed stock were tested in rabbit skin irritation studies. In a 4 hour test with semi-occlusive dressing, the material was found not to be irritating to skin (NOTOX 2003). A Slackwax substance from non-carcinogenic feed stock was tested in human volunteers and showed no evidence of irritation (EBSI, 1988). There was no evidence of skin corrosion.

**Serious Eye Damage / Eye Irritation:** Eye irritation potential of a Slackwax substance (from carcinogenic or unknown feed stock) was evaluated in rabbits. Based on the results, the material is not considered to be an eye irritant (API, 1986b).

**Respiratory or Skin Sensitization:** No studies were available for respiratory sensitization. For skin sensitization, a Slackwax substance from carcinogenic or unknown feed stocks was evaluated by read-across and determined to be non-sensitising (API, 1986b). For Slackwax substances from a non-carcinogenic feed stock, read-across studies from LBO substances indicate that dermal sensitization was not observed (API, 1982; EBSI, 1988).

**Germ Cell Mutagenicity:** Samples of Slackwax substances produced mixed results in *in vitro* assays. In *in vivo* assays the samples did not produce any clastogenetic effects in the mouse micronucleus assay. Based on the available data, Slackwax substances are not considered to be germ cell mutagens (Covance, 2021; Blackburn *et al*, 1984; PetroLabs, 2004; API, 1986c; API, 1986d; ARCO, 1987a; ARCO, 1987b; Przygoda *et al*, 1999; McKee, 1990).

**Carcinogenicity:** The carcinogenic potential of Slackwax substances is determined by the feedstock from which the Slackwax substance is derived. Based on the available data, studies with Slackwax substances from insufficiently refined feedstock were carcinogenic, while those from sufficiently refined feedstocks were not (Shubik *et al*, 1962; Hendricks *et al*, 1959; Smith *et al*, 1951; Kane *et al*, 1984).

**Reproductive Toxicity:** The reproductive toxicity potential of Slackwax substances is determined by the feedstock from which the Slackwax substance is derived. For Slackwax substances from non-carcinogenic feed-stock, a key read-across screening study indicated no reproductive or developmental effects. An additional developmental toxicity study showed no effects (WIL Research Laboratories, 1995; Mobil, 1987). For Slackwax substances derived from carcinogenic feedstock a read-across study from UDAE substances indicates developmental effects are likely (Mobil, 1989).

### Specific Target Organ Toxicity

**Single Exposure:** Acute exposure studies show no specific organ toxicity following single exposure to slack waxes (API, 1982; API, 1986b).

**Repeated Exposure:** The repeat dose toxicity of Slackwax substances from carcinogenic or unknown feed stocks was assessed using read-across. Results indicate that oral and dermal exposure is likely to result in target organ toxicity (adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) (Mobil, 1990; Chasey and McKee, 1993). For Slackwax substances from non-carcinogenic feed-stocks, oral and dermal repeat dose read-across studies showed no evidence of target organ toxicity (BIBRA 1993; Mobil, 1983; API, 1986a; API, 1987; EBSI, 1991).

**Aspiration Hazard:** Viscosity of Slackwax substances at 40°C is not determined and in most cases the melting point is above this temperature. Viscosity for Slackwax substances ranges from 2.3 to 30 mm<sup>2</sup>/s at 100°C.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** All acute aquatic toxicity studies with fish, invertebrates and algae on samples of Slackwax substances (read-across from LBO substances) show acute toxicity values greater than 100 mg/l. These tests were carried out on water accommodated fractions (EBSI, 1995; Petro-Canada, 2008; Shell, 1988). Supporting acute toxicity QSAR predictions for fish, invertebrates and algae show toxicity above 1000 mg/l (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on samples of Slackwax substances (reading across from LBO substances) show chronic toxicity values greater than 1 mg/l for invertebrates. These tests were carried out on water accommodated fractions (Shell, 1995). A supporting QSAR prediction for chronic fish toxicity is greater than 1000 mg/l (Redman and Yadav, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Slackwax substances are hydrocarbon UVCBs. Based on compositional information available and measured or predicted data, key constituents are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of Slackwax substances show predicted values for log K<sub>ow</sub> ranging from 2 to greater than 6 and are therefore considered potentially bioaccumulative. (HydroQual, 2010).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the 'worst-case' C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all

alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child Route of exposure: Dermal	H361d: Suspected of damaging the unborn child by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Oral and dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal route.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard



#### Hazard statements:

H350: May cause cancer.

H361d: Suspected of damaging the unborn child by dermal route.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal route.

#### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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API (1986a) 28-day dermal toxicity study in the rabbit of API 84-01. Light paraffinic distillate (CAS 64741-50-0). Study conducted by Tegeris Laboratories Inc. API Med. Res. Publ. 33-31642. Washington DC: American Petroleum Institute

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## 8.16. PARAFFIN AND HYDROCARBON WAXES (PARAFFINWAX)

**Definition / Domain:** The domain of this category is established by the process by which the category members are produced, the predominant hydrocarbon classes present, the melting point range and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - hydrotreatment / hydrodesulfurization
  - solvent extraction
  - chilling
  - wax crystallization
  - clay treatment

*Note: some category members are subject to further processing such as de-oiling or treatment with acid, clay, active carbon or hydrogenation but without changing their hydrocarbon composition significantly.*

- Hydrocarbon types: the major components of all paraffin and hydrocarbon waxes are branched and straight chain paraffins and naphthenes (cycloparaffins), which normally account for at least 85% by volume of a wax process stream. Aromatic hydrocarbons, mainly alkylbenzenes and alkylnaphthalenes will not normally exceed 15% by volume of paraffin and hydrocarbon wax streams. The boiling point range of paraffin and hydrocarbon waxes is such that components of specific toxicological concern such as benzene (boiling point 80 °C) and n-hexane (boiling point 69 °C) are typically not present. The boiling points of the hazardous, 3 to 7 fused-ring polycyclic aromatic hydrocarbons (PAHs) are in the boiling range of the paraffin and hydrocarbon waxes, but they are removed by solvent extraction before chilling and wax separation.
- Typical melting point range: predominantly 43 °C to 95 °C
- Typical boiling point range: predominantly 300 °C to 800 °C
- Typical carbon number range: predominantly C<sub>12</sub> to C<sub>85</sub>

Appendix 1 lists only those Paraffinwax substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Paraffinwax substances are solids.

**Aerosol:** Not relevant - Paraffinwax substances are solids.

**Oxidising Gas:** Not relevant - Paraffinwax substances are solids.

**Gas under Pressure:** Not relevant - Paraffinwax substances are solids.

**Flammable Liquid:** Not relevant - Paraffinwax substances are solids.

**Flammable Solid:** Paraffinwax substances do not meet the requirement for classification as a flammable solid as the flash point is typically >160 °C.

**Self-reactive Substance:** Paraffinwax substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Not relevant - Paraffinwax substances are solids.

**Pyrophoric Solid:** Paraffinwax substances do not spontaneously ignite in contact with air.

**Self-heating Substance:** Paraffinwax substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** Paraffinwax substances do not react with water.

**Oxidising Liquid:** Not relevant - Paraffinwax substances are solids.

**Oxidising Solid:** Not considered oxidising based on structural considerations.

**Organic Peroxide:** Paraffinwax substances do not meet the definition of a peroxide.

**Corrosive to Metals:** Paraffinwax substances do not meet the requirement for corrosion to metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of Paraffinwax substances have been tested in acute oral and dermal studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (SafePharm Laboratories, 2007a; IBR, 1976)
Rat dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (BIBRA, 1993b)

**Skin Corrosion / Irritation:** Paraffinwax substances were tested in rabbit skin irritation studies under semi-occlusive conditions for 4 hours. Slight erythema was observed and was fully reversible by 24 hours (NOTOX, 2003). There was no evidence of skin corrosion.

**Serious Eye Damage / Eye Irritation:** Eye irritation potential of a Paraffinwax substance was evaluated. Results indicate that the eye irritation that occurred had cleared within 24 hours. Based on the Draize scores, the material is not considered to be an eye irritant (SafePharm Laboratories, 2007b).

**Respiratory or Skin Sensitization:** No studies were located for respiratory sensitization. For skin sensitization a Paraffinwax substance was evaluated in a guideline study and determined to be non-sensitising (Phycher Bio Développement, 2007).

**Germ Cell Mutagenicity:** Paraffinwax substances tested negative in *in vitro* assays (TNO, 2005a; TNO, 2005b; TNO, 2005c). *In vivo* assays for samples of Paraffinwax substances did not exhibit mutagenicity (McKee *et al*, 1990). Based on the available data, Paraffinwax substances are not considered to be germ cell mutagens.

**Carcinogenicity:** The carcinogenic potential of Paraffinwax substances was assessed in oral and dermal studies. The Paraffinwax substances were not considered to be carcinogenic (Shubik *et al*, 1962).

**Reproductive Toxicity:** Paraffinwax substances were assessed for fertility and developmental effects via read-across to “sufficiently refined” LBO substances. No reproductive toxicity was observed (WIL Research Laboratories, 1995; Mobil, 1987).

## Specific Target Organ Toxicity

**Single Exposure:** Acute exposure studies do not indicate any specific organ toxicity following single exposure to Paraffinwax substances (SafePharm Laboratories, 2007a; IBR, 1976; BIBRA, 1993b).

**Repeated Exposure:** The repeat dose toxicity of Paraffinwax substances was assessed for both oral and dermal routes of exposure either as the substance or as read-across from LBO substances. The study data indicate that no target organ toxicity was observed (BIBRA, 1993a; Worrell, 1992; Shubik *et al*, 1962; Mobil, 1983; API, 1987; EBSI, 1991).

**Aspiration Hazard:** Viscosity of Paraffinwax substances at 40 °C is not determined and the melting point is above this temperature. Paraffinwax substances span a range of viscosities with values reported in the range 3 to 30 mm<sup>2</sup>/s at 100 °C.

**Endocrine Disruption for Human Health:** No data.

## 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** All acute aquatic toxicity studies with fish, invertebrates and algae on samples of Paraffinwax substances (reading across from LBO substances) show acute toxicity values greater than 100 mg/l. These tests were carried out on water accommodated fractions. (EBSI, 1995; Petro-Canada, 2008; Shell, 1988). Supporting acute toxicity QSAR predictions for fish, invertebrates and algae show toxicity above 1000 mg/l (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on samples of Paraffinwax substances (reading across from LBO substances) show chronic toxicity values greater than 1 mg/l for invertebrates. These tests were carried out on water accommodated fractions (Shell, 1995). A supporting QSAR prediction for chronic fish toxicity is greater than 1000 mg/l (Redman and Yadav, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Paraffinwax substances are hydrocarbon UVCBs. Based on compositional information available and measured or predicted data, key constituents are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of Paraffinwax substances show predicted values for log  $K_{ow}$  ranging from 2 to greater than 6 and are therefore considered potentially bioaccumulative (HydroQual, 2010).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

## 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

### Classification and labelling according to CLP / GHS

Paraffinwax substances are not classified under EU CLP ((EC) No. 1272/2008) (EU, 2008).

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## 8.17. FOOTSOILS (FOOTSOIL)

**Definition / Domain:** The domain of this category is established by the refining processes by which the category members are produced, the predominant hydrocarbon classes present and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - hydrotreatment / hydrodesulfurization
  - acid treatment (sulphuric or silicic acid)
  - clay treatment
  - de-oiling of slack waxes
  - wax crystallization
  - activated carbon
- Hydrocarbon types: aromatics, paraffins, naphthenics
- Typical melting point range: predominantly -60°C to 49°C (pour point)
- Typical boiling point range: predominantly >158°C to 800°C (read-across to LBO substances)
- Typical carbon number range: predominantly C<sub>20</sub> to C<sub>50</sub>

**Appendix 1** lists only those Footsoil substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Footsoil substances are liquids.

**Aerosol:** Not relevant - Footsoil substances are not in aerosol form.

**Oxidising Gas:** Not relevant - Footsoil substances are liquids.

**Gas under Pressure:** Not relevant - Footsoil substances are liquids.

**Flammable Liquid:** Footsoil substances typically have flash points >98°C (read-across to LBO substances).

**Flammable Solid:** Not relevant - Footsoil substances are liquids.

**Self-reactive Substance:** Footsoil substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Footsoil substances do not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - Footsoil substances are liquids.

**Self-heating Substance:** Footsoil substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** Footsoil substances do not react with water.

**Oxidising Liquid:** Footsoil substances are not considered oxidising based on structural considerations.



**Oxidising Solid:** Not relevant - Footsoil substances are liquids.

**Organic Peroxide:** Footsoil substances do not meet the definition of a peroxide.

**Corrosive to Metals:** Footsoil substances are liquids and do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of Footsoil substances have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1986a; UBTL, 1983a)
Rat inhalation (aerosol)	LC <sub>50</sub> > 5.53 mg/l (EBSI, 1988)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1986a)

**Skin Corrosion / Irritation:** Samples of Footsoil substances have been tested in rabbit skin irritation studies. The majority of the data were derived using a 24 hour occluded exposure protocol. The read-across study performed on “insufficiently refined” LBO substances showed moderate irritation. The study was performed for 24 hours rather than 4 hours and consequently the result from a shorter exposure time is not likely to cause irritation. In read-across studies on “sufficiently refined” LBO substances no irritation was observed. There was no evidence of skin corrosion (API, 1986a; API, 1982).

**Serious Eye Damage / Eye Irritation:** The effects of samples of Footsoil substances on the eye have been investigated in rabbits using a number of samples. All of the samples tested were non-irritating to the eyes (API, 1986a; API, 1982).

**Respiratory or Skin Sensitization:** Tests in guinea pig with samples of Footsoil substances showed no evidence of skin sensitization (API, 1986a). There are no reports available to indicate a potential to cause respiratory sensitization.

**Germ Cell Mutagenicity:** Data were read-across from LBO substances. The mutagenic potential has been extensively studied in a range of *in vivo* and *in vitro* assays. The majority of the studies showed no evidence of mutagenic activity (Covance, 2021; Blackburn *et al*, 1984; API, 1986d; API, 1986c; ARCO, 1987; Przygoda *et al*, 1999; McKee, *et al*, 1990). Based on the available data, Footsoil substances are not considered to be germ cell mutagens.

**Carcinogenicity:** The carcinogenic potential of samples of Footsoil substances has been investigated in animals following dermal exposure. Based on these findings, Footsoil substances similar to “insufficiently refined” LBO substances are carcinogenic while those that are similar to “sufficiently refined” LBO substances are not carcinogenic (Doak *et al*, 1983; Chasey and McKee, 1993).

**Reproductive Toxicity:** There are no reproductive toxicity data available for Footsoil substances. Data were derived from LBO substances. Results of developmental and reproductive toxicity studies on “sufficiently refined” LBO substances did not show any evidence of developmental or reproductive toxicity in rats (WIL Research Laboratories, 1995; Mobil, 1987). There are two robust 2-generation reproductive studies (OECD 416) conducted with gas-to liquid products, a gas oil and a base oil (Boogaard *et al*, 2017). The gas oil contains branched and linear C8-C25 distillates and the base oil C18-C50 branched cyclic and linear distillates; these results indicate that the long chain hydrocarbons also present in Footsoils are not associated with reproductive toxicity as there were no effects on fertility or reproductive function. For the carcinogenic Footsoil substances, there are no data on fertility but based on evidence from repeated dose toxicity studies, no effects on reproductive organs are expected (Boogaard *et al*, 2017). Insufficiently refined footsoils are classified as carcinogenic (Carc 1B; H350) and reprotoxic (Repr 2; H361d).



## Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies with samples of Footsoil substances show no evidence of systemic toxicity (API, 1982; API, 1986b; API, 1987).

**Repeated Exposure:** The repeat dose toxicity of samples of Footsoil substances has been investigated by dermal and inhalation routes for periods between 4 weeks and up to 2 years by read-across to LBO substances. For “insufficiently refined” LBO substances, read-across subchronic studies performed on UDAE substances resulted in specific target organ toxicity in the following tissues: adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus (Mobil, 1990; Chasey and McKee, 1993; API, 1986a). For “sufficiently refined” LBO substances, repeat dose inhalation and dermal studies showed no systemic effects (Dalbey *et al.*, 1991; Mobil, 1983; EBSI, 1991).

**Aspiration Hazard:** Samples of Footsoil substances span a range of viscosities with values reported as  $>2 \text{ mm}^2/\text{s}$  at  $40^\circ \text{C}$ .

**Endocrine Disruption for Human Health:** No data.

## 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** All acute aquatic toxicity studies with fish, invertebrates and algae on samples of Footsoil substances (reading across from LBO substances) show acute toxicity values greater than 100 mg/l. These tests were carried out on water accommodated fractions (EBSI, 1995; Petro Canada, 2008; Shell, 1988). Supporting acute toxicity QSAR predictions for fish, invertebrates and algae show toxicity above 1000 mg/l (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on a Footsoil substance (reading across from LBO substances) show chronic toxicity values greater than 1 mg/l for invertebrates. These tests were carried out on water accommodated fractions (Shell, 1995). A supporting QSAR prediction for chronic fish toxicity is greater than 1000 mg/l (Redman and Yadav, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Footsoil substances are hydrocarbon UVCBs. Based on compositional information available and measured or predicted data, key constituents are not expected to meet the criteria for ready degradability but are inherently biodegradable (Shell, 1995). Constituents of Footsoil substances show predicted values for  $\log K_{ow}$  ranging from 2 to greater than 6 and are therefore considered potentially bioaccumulative (HydroQual, 2010).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

## 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

Note: No tonnages or registrations as Intermediate under Strictly Controlled Conditions have been reported for the CMR version of this substance.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS08: health hazard



### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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EBSI (1995) Fish, acute toxicity test. MRD-94-981 basestock solvent neutral 600. Report prepared for Exxon Company International. EBSI Study No. 198140. East Millstone NJ: Exxon Biomedical Sciences Inc.

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Shell (1988) Oils: acute toxicity of four oils to *Daphnia magna* and *Gammarus pulex*. Report No. SBGR.88.075. Sittingbourne: Shell Research Ltd

WIL Research Laboratories (1995) An oral reproduction/developmental toxicity screening study of OLOA 219 in finished oils in rats. Study conducted for Chevron Research and Technology Company Study No. WIL-187007. Ashland OH: WIL Research Laboratories Inc.

## 8.18. PETROLATUMS (PETROLATUM)

**Definition / Domain:** The domain of this category is established by the process by which the category members are produced, the predominant hydrocarbon classes present, the melting point range and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - solvent extraction
  - solvent deasphalting
  - solvent dewaxing
  - chilling

*Note: some category members are subject to further intermediate processing such as de-oiling or treatment with acid, clay, active carbon or hydrogenation but without changing their hydrocarbon composition significantly.*

- Hydrocarbon types: the major components of all paraffin and hydrocarbon waxes are branched and straight chain paraffins and naphthenes (cycloparaffins), which normally account for at least 85% by volume of a wax process stream. Aromatic hydrocarbons, mainly alkylbenzenes and alkylnaphthalenes will not normally exceed 15% by volume of paraffin and hydrocarbon wax streams. The boiling point range of paraffin and hydrocarbon waxes is such that components of specific toxicological concern such as benzene (boiling point 80°C) and n-hexane (boiling point 69°C) are typically not present. The boiling points of the hazardous, 3 to 7 fused-ring polycyclic aromatic hydrocarbons (PAHs) are in the boiling range of the paraffin and hydrocarbon waxes, but they are removed by solvent extraction before chilling and wax separation.
- Typical melting point range: predominantly 36°C to 71°C
- Typical boiling point range: predominantly  $\geq 300^\circ\text{C}$
- Typical carbon number range: predominantly  $\text{C}_{12}$  to  $\text{C}_{85}$

Appendix 1 lists only those Petrolatum substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Petrolatum substances are solids.

**Aerosol:** Not relevant - Petrolatum substances are solids.

**Oxidising Gas:** Not relevant - Petrolatum substances are solids.

**Gas under Pressure:** Not relevant - Petrolatum substances are solids.

**Flammable Liquid:** Not relevant - Petrolatum substances are solids.

**Flammable Solid:** Petrolatum substances typically have flash points  $> 160^\circ\text{C}$ .

**Self-reactive Substance:** Petrolatum substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Not relevant - Petrolatum substances are solids.

**Pyrophoric Solid:** Petrolatum substances do not spontaneously ignite in contact with air.

**Self-heating Substance:** Petrolatum substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** Petrolatum substances do not react with water.

**Oxidising Liquid:** Not relevant - Petrolatum substances are solids.

**Oxidising Solid:** Not considered oxidising based on structural considerations.

**Organic Peroxide:** Petrolatum substances do not meet the definition of a peroxide.

**Corrosive to Metals:** Petrolatum substances do not meet the criteria the requirement for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of Petrolatum substances have been tested in acute oral and dermal studies. Results indicate the following:

Rat oral	LD <sub>50</sub> >5000 mg/kg <sub>bw</sub> (API, 1982; API, 1986b)
Rabbit dermal	LD <sub>50</sub> >2000 mg/kg <sub>bw</sub> (BIBRA, 1993b; API, 1986b)

**Skin Corrosion / Irritation:** Samples of Petrolatum substances were evaluated in rabbit skin irritation studies. Results indicate that the material is not considered irritating to skin. There was no evidence of skin corrosion (API, 1986b; NOTOX, 2003).

**Serious Eye Damage / Eye Irritation:** Samples of Petrolatum substances were evaluated in rabbit eye irritation studies. Results indicate that the material is not considered irritating to eye (API, 1986b; SafePharm Laboratories, 2007).

**Respiratory or Skin Sensitization:** No studies were located for respiratory sensitization. Samples of Petrolatum substances were evaluated for skin sensitization in the guinea pig and were shown to be non-sensitizing (API, 1986b; Kuhn, 1995).

**Germ Cell Mutagenicity:** The mutagenicity for Petrolatum substances was assessed. *In vitro* assays gave mixed results depending on the degree of refining. *In vivo* assays were negative in the mouse micronucleus assay (Covance, 2021; Blackburn *et al*, 1984; TNO, 2005a; API, 1986c; TNO, 2005b; ARCO, 1987; TNO, 2005c; Mobil, 1987b; McKee *et al*, 1990). Based on the available data, Petrolatum substances are not considered to be a germ cell mutagen.

**Carcinogenicity:** The carcinogenic potential of Petrolatum substances is determined by the feedstock from which the Petrolatum substance is derived. Based on the available data, Petrolatum substances from insufficiently refined feedstock are carcinogenic, while material from sufficiently refined feedstocks are not carcinogenic (Shubik *et al*, 1962; Hendricks *et al*, 1959; Kane *et al*, 1984; Lijinsky *et al*, 1966; Oser *et al*, 1965; Blackburn *et al*., 1984).

**Reproductive Toxicity:** The reproductive toxicity potential of Petrolatum substances is determined by the feedstock from which the Petrolatum substance is derived. For Petrolatum substances from sufficiently refined feed-stock, read-across studies indicated no reproductive toxicity (WIL Research Laboratories, 1995; Mobil, 1987a). For Petrolatum substances derived from insufficiently refined feedstock a read-across study indicates developmental effects are likely (Mobil, 1989).



### Specific Target Organ Toxicity

**Single Exposure:** Acute exposure studies do not indicate any specific organ toxicity following single exposure to Petrolatum substances (API, 1982; API, 1986b; BIBRA, 1993b).

**Repeated Exposure:** The repeat dose toxicity of insufficiently refined Petrolatum substances was assessed by read-across to similar substances. Results indicate that oral and dermal exposure could result in target organ toxicity (adrenals, bone marrow, blood, liver, lymph nodes, kidney, stomach and thymus) (Mobil, 1990; Mobil, 1989; API, 1986a; Chasey and McKee, 1993). For sufficiently refined Petrolatum substances, dermal and oral repeat dose read-across studies indicate no biologically significant target organ toxicity (Worrell, 1992; BIBRA, 1993a; Oser *et al*, 1965; Mobil, 1983; API, 1987; EBSI, 1991).

**Aspiration Hazard:** Petrolatum substances span a range of viscosities with values reported as 3 to 30 mm<sup>2</sup>/s at 100°C.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** All acute aquatic toxicity studies with fish, invertebrates and algae for Petrolatum substances (reading across from LBO substances) show acute toxicity values greater than 100 mg/l. These tests were carried out on water accommodated fractions (EBSI, 1995; Petro-Canada, 2008; Shell, 1988). Supporting acute toxicity QSAR predictions for fish, invertebrates and algae show toxicity above 1000 mg/l (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** Chronic aquatic toxicity studies on samples of Petrolatum substances (reading across from LBO substances) show a lowest chronic toxicity value of 3 mg/l for invertebrates. These tests were carried out on water accommodated fractions (Shell, 1995). A supporting QSAR prediction for chronic fish toxicity is greater than 1000 mg/l (Redman and Yadav, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Petrolatum substances are hydrocarbon UVCBs. Based on compositional information available and measured or predicted data, key constituents are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of Petrolatum substances show predicted values for log K<sub>ow</sub> ranging from 2 to greater than 6 and are considered potentially bioaccumulative (HydroQual, 2010).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the 'worst-case' C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

Note: No tonnages or registrations as Intermediate under Strictly Controlled Conditions have been reported for the CMR version of this substance.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child Route of exposure: Dermal	H361d: Suspected of damaging the unborn child by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, blood, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Oral and dermal	H372: Causes damage to adrenals, bone marrow, blood, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H350: May cause cancer.

H361d: Suspected of damaging the unborn child by dermal route.

H372: Causes damage to adrenals, bone marrow, blood, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.19. BITUMENS (BITUMEN)

**Definition / Domain:** The domain of this category is established by the process by which the category members are produced, the predominant hydrocarbon classes present, the melting point range and the carbon number range as follows:

- Derived from crude petroleum
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - solvent deasphalting
  - thermal cracking
- Hydrocarbon types: predominantly asphaltenes (MW 2,000 to 5,000) and maltenes (MW 500 to 2,000) with small amounts of lower weight materials, including polycyclic aromatic hydrocarbons (PAHs).
- Typical boiling point range: >320°C to >500°C
- Typical carbon number range: predominantly greater than C<sub>25</sub> but with the bulk of the material having carbon numbers greater than C<sub>50</sub> and up to C<sub>80</sub>

Appendix 1 lists only those Bitumen substances with active registrations at the time of issuing this report.

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Bitumen substances are solids.

**Aerosol:** Not relevant - Bitumen substances are not in aerosol form.

**Oxidising Gas:** Not relevant - Bitumen substances are solids.

**Gas under Pressure:** Not relevant - Bitumen substances are solids.

**Flammable Liquid:** Not relevant - Bitumen substances are solids.

**Flammable Solid:** Bitumen substances have flash points greater than 180°C.

**Self-reactive Substance:** Bitumen substances are not self-reactive. They do not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Not relevant - Bitumen substances are solids.

**Pyrophoric Solid:** Bitumen substances do not spontaneously ignite in contact with air.

**Self-heating Substance:** Bitumen substances do not react exothermically.

**Substance which in contact with water emits flammable gas:** Bitumen substances do not react with water.

**Oxidising Liquid:** Not relevant - Bitumen substances are solids.

**Oxidising Solid:** Not considered oxidising based on structural considerations.

**Organic Peroxide:** Bitumen substances do not meet the definition of a peroxide.



**Corrosive to Metals:** Bitumen substances do not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of Bitumen substances have been tested in acute oral and dermal studies. Results show the following:

Rat oral LD<sub>50</sub> > 5000 mg/kg<sub>bw</sub> (API, 1982a; API, 1982b)  
Rat inhalation LC<sub>50</sub> > 94.4 mg/m<sup>3</sup> (Fraunhofer, 2000b)  
Rabbit dermal LD<sub>50</sub> > 2000 mg/kg<sub>bw</sub> (API, 1982a; API, 1982b)

This is a read-across inhalation study, as no acute inhalation toxicity data is available for straight-run bitumen. Fumes from OxiAsph (aerosol and vapour) have been tested. Read across from oxidized asphalt to straight run bitumen is considered valid since mild oxidation is not expected to change the composition or acute toxicity of the material. Additionally, repeated dose toxicity studies on bitumen and oxidized asphalt support that bitumens are not acutely toxic. Therefore, bitumens are not classified as acutely toxic under CLP ((EC) No. 1272/2008) criteria (EU, 2008).

**Skin Corrosion / Irritation:** Samples of Bitumen substances have been tested in rabbit skin irritation studies, performed under occlusion and during 24 hours, rather than 4 hour semi-occluded exposure recommended by current OECD guidelines. Only minimal, transient irritation was seen (API, 1982a; API, 1982b). Mean erythema and oedema scores over the 72 hour period were low. Consequently, the result from a shorter exposure time will not meet the criteria for classification.

**Serious Eye Damage / Eye Irritation:** The effects of Bitumen substances on the eye have been investigated in rabbits. None of the samples tested showed more than minimal redness and swelling, which resolved quickly (API, 1982a; API, 1982b).

**Respiratory or Skin Sensitization:** Tests in guinea pigs with samples of Bitumen substances showed no evidence of skin sensitization (API, 1983a; API, 1983b). There is no data available for respiratory sensitization for bitumen.

**Germ Cell Mutagenicity:** The mutagenic potential of Bitumen substances and fume condensates from Bitumen substances has been extensively studied in a range of *in vivo* and *in vitro* assays. It is important to recognize that toxicity studies involving exposure to fume or fume condensates from bitumens represent only the volatile fraction of the whole material. Overall, there is no convincing evidence from studies in animals that exposure to fumes from bitumen causes mutagenic or clastogenic effects (Kriech et al, 2007; De Meo et al, 1996; Qian, et al, 1996; Bottin et al., 2006; Micillino et al, 2002, API 1984 a,b). The available data does not provide clear consistent evidence of genotoxic activity. Chronic inhalation studies with oxidized (air-rectified) asphalt, (Halter et al, 2007) together with comparative fume composition information, indicate that read across to the bitumen category, is appropriate. Based on these *in vivo* animal studies, it clearly is shown that bitumen-induced DNA adducts are not necessarily linked to mutagenic effects.

In addition, no consistent association was observed between acute and chronic clinical effects on lung function or respiratory irritation following exposure to bitumen fumes in additional human studies (Gamble et al, 1999; Watkins, 2002; Burstyn et al, 2003; Randem et al, 2003; Breuer et al, 2011; Marczynski et al, 2011; Pesch et al, 2011; Raulf-Heimsoth et al, 20011a,b,c; Rihs et al, 2011; Spickenheuer et al, 2011; Welge, 2011).

Based on the currently available data, bitumens are unlikely to be mutagenic and do not meet the criteria for classification under CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

Furthermore, a testing proposal has been submitted according to the OECD Guideline 474 (in vivo mammalian somatic cell study) in combination with a study OECD Guideline 489 (in vivo Mammalian Alkaline Comet Assay), subject to approval following ECHA/MSCA review.



**Carcinogenicity:** The carcinogenic potential of Bitumen substances and fumes from Bitumen substances has been investigated in animals following dermal and inhalation exposure routes with no clear evidence of carcinogenic effects (Clark *et al*, 2011; Goyak *et al*, 2011; Fraunhofer, 2006; Hueper and Payne, 1960; Simmers, 1965; Robinson *et al*, 1984; Wallcave *et al*, 1971; Fuhst *et al*, 2006). In addition, two epidemiological studies examining European asphalt workers were identified with no conclusion on the presence or absence of a causal link between exposure to bitumen fume and cancer risk (IARC, 2001; IARC, 2009). Overall, the data available does not indicate that exposure to Bitumen substances or fumes from Bitumen substances present a carcinogenic hazard under normal condition of use.

**Reproductive Toxicity:** No reproductive study on bitumen has been performed. However, some indication of the likely effect of a test substance on reproductive organs can be gained from the results of repeated-dose toxicity studies where the weights and histopathology of reproductive organs were not affected following dermal exposure to bitumen at doses up to 2000 mg/kg (API, 1982 a,b). To close data gaps however, a testing proposal for extended one-generation study for reproductive toxicity (OECD guideline 443) has been included in the registration dossiers submitted to ECHA and is subject to approval following ECHA/MSCA review.

A developmental toxicity study on bitumen has been performed in rats via the inhalation route as this is considered the only relevant route of human exposure (Fraunhofer, 2017). The NOAEC is 150 mg/m<sup>3</sup> with no adverse effects observed. A testing proposal for a Prenatal Developmental Toxicity Study in rabbits (OECD 414) has been included in the registration dossiers submitted to ECHA and is subject to approval following ECHA/MSCA review.

Currently available data do not support classification of bitumen as toxic for reproduction or development under EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

#### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1982a; API, 1982b; Fraunhofer, 2000b).

**Repeated Exposure:** The repeat dose toxicity of Bitumen substances has been investigated by dermal and inhalation routes. Apart from mild irritation of the upper respiratory tract there is no evidence that exposure to Bitumen substances or fumes from Bitumen substances causes significant systemic toxicity (Fraunhofer, 2001; API, 1983c; API, 1983d).

In addition, Concawe believes that dermal is the most relevant exposure route. However, the primary objective of the testing required for REACH is the identification of hazard, for which the default exposure route under the regulation is oral as this is considered to maximise systemic exposure. To address the regulatory exposure route issue, Concawe plans to also conduct a number of oral OECD 422 studies on prioritized substances in each relevant petroleum category. Furthermore, a testing proposal has been submitted for a repeated dose 90-day oral toxicity study (OECD 408), subject to approval following ECHA/MSCAs review.

**Aspiration Hazard:** Not relevant as Bitumen substances are solid.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** There is no data available on the acute aquatic toxicity of Bitumen substances. Bitumen substances are not expected to exert acute toxicity based on water solubility limitations. QSAR assessment, based on their hydrocarbon composition, indicates that they would be expected to give LL50 (96 hrs) values > 1000 mg/l for fish, daphnia and algae (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** There is no chronic toxicity data available for Bitumen substances. QSAR assessment of chronic toxicity, based on hydrocarbon composition, indicates that they would be expected to give chronic NOEL values in fish and daphnia of  $\geq 1000$  mg/l (Redman and Yadav, 2010).

The bitumen substances do not raise concern regarding hazards to the environment according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Bitumen substances are hydrocarbon UVCBs and therefore biodegradation tests are not applicable. These endpoints are characterized using quantitative structure property relationships for representative hydrocarbon structures that comprise the hydrocarbon blocks used to assess the environmental risk with the PETRORISK model. Based on compositional information available and measured or predicted data on key constituents (Howard *et al*, 2010), Bitumen substances are not expected to meet the criteria for ready degradability. Calculated BCF for constituents of these substances range between 0.4 and 13300 l/kg and are considered potentially bioaccumulative (Software tool EPISuite v.4.10; BCFBAF, 2012).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

### Classification and labelling according to CLP / GHS

Bitumen substances are not classified under EU CLP ((EC) No. 1272/2008) (EU, 2008).

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## 8.20. OXIDIZED ASPHALT (OXIASPH)

**Definition / Domain:** Oxidized asphalt is derived from crude petroleum. It is a complex black solid, obtained by blowing air through heated petroleum residues, or the raffinate from a deasphalting process with or without a catalyst. The process is principally one of oxidative condensation which increases the molecular weight.

- Derived from crude petroleum
- Refinery processes
  - atmospheric distillation
  - vacuum distillation
  - solvent deasphalting
  - thermal cracking
  - oxidation
- Hydrocarbon types: Predominantly asphaltenes (MW 2,000 to 5,000) and maltenes (MW 500 to 2,000) with small amounts of lower weight materials, including polycyclic aromatic hydrocarbons (PAHs).
- Typical boiling point range: Greater than 308°C
- Typical carbon number range: Predominantly greater than C<sub>25</sub> but with the bulk of the material having carbon numbers greater than C<sub>50</sub> and up to C<sub>80</sub>

As shown in **Appendix 1**, OxiAsph is defined by a single EC number (265-196-4).

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - OxiAsph is solid.

**Aerosol:** Not relevant - OxiAsph is not in aerosol form.

**Oxidising Gas:** Not relevant - OxiAsph is solid.

**Gas under Pressure:** Not relevant - OxiAsph is solid.

**Flammable Liquid:** Not relevant - OxiAsph is solid.

**Flammable Solid:** OxiAsph does not meet the criteria for classification as a flammable solid.

**Self-reactive Substance:** OxiAsph is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Not relevant - OxiAsph is solid.

**Pyrophoric Solid:** OxiAsph does not spontaneously ignite in contact with air.

**Self-heating Substance:** OxiAsph does not react exothermically.

**Substance which in contact with water emits flammable gas:** OxiAsph does not react with water.



**Oxidising Liquid:** Not relevant - OxiAsph is solid.

**Oxidising Solid:** OxiAsph is not considered oxidising based on structural considerations.

**Organic Peroxide:** OxiAsph does not meet the definition of a peroxide.

**Corrosive to Metals:** OxiAsph does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

Read-across from Bitumen substances to oxidized asphalt is justified based on the weight of evidence from all available studies and the fact that the oxidation process increases the molecular weight and is not expected to change the toxicity of the material.

**Acute Toxicity:** Samples of Bitumen substances have been tested in acute oral, inhalation and dermal studies. Results show the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1982a; API, 1982b)
Rat inhalation	LC <sub>50</sub> > 94.4 mg/m <sup>3</sup> (Fraunhofer, 2000b)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1982a; API, 1982b)

Read across toxicity studies have been conducted on straight-run asphalt to assess the acute oral and dermal hazard (API, 1982a; API 1982b). For all these endpoints oxidized asphalt is not acutely toxic.

**Skin Corrosion / Irritation:** OxiAsph has been tested in a rabbit skin irritation study. The data were derived using a 24 hour occluded exposure protocol. Only minimal, transient irritation was seen (ARCO, 1973). The study is supported by skin irritation studies on Bitumen substances (API, 1982 a, b).

**Serious Eye Damage / Eye Irritation:** The effects of OxiAsph on the eye have been investigated in rabbits. None of the samples tested showed more than minimal redness and swelling, which resolved quickly (ARCO, 1973). The study is supported by skin irritation studies on Bitumen substances (API, 1982a; API, 1982b).

**Respiratory or Skin Sensitization:** Tests in guinea pigs with samples of Bitumen substances showed no evidence of skin sensitization. There are no reports available to indicate that OxiAsph has the potential to cause respiratory sensitization (API, 1983c; API, 1983d).

**Germ Cell Mutagenicity:** The mutagenic potential of OxiAsph and fume condensates from OxiAsph has been extensively studied in a range of *in vivo* and *in vitro* assays. Although results show weak activity in some *in vitro* studies, this is not supported by results of an *in vivo* study. (Kriech *et al*, 2007; De Meo *et al*, 1996; Qian *et al*, 1996; Bottin *et al*, 2006; Micillino, *et al*, 2002; Fraunhofer, 2009). Based on the available data, OxiAsph is not considered to be a germ cell mutagen.

**Carcinogenicity:** The carcinogenic potential of OxiAsph and fumes from OxiAsph has been investigated in animals following dermal and inhalation exposure. In addition, epidemiological studies have been undertaken in exposed human populations. (Clark *et al*, 2011; Freeman *et al*, 2011; Fraunhofer, 2006; Niemeier *et al.*, 1985; Sivak *et al*, 1989; Sivak *et al*, 1997; Boffetta *et al*, 2001). In addition, two epidemiological studies examining European asphalt workers were identified with no conclusion on the presence or absence of a causal link between exposure to



bitumen fume and cancer risk (IARC, 2001; IARC, 2009). Based on the available information, OxiAsph is not considered to be a carcinogenic hazard and does not meet the criteria for classification as carcinogen.

#### **Reproductive Toxicity:**

The effects on fertility of OxyAsph were investigated in an ongoing OECD 443 study (Labcorp, 2023). The information from the OECD 443 study will be submitted later based on ECHA communication/decision number TPE-D-2114533735-46-01/F. The results of a OECD 422 study do not give any indication that the test item is a reproductive toxin at concentrations up to 300 mg/m<sup>3</sup> (Fraunhofer, 2009). A PNDT study conducted according to OECD 414 and a screening reproductive/developmental toxicity study evaluating oxidised asphalt fume condensate showed no effects on reproductive or developmental parameters. With no adverse effects seen in foetuses at the highest dose tested, the NOAEC was 500 mg/m<sup>3</sup> (nominal) (Fraunhofer, 2018).

#### **Specific Target Organ Toxicity (STOT)**

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity. (API, 1982a; API, 1982b; Fraunhofer, 2001).

**Repeated Exposure:** The repeat dose toxicity of OxiAsph has been investigated by dermal and inhalation routes. Apart from mild irritation of the upper respiratory tract there is no evidence to suggest that exposure to OxiAsph causes systemic toxicity (Fuhst *et al*, 2006; Fraunhofer, 2009; API, 1983a; API, 1983b).

**Aspiration Hazard:** Not relevant as OxiAsph is solid.

**Endocrine Disruption for Human Health:** No data.

### **1.3 Environmental Hazards**

**Short-term (acute) Aquatic Hazard:** There are no data available on the acute aquatic toxicity of OxiAsph. QSAR assessment, based hydrocarbon composition, indicates that it would be expected to give LL50 values > 1000 mg/l for fish, daphnia and algae (Redman and Yadav, 2010).

**Long-term (chronic) Aquatic Hazard:** There are no chronic toxicity data available for OxiAsph. OxiAsph is not expected to exert chronic toxicity based on water solubility limitations. QSAR assessment of chronic toxicity, based on hydrocarbon composition, indicates that it would be expected to give chronic NOEL values in fish and daphnia of  $\geq 1000$  mg/l. (Redman and Yadav, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** OxiAsph is a hydrocarbon UVCB. Based on compositional information available and measured or predicted data on key constituents, OxiAsph is not expected to meet the criteria for ready degradability. Constituents of Bitumen substances - which are expected to have similar environmental performance since the oxidation process is not changing the hazard profile - show predicted values for  $\log K_{ow} \geq 4$  and are considered potentially bioaccumulative (HydroQual, 2010).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

## 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

### Classification and labelling according to CLP / GHS

OxiAsph is not classified under EU CLP ((EC) No. 1272/2008) (EU, 2008).

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Fraunhofer (2000b) Acute inhalation toxicity study of 100 mg/m bitumen fumes in Wistar (WU) rats. Report No. 02G00012. Hannover: Fraunhofer Institute of Toxicology and Aerosol Research

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## 8.21. SULFUR (SULFUR)

**Definition / Domain:** Most sulfur is produced in de-sulfurisation processes of oil refinery streams, natural gas, gas from coke manufacture, synthesis gas or biogas, where the sulfur is extracted in the form of hydrogen sulfide which is subsequently converted to elemental sulfur. These processes provide sulfur in the form of a mono-constituent substance, i.e. with a concentration of 80% weight/weight or more. Some of these processes, such as the Claus process, yield sulfur with purity in excess of 99%.

As shown in **Appendix 1**, Sulfur is defined by a single EC number (231-722-6).

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Sulfur is a solid.

**Aerosol:** Not relevant - Sulfur is not in aerosol form.

**Oxidising Gas:** Not relevant - Sulfur is a solid.

**Gas under Pressure:** Not relevant - Sulfur is a solid.

**Flammable Liquid:** Not relevant - Sulfur is a solid.

**Flammable Solid:** Sulfur does not meet the requirement for classification as a flammable solid.

**Self-reactive Substance:** Sulfur is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Not relevant - Sulfur is a solid.

**Pyrophoric Solid:** Sulfur does not spontaneously ignite in contact with air.

**Self-heating Substance:** Sulfur does not react exothermically.

**Substance which in contact with water emits flammable gas:** Sulfur does not react with water.

**Oxidising Liquid:** Not relevant - Sulfur is a solid.

**Oxidising Solid:** Not relevant - Sulfur is an inorganic substance which does not contain oxygen or halogen atoms.

**Organic Peroxide:** Sulfur does not meet the definition of a peroxide.

**Corrosive to Metals:** Sulfur is solid and does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of Sulfur have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (Sandoz, 1994b)
Rat inhalation	LC <sub>50</sub> > 5430 mg/m <sup>3</sup> air (TNO, 1994a)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (Sandoz, 1994a)

**Skin Corrosion / Irritation:** Sulfur was examined for acute dermal irritating/corrosive properties in the rabbit. The test material was irritating to the skin. Based on the available data, Sulfur is not expected to be corrosive (TNO, 1994b).

**Serious Eye Damage / Eye Irritation:** The effects of Sulfur on the eye have been investigated in the rabbit. None of the samples tested showed more than minimal effects, which resolved within 72 hours (Rallis, 2005a; TNO, 1994c).

**Respiratory or Skin Sensitization:** Tests in guinea pigs showed no evidence of skin sensitization. These results together with extensive human experience indicate that Sulfur is not a dermal sensitizer (Advinus, 2005a; RCC and BRL, 1994a,b; Rallis, 2005e). There is no evidence to indicate that Sulfur is likely to be a respiratory sensitizer.

**Germ Cell Mutagenicity:** The mutagenic potential of Sulfur has been extensively studied in a range of *in vivo* and *in vitro* assays. These studies showed no evidence of mutagenic activity (Advinus, 2005b; Rallis, 2005b,c; Eurofins, 2021). Based on the available data Sulfur is not considered a germ cell mutagen.

**Carcinogenicity:** Sulfur is not expected to be carcinogenic based on no evidence of mutagenicity and a lack of structural alerts for mutagenicity/carcinogenicity. Furthermore, since Sulfur did not cause hyperplasia or pre-neoplastic lesions in the repeat dose toxicity study, it is unlikely that it will present a carcinogenic hazard to man (Advinus, 2006; Rallis, 2005d; Rallis, 2006).

**Reproductive Toxicity:** Based on weight of evidence approach, taking into account both dietary and occupational exposure in humans, its lack of mutagenic activity and its ubiquitous natural occurrence, Sulfur is unlikely to present a reproductive hazard to man (EPA, 1991).

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (Sandoz 1994a,b; TNO, 1994a).

**Repeated Exposure:** Repeat dose toxicity of Sulfur has been studied in rats following dermal and oral exposure for periods between 28 days and 21 weeks. No systemic toxicity was observed; the only effect observed was local skin effects (Advinus, 2006; Rallis, 2005d; Rallis, 2006).

**Aspiration Hazard:** Not relevant as Sulfur is a solid.

**Endocrine Disruption for Human Health:** No data.

## 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute toxicity studies in fish, daphnia and algae show LC<sub>50</sub>/EC<sub>50</sub> values at >5 µg/l (maximum water solubility) (IBACON, 2005a,b,c).

**Long-term (chronic) Aquatic Hazard:** Sulfur is highly insoluble in water (water solubility < 5 µg/l) and is unlikely to present a chronic aquatic hazard (ChemService, 2008).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Biodegradation and bioaccumulation tests are not applicable for Sulfur as this substance is inorganic.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

### Part 2 - Summary of Classification and Labelling Recommendations

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.

#### Labelling

Signal word: Warning

#### Hazard pictogram:

GHS07: exclamation mark



#### Hazard statements:

H315: Causes skin irritation.

#### Precautionary statements:

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)

P332 + P313: If skin irritation occurs: Get medical advice/attention.



## Full list of Precautionary statements

### Prevention:

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

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## 8.22. RENEWABLE DEOXYGENATE DIESEL (RENEWDD)

**Definition / Domain:** RenewDD is a complex hydrocarbon UVCB manufactured from crude oil or natural gas condensates with substance identity partially defined by the manufacturing process.

The substance is manufactured from renewable feedstocks by means of the following operations:

- Distillation (atmospheric, distillate)
- Hydrotreatment/hydrodeoxygenation

The substance is also characterised by the following properties:

- Hydrocarbon types: saturated
- Typical boiling point range: approximately 270°C to 325°C
- Typical carbon number range: predominantly C<sub>10</sub> to C<sub>29</sub>

As shown in **Appendix 1**, RenewDD is defined by a single EC number (951-915-5)

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - RenewDD is a liquid.

**Aerosol:** Not relevant - RenewDD is not in aerosol form.

**Oxidising Gas:** Not relevant - RenewDD is a liquid.

**Gas under Pressure:** Not relevant - RenewDD is a liquid.

**Flammable Liquid:** RenewDD is flammable liquid of variable flash point / initial boiling points.

**Flammable Solid:** Not relevant - RenewDD is a liquid.

**Self-reactive Substance:** RenewDD is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** RenewDD does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - RenewDD is a liquid.

**Self-heating Substance:** RenewDD does not react exothermically.

**Substance which in contact with water emits flammable gas:** RenewDD does not react with water.

**Oxidising Liquid:** RenewDD is not considered oxidising because on the basis of its chemical structure, the substance is incapable of reacting exothermically with combustible materials.

**Oxidising Solid:** Not relevant - RenewDD is a liquid.

**Organic Peroxide:** RenewDD does not meet the definition of a peroxide.

**Corrosive to Metals:** RenewDD is liquid and does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of hydrodesulfurised middle distillate have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (API, 1982a; API, 1982b)
Rat inhalation (aerosol)	LC <sub>50</sub> 4.6 mg/l (analytical) (API, 1983c)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1982a; API, 1982b)

The acute inhalation LC<sub>50</sub> for other gas oils for both male and female rats is 4.6 mg/L (aerosol) (OECD 403).

This is supported by a further study in which a hydrodesulfurised middle distillate gave an LC<sub>50</sub> of 7.64 mg/L (aerosol). In addition, a read-across study with a straight run gas oil gave an LC<sub>50</sub> of >2.53 mg/L.

For acute inhalation toxicity, the key study investigated the effects of hydrodesulfurised middle distillate in male and female Sprague Dawley rats exposed (whole body) to aerosol concentrations in the range of 0 - 7.3 mg/L for 4 hours (Klimisch score = 2, API, 1983). There were no reported mortalities during the 4hr exposure period, deaths occurring during the 14 day post-exposure observation period. Macroscopic and microscopic findings were limited to the lungs, where moderate to severe pulmonary irritation was apparent. Based on these results the LC50 for both males and females is 4.6 mg/L (aerosol) for other gas oils.

**Skin Corrosion / Irritation:** Samples of hydrodesulfurised middle distillate have been tested in rabbit skin irritation studies. The data were derived using a 24 and 72 hour occluded exposure protocol. The degree of dermal irritation observed was variable, variable values between 1.8 and 3.7, normally fully reversible within 14 days. There was no evidence of skin corrosion when applied to rabbit skin.

The mean scores for erythema and oedema have been assessed against guideline deviations, and provided the test would be conducted under standard conditions, irritation might be expected; therefore Other Gas Oils meet the criteria for classification as Skin Irritant Category 2 (H315) according to EU CLP Regulation (EC No. 1272/2008).

**Serious Eye Damage / Eye Irritation:** The effects of hydrodesulfurised middle distillate have been investigated into rabbits eyes using a number of samples. One of two studies undertaken on different samples of hydrodesulfurised middle distillates. Neither study produced significant ocular irritation.

Based on mild to moderate, transient and reversible eye irritation after exposure to hydrodesulfurised middle distillates, RenewDD does not meet the criteria for classification as an eye irritant according to the EU CLP Regulation.

**Respiratory or Skin Sensitization:** Two studies identified in which the skin sensitising potential of other gas oils was investigated in male Hartley guinea pigs that were dermally exposed to hydrodesulfurised middle distillate (API 1984a,b). In the first key study, the test material was administered at a concentration of 25% v/v in paraffin oil for the induction phase and at 10% v/v in paraffin oil for the challenge application. The test material induced slight erythema but no

oedema following the challenge application. In the second study, the test material was administered undiluted for the induction phase and at a concentration of 10% v/v in paraffin oil for the challenge application. The test material elicited well-defined erythema and slight oedema during the induction phase but no response upon challenge. Based on the results of these studies, neither sample of hydrodesulfurised middle distillate was a dermal sensitiser in guinea pigs.

There are no relevant information available regarding respiratory sensitisation.

Other Gas Oils do not meet the criteria for classification as sensitising to the skin according to EU CLP Regulation (EC No. 1272/2008).

**Germ Cell Mutagenicity:** In a key modified Ames test (May, 2013), a sample of a hydrotreated middle distillate (CAS 64742-46-7) showed no evidence of mutagenic activity. This lack of activity in the modified Ames assay is supported by seven other studies, with other gas oils or read across to diesel fuel, which showed no or marginal activity.

In a series of acute, in vivo cytogenetic assays (OECD 475), hydrodesulphurised middle distillate (CAS 64742-80-9) DID not induce chromosome aberrations in bone marrow cells of rats (OECD 475). The lack of activity was also supported by a similar study with diesel fuel.

Based on the evidence, RenewDD are unlikely to be mutagenic in humans and do not meet the criteria for classification as defined in EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Carcinogenicity:** The carcinogenic potential of hydrodesulfurized middle distillate and Straight run hydrotreated gas oil has been investigated in mice.

Frequent dermal application of a middle distillates (API 81-09 and 81-10) containing low levels of PACs to mouse skin produced skin tumours only if accompanied by moderate to marked skin irritation. A mechanism involving frequent cell damage and repair, rather than genotoxicity, has been proposed (API, 1989; Broddle, W.D., et al. (1996)).

Other Gas Oils have the potential to produce tumours via both genotoxic and non-genotoxic mechanisms. Utilising a worst case approach, Other Gas Oils should be classified as Category 1B carcinogens (H350) according to EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008)) based on the information available on cracked gas oils. However, Note N has been assigned to this category in Annex VI of the CLP Regulation and the classification as a carcinogen need not apply if the full refining history is known and it can be shown that the substance from which it is produced is not carcinogenic.

**Reproductive Toxicity:** No reproductive toxicity data are available for other gas oils so there is insufficient information to classify this category as toxic for reproduction under the EU CLP Regulation (EC No. 1272/2008). An extended one-generation reproductive toxicity study is proposed for a representative sample of the category

A key read-across developmental study on a sample of a straight run gas oil was identified. The LOAEL for maternal toxicity was 50 mg/kg based on local dermal effects (ARCO, 1993a,b). The NOAEL for foetal toxicity was 50mg/kg (ARCO, 1993a,b). No classification for effects on development is proposed however since there was no evidence of foetal effects in the absence of significant maternal toxicity.

In a number of repeat dose (dermal) and several OECD 414 developmental toxicity studies there were no effects observed on development. In addition, no effects were observed on reproductive organs in subchronic studies with OGO and an assessment of the overall weight of evidence concludes that it is unlikely that the primarily aliphatic OGOs have an adverse effect on fertility (ARCO, 1993; API, 1983; API 1986).

## Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of systemic toxicity (API, 1982a, API 1983c).

**Repeated Exposure:** The NOAEC of >1710 mg/m<sup>3</sup> derived from the 90-day inhalation read-across study (Lock, S., Dalbey, W., Schmoyer, R., Griesemer, K. 1984) does not indicate classification according to the EU CLP criteria. Based on a NOAEL of 25 mg/kg/day in one 90-day dermal toxicity study (Mobil, 1985), and a LOAEL of 30 mg/kg/day from another 90-day dermal toxicity study (Mobil, 1991), non carcinogenic RenewDD (see OIN 14) are not classified for repeat dose toxicity as H373 according to the EU CLP Regulation (EC No. 1272/2008).

**Aspiration Hazard:** RenewDD (like other gas oils) is low viscosity mobile hydrocarbon liquid with a viscosity at 40 °C of ≤ 3.483 mm<sup>2</sup>/s, meeting the classification criteria in CLP Regulation for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

## 1.3 Environmental Hazards

**Acute (short-term) Hazard:** Information on short term toxicity to fish, aquatic invertebrates and aquatic algae and cyanobacteria was unavailable for other gas oils, however suitable read across information from vacuum gas oils, hydrocracked oils and distillate fuels is available. The 96h LL50 for freshwater fish is 21 mg/L. The 48 h EL50 for Daphnia was 68 mg/L. The 72 h ErL50 value for aquatic algae and cyanobacteria was 22 mg/L for diesel fuel (Shell, 1996)

This endpoint has been filled by read-across of measured data from another category. It is supported in a weight of evidence approach by a calculated value using composition information derived from two dimensional gas chromatography in conjunction with the PETROTOX model. The calculated LL50 is 1.13 mg/L for fish, 7.385 mg/L for aquatic invertebrates and 1.714 mg/L for aquatic algae and cyanobacteria (Redman, A. et al., 2010).

**Long-term (chronic) Aquatic Hazard:** There are no chronic toxicity studies available for RenewDD. The aquatic toxicity was estimated using the PETROTOX computer model, which combines a partitioning Model with the Target Lipid Model. The estimated freshwater fish NOEL (No Observed Effect Level) value is 0.069 mg/l based on mortality (Redman and Yadav, 2010).

The estimated fresh water invertebrate NOEL (No Observed Effect Level) value is 0.163mg/l based on immobility and numbers of live young produced by adult by Day 21 (Redman and Yadav, 2010). RenewDD meet the criteria for classification as Toxic to aquatic life with long lasting effects (H411) according to the EU CLP Regulation ((EC) No. 1272/2008) (EU, 2008).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** RenewDD is hydrocarbon UVCB. Standard tests for biodegradation / bioaccumulation are intended for single substances and are not appropriate for complex substances.

They are characterized using quantitative structure property relationships for representative hydrocarbon structures that comprise the hydrocarbon blocks used to assess the environmental risk with the PETRORISK model. Suitable information that has been read across from the vacuum

gas oils, hydrocracked oil and distillate fuels indicates that this category can be considered readily biodegradable.

Gas oils components have log K<sub>ow</sub> values in the range 3.9 to greater than 6 and are likely to bioaccumulate. Calculated BCF for constituents of this substance range between 0.4 and 71100 L/kg (BCFBFAF, 2012).

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

### Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the ‘worst-case’ C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations) including OIN and/or CLP Notes, where applicable.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3*	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

#### Labelling

Signal word: Danger



Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

Notes:

Note N [The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

**Full list of Precautionary statements**

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.23. SOLVENT NAPHTHA

**Definition / Domain:** This substance is a complex hydrocarbon UVCB manufactured from crude oil or natural gas condensates with substance identity partially defined by the manufacturing process, the boiling point range and the carbon number range as follows:

- Derived from crude oil and/or natural gas condensates by means of the following operations:
  - Catalytic reforming
  - Distillation (atmospheric, distillate)
- Hydrocarbon types: saturated
- Typical boiling point range: approximately 90°C - 320°C
- Typical carbon number range: predominantly C<sub>9</sub> to C<sub>22</sub>

As shown in Appendix 1, Solvent Naphtha is defined by a single EC number (265-198-5)

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - Solvent naphtha is a liquid.

**Aerosol:** Not relevant - Solvent naphtha is not in aerosol form.

**Oxidising Gas:** Not relevant - Solvent naphtha is a liquid.

**Gas under Pressure:** Not relevant - Solvent naphtha is a liquid.

**Flammable Liquid:** Solvent naphtha is a flammable liquid with a flash point of 29°C - 70°C .

**Flammable Solid:** Not relevant - Solvent naphtha is a liquid.

**Self-reactive Substance:** Solvent naphtha is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** Solvent naphtha does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - Solvent naphtha is a liquid.

**Self-heating Substance:** Solvent naphtha does not react exothermically.

**Substance which in contact with water emits flammable gas:** Solvent naphtha does not react with water.

**Oxidising Liquid:** Solvent naphtha is not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - Solvent naphtha is a liquid.

**Organic Peroxide:** Solvent naphtha does not meet the definition of a peroxide.

**Corrosive to Metals:** Solvent naphtha is liquid and does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Solvent naphtha is not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** The acute toxicity has been evaluated using read-across data from studies with supporting substances (grouping of substances, category approach, e.g. Thermocracked kerosine, etc.). The L50 / LC50 values determined were as follows:

Rat oral	LD <sub>50</sub> > 5000 mg/kg <sub>bw</sub> (ARCO, 1992)
Rat inhalation (aerosol)	LC <sub>50</sub> > 5.28 mg/m <sup>3</sup> (analytical) (API, 1987)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (ARCO, 1992)

Kerosines are of low acute toxicity with mortality rarely reported even at very high exposures in experimental animal studies conducted by oral (similar to OECD 420), dermal (similar to OECD 402), and inhalation (similar to OECD 403) exposure.

**Skin Corrosion / Irritation:** Animal studies demonstrate that kerosine was found to be irritating to rabbit skin (ARCO, 1986). The degree of irritancy is substance-, dose- exposure-time and methodology dependent. Based on weight of evidence kerosines are considered irritating.

**Serious Eye Damage / Eye Irritation:** Kerosine was found to be non-irritating to rabbit eyes when exposed to 0.1 mL of test substance (ARCO, 1992)

Kerosines are not considered eye irritants.

**Respiratory or Skin Sensitisation:** In animal assays for skin sensitisation such as the Magnusson-Kligman GPMT and the Buehler assay, kerosines and jet fuels did not trigger a positive response (ARCO, 1992). There are no studies available for respiratory sensitisation.

**Germ Cell Mutagenicity:** All in vitro assays were negative for genotoxicity, except for one assay done with straight run kerosine which was positive (similar to OECD 471, 476, 479). All in vivo chromosome aberration and dominant lethal assays were negative for genotoxicity (OECD 475, 478), while one in vivo sister chromatid exchange assay (modified OECD 479) was positive for genotoxicity in male, but not in female mice. Because most studies were negative and the data on various individual components of kerosines and jet fuels were negative, the overall conclusion is that kerosines and jet fuels are not mutagenic or genotoxic (API, 1973; API, 1977; API, 1978; API 1979; API, 1980; API, 1984; API, 1985; API, 1988; Mobil, 1991; Concawe, 1991; Blackburn et al., 1986).

**Carcinogenicity:** Kerosine is not carcinogenic when animals are exposed via the oral or inhalation route. However, chronic skin contact with kerosines and jet fuel may lead to tumour formation as a consequence of repeated cycles of irritation, skin damage and repair (similar to OECD 451) (EBSI, 1986; IARC, 1989).

Some kerosines may require classification for carcinogenicity based on the content of cumene they contain. Where cumene is present at 0.1 wt% or more as a constituent in kerosines, the substances are classified Carc. 1b H350.

**Reproductive Toxicity:** In accordance with Section 1.2 of REACH Annex XI, testing does not appear to be scientifically necessary as the weight of evidence indicates no concern for reproductive (fertility and sexual function) effects from Kerosenes. This is based on the lack of activity observed in OECD 421 studies and human data as well as in similar substances.

Several studies were performed and their results taken together it is considered that the above provides sufficient evidence to conclude that Kerosenes are unlikely to alter reproductive fertility or sexual function (Mattie, 2000; Witzmann et al., 2003; Lemasters et al., 1999; Boogaard et al., 2017; Sasol, 1995; ExxonMobil, 1980).

#### Specific Target Organ Toxicity (STOT)

**Single Exposure:** Acute exposure studies show no evidence of target organ toxicity (ARCO, 1992; API, 1987; ARCO, 1992). In 2011, ECHA's Committee for Risk Assessment (RAC) issued an Opinion stating that certain petroleum substances in the Naphtha and Kerosine categories presented a hazard of chronic toxicity to the central nervous system. As other Kerosine substances can have composition ranges significantly overlapping those of the substances specified in the Opinion, the advice is applied to all Kerosine substances.

**Repeated Exposure:** A number of subacute and subchronic studies with kerosines and jet fuels are available. The repeated inhalation and oral studies of kerosine in rats produced no consistent toxicological effects other than changes in male rat kidneys that are not considered relevant to humans. The male-rat specific nephropathy, evident at exposures from 500 mg/m<sup>3</sup>(inhalation), or 750 mg/kg/day (oral gavage) is not taken into account for risk assessment purposes. The nephropathy in inhalation studies coincided with a decreased bodyweight gain in male rats. No other signs of toxicity were observed. The NOAEC for inhalation exposure is greater than or equal to 1000 mg/m<sup>3</sup> (vapour). The systemic dermal NOAEL is greater than or equal to 495 mg/kg bw/day). The NOAEL for systemic effects of oral exposure is 750 mg/kg/day (Mattie et al., 2000; Mattie et al., 1991; Battelle, 1987).

**Aspiration Hazard:** Low viscosity hydrocarbon liquids such as kerosine can cause aspiration lung damage if liquids enter the lung (Gerarde, H.W., 1959).

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** In a semi-static 96 -hour acute rainbow trout (*Oncorhynchus mykiss*) test (OECD 203; KS = 1), 7 animals/dose were exposed to solvent, naphtha (petroleum), heavy aromatic kerosine. Some fish were observed swimming abnormally and immobilisation was also observed. The LL50 was 2 to 5 mg/L. The NOEL is 2.0 mg/L (Shell, 1994). In four reliable supporting semi-static 96-hour acute rainbow trout (*Oncorhynchus mykiss*) studies, the LL50 ranged from 2 to 100 mg/L; with the NOELs ranging from 6.8 to 10 mg/L (Exxon 1995a,b,c, Shell 1995). In a static 48 -hour acute daphnid (*Daphnia magna*) test (OECD 202; KS = 1), 20 animals/dose were exposed to kerosine petroleum, hydrodesulfurised. The EL50 was 1.4

mg/L with a 95% confidence interval of 1.0 to 2.0 mg/L. The No Observed Effect Loading (NOEL) rate was 0.3 mg/L determined by immobilisation (Exxon, 1995d).

**Long-term (chronic) Aquatic Hazard:** The aquatic toxicity for fish was estimated using the PETROTOX computer model, which combines a partitioning model with the Target Lipid Model. The estimated freshwater fish NOEL (No Observed Effect Level) value is 0.098 mg/L based on mortality (Redman et al., 2010b). In a 21-day semi-static chronic reproductive toxicity test (OECD 211; KS = 1) on *Daphnia magna*, hydrodesulfurised kerosine was evaluated using water accommodated fraction methodology. Under the conditions of this test, the 21-day chronic reproductive NOEL for kerosine is 0.48 mg/L. The LOEL is 1.2 mg/L. The EL50 based on reproduction is 0.89 mg/L (ExxonMobil, 2010).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** solvent naphtha substances are hydrocarbon UVCBs. Standard tests for biodegradation / bioaccumulation are intended for single substances and are not appropriate for complex substances. Based on compositional information available and measured or predicted data on key constituents, solvent naphtha and other Kerosine substances are not expected to meet the criteria for ready degradability but are inherently biodegradable. Constituents of Kerosine substances show measured or predicted values for log  $K_{ow}$  greater than 4 and are considered potentially bio-accumulative.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

### Part 2 - Summary of Classification and Labelling Recommendations

The information below represents the 'worst-case' C&L recommendation and must be used in the absence of information on certain relevant substance characteristics (C&L drivers). Appendix 6 lists all alternative C&L recommendations (C&L permutations).

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3	H336: May cause drowsiness or dizziness.

Hazard class	Hazard category	Hazard statement
	Affected organs: Central nervous system Route of exposure: Inhalation	
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

Additional labelling requirements

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

### General:

P102: Keep out of reach of children. (In case of consumer use P102 should be added on the label)

### Prevention:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### REFERENCES

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## 8.24. CO-PROCESSED GAS OIL FROM PLANT/ANIMAL ORIGIN (CPGOAV)

**Definition / Domain:** This substance is a complex hydrocarbon UVCB manufactured from crude oil or natural gas condensates with substance identity partially defined by the manufacturing process, the boiling point range and the carbon number range as follows:

- Derived from renewable feedstocks, crude petroleum or natural gas condensates
- Refinery processes
  - atmospheric distillation
  - hydrotreatment / hydrodeoxygenation
- Hydrocarbon types: saturated
- Typical boiling point range: approximately 160°C - 360°C
- Typical carbon number range: predominantly C<sub>9</sub> to C<sub>26</sub>

As shown in **Appendix 1**, CPGOAV is defined by a single EC number (941-364-9)

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.2 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - CPGOAV is a liquid.

**Aerosol:** Not relevant - CPGOAV is not in aerosol form.

**Oxidising Gas:** Not relevant - CPGOAV is a liquid.

**Gas under Pressure:** Not relevant - CPGOAV is a liquid.

**Flammable Liquid:** CPGOAV is flammable liquid With a flash point of 79°C.

**Flammable Solid:** Not relevant - CPGOAV is a liquid.

**Self-reactive Substance:** CPGOAV is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** CPGOAV does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - CPGOAV is a liquid.

**Self-heating Substance:** CPGOAV does not react exothermically.

**Substance which in contact with water emits flammable gas:** CPGOAV does not react with water.

**Oxidising Liquid:** CPGOAV is not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - CPGOAV is a liquid.

**Organic Peroxide:** CPGOAV does not meet the definition of a peroxide.

**Corrosive to Metals:** CPGOAV is liquid and does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** CPGOAV is not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** The acute toxicity has been evaluated using read-across data from studies with supporting substances (structural analogues or surrogates, e.g, diesel fuel, fuels, naval distillate, etc.). The L50 / LC50 values determined were as follows:

Rat oral                                      LD<sub>50</sub> - 7600 mg/kg<sub>bw</sub> (API, 1980)

Rat inhalation (aerosol)      LC<sub>50</sub> - 4100 mg/m<sup>3</sup> (analytical) (ARCO, 1988)

Rabbit dermal      LD<sub>50</sub> > 4300 mg/kg<sub>bw</sub> (API, 1980)

The data available do not meet the classification criteria for acute oral and dermal toxicity.

Data on acute inhalation indicate that that material warrants classification as Category 4 inhalation.

**Skin Corrosion / Irritation:** Skin irritation studies on samples of diesel fuel were identified. The material was considered irritating to the skin (API, 1980).

The results of the skin irritation study in rabbits meet the criteria for classification as a skin irritant.

**Serious Eye Damage / Eye Irritation:** Eye irritation studies on samples of diesel fuel were identified. The material was not considered irritating to the eye (API, 1980).

The level of reaction in the eye irritation study did not meet the criteria for classification.

**Respiratory or Skin Sensitisation:** In a repeat dermal application Buehler study with diesel fuel in guinea pigs, there was no evidence of dermal sensitisation (API, 1980). There are no studies available for respiratory sensitisation.

**Germ Cell Mutagenicity:** In response to the Final Decision Letter (dated 03 July 2020) CCH- D-2114515259 -48 -01/F three new in vitro genetic toxicity studies (Ames test (OECD 471), mouse micronucleus assay (OECD 487) and mouse lymphoma assay (OECD 490)) were conducted on the target substance. Results from all three in vitro studies were negative, fulfilling all information requirements (Christine Mee, 2021; Clare K., 2021; Clare K., 2022).

**Carcinogenicity:** The dermal carcinogenic potential of representative samples of middle distillate fuels have been investigated in a number of published studies. Materials were applied either neat or as dilutions in solvent, to the clipped skin of mice two or three times per week for either 2 years or the lifetime of the animal. In these studies there was an increase in skin tumour yield with the majority of samples tested. Numbers of animals showing dermal tumours was relatively small and the tumours had a long latent period. The samples also caused significant non-neoplastic dermal changes including hyperplasia which may have contributed to the tumorigenic response. It is concluded that these materials are at best weakly carcinogenic but that the response may have been mediated by a non-genotoxic mechanism, involving

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**Reproductive Toxicity:** Several developmental toxicity studies have been carried out in rats and rabbits, providing a Reproductive Toxicity NOAEL (Rat):  $\geq 1000$  mg/kg/day (OECD 422) (van Vessem, B.S., 2022).

Additionally, gonadal histopathology and/or sperm parameters (counts; morphology) were among endpoints included in a subchronic study with aerosol inhalation exposure to diesel fuel. No effects on reproductive organs were observed and the NOAEC was 1710 mg/m<sup>3</sup> (for aerosolised diesel fuel) (Lock et al, 1984).

An extended one generation reproduction toxicity test (OECD 443) based on Read-Across substance EC 265-059 -9 is proposed to fulfil the data requirement but the need for this study for this is questioned based on the fact that there were no effects observed on reproductive organs in repeated dose toxicity tests or in prenatal developmental tests. Overall it is considered unlikely that exposure will affect reproductive performance.

#### Specific Target Organ Toxicity (STOT)

**Single Exposure:** In a key sub-chronic oral toxicity study conducted in rats, no systemic effects were observed and the NOAEL was determined to be  $\geq 1000$  mg/kg/day (van Vessem, B.S., 2022).

**Repeated Exposure:** A key OECD Guideline 408/422 combined 90-day repeated dose with the reproduction / developmental toxicity screening study was conducted to determine the potential toxic effects of the test material (Petroleum gas oil fraction, co-processed with renewable hydrocarbons of plant and/or animal origin (EC 941-364-9)) (Charles River Laboratories Den Bosch BV, 2022). The test material was administered once daily to Han Wistar rats (10/sex/dose) via oral gavage in a corn oil vehicle at doses of 0, 100, 300, or 1000. Based on the effects observed in this sub-chronic oral toxicity study, the systemic toxicity No Observed Adverse Effect Levels (NOAEL) of Petroleum gas oil fraction, co-processed with renewable hydrocarbons of plant and/or animal origin was determined to be 1000 mg/kg/day.

Based on the findings in a sub-chronic dermal study in rats, a reported LOEL of 835 mg/kg and a NOAEL of 83.5 mg/kg, it is considered that the material meets the criteria for classification as STOT-RE, Category 2.

**Aspiration Hazard:** CPGOAV is low viscosity hydrocarbon liquid with a viscosity at 20°C and 40°C of 0.3 mPas, meeting the classification criteria in CLP Regulation for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** A sealed, 96 h semi static, toxicity test was carried out with daily renewal of the test WAFs. Fish mortality was observed at 24 h intervals. LL50 values (loading rates of gasoil resulting in 50% mortality) were determined to be as follows: 24 h LL50

> 1,000 mg/L, 48 h LL50 180 mg/L, 72 h LL50 150 mg/L and 96 h LL50 65 mg/L. (Girling, A and Cann, B 1996). The study shows the test substance is toxic to rainbow trout at 65 mg/L. The study was considered reliable (2) as it is a GLP compliant, near guideline study. There were minor restrictions in design and/ or reporting but otherwise adequate for assessment.

Supporting PETROTOX (version 4.01) modelled values are available. PETROTOX predicted the 96-h LL50 of the substance for *Oncorhynchus mykiss* to be 8.03 mg/L. The acute toxicity of the gas oil was to *Daphnia magna* was determined in a 48 h sealed test. The WAFs were not renewed during the test. The 24 and 48 h EL50 (loading rates of gas oil resulting in 50% immobilisation of daphnids exposed for 24 and 48 h) were determined to be > 1000 mg/L and 210 mg/L respectively (Girling, A and Cann, B 1996). This study was considered reliable as it is a GLP compliant, guideline study. There were no restrictions and the study is fully adequate for assessment.

Supporting PETROTOX (version 4.01) modelled values are available. The model predicted LL50 of the substance to aquatic invertebrates to be 157 mg/L.

**Long-term (chronic) Aquatic Hazard:** No chronic toxicity studies have been carried out on fish with registration substance. Composition information, derived using two dimensional gas chromatography, has been used in conjunction with the PETROTOX model to calculate this endpoint. The estimated freshwater fish EL10 value is 0.26 mg/L based on mortality.

QSAR predictions on long term toxicity to fish of VHGO have also been provided to support the read-across from VHGO to registration substance.

No chronic toxicity studies have been carried out on aquatic invertebrates with registration substance. Composition information, derived using two dimensional gas chromatography, has been used in conjunction with the PETROTOX model v 4.01 to calculate this endpoint. The model predicted a chronic EL10 of the substance to aquatic invertebrates to be 0.65 mg/L.

QSAR predictions on long term toxicity to aquatic invertebrates of VHGO have also been provided to support the read-across from VHGO to registration substance.

A sample of diesel fuel was tested in an acute algal toxicity study using the WAF methodology and following OECD Guideline 201. The 72 -hour EL50 (loading rate resulting in 50% decrease in growth of algae) was 10 mg/L. The NOEL was 3 mg/L (Girling, A and Cann, B 1996).

Supporting PETROTOX (version 4.01) modelled values are available. The model predicted the LL50 of the substance for *P. subcapitata* to be 3.40 mg/L and EL10 0.17 mg/L.

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** The substance is not PBT and the exposure assessment in the CSR (Section 13) shows there is no risk to the environment. As such, this end-point has been waived as no further data is required.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.



## Part 2 - Summary of Classification and Labelling Recommendations

There is one single C&L permutation for CPGOAV

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 2 Route of exposure: dermal	H351: Suspected of causing cancer by dermal route.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, Liver, Bone marrow Route of exposure: dermal	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure by dermal route.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer by dermal route.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure by dermal route.

H411: Toxic to aquatic life with long lasting effects.



### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify the appropriate type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/...

P331: Do NOT induce vomiting.

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P235: Keep cool.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify the appropriate type of equipment.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*) (*Manufacturer/supplier may specify a cleansing agent if appropriate.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. *(If water increases risk.)*  
*(...Manufacturer/supplier to specify appropriate media.)*  
P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... *(... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)*

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## 8.25. CO-PROCESSED (THERMAL CRACKING) GAS OIL FROM WASTE PLASTICS (CPGOPW)

**Definition / Domain:** This substance is a complex hydrocarbon UVCB manufactured from crude oil or natural gas condensates with substance identity partially defined by the manufacturing process, the boiling point range and the carbon number range as follows:

- Derived from renewable feedstocks.
- Refinery processes
  - atmospheric distillation
  - hydrotreatment / hydrodeoxygenation
- Hydrocarbon types: branched and linear alkanes, aromatic hydrocarbons
- Typical boiling point range: approximately 99°C - 748°C
- Typical carbon number range: predominantly C<sub>11</sub> to C<sub>72</sub>

As shown in **Appendix 1**, CPGOPW is defined by a single EC number (955-454-0).

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - CPGOPW is a liquid.

**Aerosol:** Not relevant - CPGOPW is not in aerosol form.

**Oxidising Gas:** Not relevant - CPGOPW is a liquid.

**Gas under Pressure:** Not relevant - CPGOPW is a liquid.

**Flammable Liquid:** CPGOPW has a flash point >100 °C

**Flammable Solid:** Not relevant - CPGOPW is a liquid.

**Self-reactive Substance:** CPGOPW is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** CPGOPW does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - CPGOPW is a liquid.

**Self-heating Substance:** CPGOPW does not react exothermically.

**Substance which in contact with water emits flammable gas:** CPGOPW does not react with water.

**Oxidising Liquid:** CPGOPW is not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - CPGOPW is a liquid.

**Organic Peroxide:** CPGOPW does not meet the definition of a peroxide.

**Corrosive to Metals:** CPGOPW is liquid and does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** CPGOPW is not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Heavy Fuel Oil Components are of low intrinsic hazard following acute oral, dermal and inhalation exposure. Study results indicate the following:

Rat oral	LD <sub>50</sub> 4320 mg/kg <sub>bw</sub> (female rats); 5270 mg/kg bw (male rats) (API, 1982)
Rat inhalation	LC <sub>50</sub> 4100 mg/m <sup>3</sup> (ARCO, 1987)
Rabbit dermal	LD <sub>50</sub> > 2000 mg/kg <sub>bw</sub> (API, 1982)

The acute toxicity of Heavy Fuel Oil Components has been adequately characterised in a large number of GLP-compliant guideline investigations following oral, dermal or inhalation (aerosol) exposure. Based on available data, Heavy Fuel Oils do not meet the criteria for classification as acute oral or dermal toxicants under EU CLP Regulation (EC No. 1272/2008). Heavy Fuel Oils are classified Acute toxicity 4; H332 under the EU CLP Regulation (EC No. 1272/2008).

**Skin Corrosion / Irritation:** Data from multiple supporting studies (ARCO, 1992r; 1990e; 1987f; 1986d,e; API, 1980a,c,d) indicate a variable capacity to elicit skin irritation with no consistent difference in the relative intensity or relative persistence of skin reactions following 4 or 24 h contact, or exposure under occluded or open conditions. Hence although the conditions used in the majority of studies deviate from those of guideline recommendations, findings of erythema and oedema scores less than 2 in a majority of cases indicates that Heavy Fuel Oil Components are no more than moderately irritating to skin.

**Serious Eye Damage / Eye Irritation:** Information on the eye irritation potential of Heavy Fuel Oil Components is available from a large number of GLP-compliant studies that followed guideline recommendations. In all instances, neat test substance (0.1 mL) was instilled into the eye of 3-6 rabbits, the eyelids held shut for a few seconds before releasing, and ocular responses recorded using Draize criteria.

Data from multiple supporting studies (ARCO, 1992t, 1990g, 1988a, 1986f,g; API 1982a, 1980a,c,d) indicate no more than mild or mild-moderate reversible irritation (mean intensity less than 2) of the rabbit eye, reflecting redness or swelling (chemosis) of the conjunctivae with mild corneal opacity or discharge occurring rarely. Overall, Heavy Fuel Oil Components appear to cause no more than transient, fully reversible eye irritation.

In summary, the eye irritation potential of samples of Heavy Fuel Oil Components has been tested in a number of generally GLP-compliant near-guideline rabbit eye irritation studies. None of the samples tested elicited more than transient, fully reversible eye irritation. No classification is required under the EU CLP Regulation (EC No. 1272/2008).

**Respiratory or Skin Sensitisation:** Information is available from several GLP-compliant studies that have investigated the sensitisation potential of Heavy Fuel Oil Components in the guinea pig using a closed patch technique (Buehler method).



Skin sensitising potential was investigated in a key study in guinea pigs using the closed patch test procedure (API, 1980b). Based on results of the dermal challenge procedure, the test material was not considered to be a skin sensitiser.

Data are also available from multiple supporting studies (ARCO, 1992z; 1990h; 1988b; 1986h, i and API, 1982a; 1980a,c,d) conducted in guinea pigs. Results obtained from these studies indicate no obvious potential for the induction or elicitation of dermal sensitisation, however skin irritation was apparent in a number of instances. A satisfactory response was obtained for the negative- and positive control groups. The results indicate that Heavy Fuel Oil Components are not dermal sensitisers.

For respiratory sensitisation, there are no studies available. This endpoint is not a REACH requirement and no data are available for this endpoint but these substances are not expected to cause respiratory sensitisation.

No classification is required under the EU CLP Regulation (EC No. 1272/2008).

**Germ Cell Mutagenicity:** The mutagenic potential of Heavy Fuel Oil Components has been extensively studied in a range of *in vivo* and *in vitro* assays. (API, 1985, 1986; Feuston, MH, Low, LK, Hamilton, CE and Mackerer, CR 1994; Verspeek-Rip, C. M. 2015; Przygoda, R.T., McKee, R.H., Amoruso, M.A. and Freeman, J.J. 1999). The majority of the studies showed no consistent evidence of mutagenic activity, particularly in *in vivo* systems, and no classification is required under the EU CLP Regulation (EC No. 1272/2008).

**Carcinogenicity:** The substance is known to be carcinogenic category 1A or 1B or germ cell mutagenic category 1A, 1B or 2.

**Reproductive Toxicity:** There is no relevant information available for the substance.

#### Specific Target Organ Toxicity (STOT)

**Single Exposure:** No available studies.

**Repeated Exposure:** There are no repeated dose studies. However, due to classification as carcinogenic Category 1B, the repeated exposure to this substance may cause skin dryness or cracking.

**Aspiration Hazard:** COGOPW's viscosity is above 20.5 mm<sup>2</sup>, so does not meet the classification criteria in CLP Regulation for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Short term toxicity to aquatic invertebrates: In a key, static 48 hour *Daphnia magna* acute toxicity test (OECD 202, KS=1), five daphnids/ replicate were exposed to the Water Accommodated Fraction (WAF) of heavy cracked fuel oil (MRD-10-579) at nominal concentrations of 0.05, 0.15, 0.45, 1.35 and 4.05 mg/L. The 48 hour EL50 was 0.22 mg/L based on mobility (EMBSI 2012a).

In seven reliable supporting 48-hour *Daphnia magna* studies using WAF methodology, the EL50 values of other heavy fuel oil samples varied between 2 and >1000 mg/L (EMBSI, 2008e,f,g,h,i; Shell, 1997a, b).



**Long-term (chronic) Aquatic Hazard:** To test the toxicity to aquatic algae, a key, static 72 hour *Pseudokirchneriella subcapitata* growth inhibition test was undertaken (OECD 201, KS=1), 10000 cells/mL were exposed to the Water Accommodated Fraction (WAF) of heavy cracked fuel oils (MRD-10-579) at nominal concentrations of 0.05, 0.23, 1.01, 4.56 and 20.5 mg/L. The 72 hour EL50 was 0.32 mg/L and NOELR was 0.05 mg/L based on growth rate (EMBSI 2012b).

In seven reliable supporting 72-hour algae (*Pseudokirchneriella subcapitata*) toxicity studies using WAF methodology, the EL50 values based on growth rate and biomass varied between 0.75 to >107 mg/L and 0 - <300 mg/L, respectively (EMBSI, 2008j,k,l,m; Shell, 1997a, b).

For testing the effects on algae/cyanobacteria, a key static 72 hour *Pseudokirchneriella subcapitata* growth inhibition test (OECD 201, KS=1), 10000 cells/mL were exposed to the Water Accommodated Fraction (WAF) of heavy cracked fuel oils (MRD-10-579) at nominal concentrations of 0.05, 0.23, 1.01, 4.56 and 20.5 mg/L. The 72 hour EL50 was 0.32 mg/L and NOELR was 0.05 mg/L based on growth rate (EMBSI 2012b).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** CPGOPW does not contain PBT/vPvB constituents included in the SVHC candidate list at concentrations above 0.1%. No other representative hydrocarbon structures were found to meet the PBT / vPvB criteria.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

### Part 2 - Summary of Classification and Labelling Recommendations

There is one single C&L permutation for CPGOPW.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure .
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life.

Hazard class	Hazard category	Hazard statement
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects.
M-Factor acute: 1		
M-Factor chronic: 1		

## Labelling

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H332: Harmful if inhaled.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.

H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection. (Manufacturer/supplier to specify type of equipment.)

P308+P313: IF exposed or concerned: Get medical advice/attention.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify the appropriate type of equipment.*)

#### Response:

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P391: Collect spillage.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified).*) (*Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.26. CO-PROCESSED DIESEL/GAS OIL FROM THERMALLY CRACKED PLASTICS (CPGOTP)

**Definition / Domain:** This substance is a complex hydrocarbon UVCB manufactured from crude oil or natural gas condensates with substance identity partially defined by the manufacturing process, the boiling point range and the carbon number range as follows:

- Derived from renewable feedstocks.
- Refinery processes
  - atmospheric distillation
  - hydrotreatment / hydrodeoxygenation
- Hydrocarbon types: Cyclic, linear, branched alkanes, aromatic hydrocarbons
- Typical boiling point: 269.4 °C
- Typical carbon number range: predominantly C<sub>9</sub> to C<sub>26</sub>

As shown in **Appendix 1**, CPGOTP is defined by a single EC number (941-803-4).

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - CPGOTP is a liquid.

**Aerosol:** Not relevant - CPGOTP is not in aerosol form.

**Oxidising Gas:** Not relevant - CPGOTP is a liquid.

**Gas under Pressure:** Not relevant - CPGOTP is a liquid.

**Flammable Liquid:** CPGOTP is flammable liquid with a determined flash point of 87.5 °C.

**Flammable Solid:** Not relevant - CPGOTP is a liquid.

**Self-reactive Substance:** CPGOTP is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** CPGOTP does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - CPGOTP is a liquid.

**Self-heating Substance:** CPGOTP does not react exothermically.

**Substance which in contact with water emits flammable gas:** CPGOTP does not react with water.

**Oxidising Liquid:** CPGOTP is not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - CPGOTP is a liquid.

**Organic Peroxide:** CPGOTP does not meet the definition of a peroxide.

**Corrosive to Metals:** CPGOTP is liquid and does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** CPGOTP is not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Guideline acute oral, dermal and inhalation toxicity studies were identified. The L50 / LC50 values determined were as follows:

Rat oral	LD <sub>50</sub> - 7600 mg/kg <sub>bw</sub> (API, 1980)
Rat inhalation (aerosol)	LC <sub>50</sub> - 4100 mg/m <sup>3</sup> (ARCO, 1988)
Rabbit dermal	LD <sub>50</sub> > 4300 mg/kg <sub>bw</sub> (API, 1980)

The data available do not meet the classification criteria for acute oral and dermal toxicity.

Data on acute inhalation toxicity indicate that that material warrants classification as Category 4 inhalation.

**Skin Corrosion / Irritation:** Skin irritation studies on rabbits using samples of diesel fuel were identified (API, 1980). The results of the skin irritation study in rabbits meet the criteria for classification as a skin irritant.

**Serious Eye Damage / Eye Irritation:** Eye irritation studies on samples of diesel fuel were identified (API, 1980). The level of reaction in the eye irritation study did not meet the criteria for classification.

**Respiratory or Skin Sensitisation:** In a repeat dermal application Buehler study with diesel fuel in guinea pigs, there was no evidence of dermal sensitisation (API, 1980).

There are no studies for the respiratory sensitisation endpoint.

**Germ Cell Mutagenicity:** Three read-across *in vivo* studies were identified for a structurally related material. In a dominant lethal assay in male mice there was no evidence of heritable genotoxic effects. In a well conducted bone marrow chromosomal aberration assay by the oral route there was no evidence of genotoxic activity. In a further bone marrow chromosomal aberration study by the intraperitoneal route weak activity was observed. Effects were only seen at high dose levels (2.0 and 6.0 ml/kg) and the magnitude of effect was small and restricted to chromosomal fragments (McKee, R.H., Amoruso, M.A., Freeman, J.J., Przygoda, R.T. 1994; Brusick D. J. 1980; Jagannath, D.R ,1978).

As the three *in vitro* assays conducted on CPGOTP resulted in negative outcomes, and based on the current data available from this substance and read across substances, CPGOTP is not classified as mutagenic.

**Carcinogenicity:** The dermal carcinogenic potential of representative samples of distillate fuels has been investigated in a number of published studies (Biles, R.W., McKee, R.H., Lewis, S.C., Scala, R.A., DePass, L.R., 1988; Broddle, W.D., Dennis, M.W., Kitchen, D.N. and Vernet, E.H. 1996; Clark, C.R., Walter, M.K., Ferguson, P.W. and Katchen, M. 1988; Dieter, M.P. et al 1986; Hatoum N 1985). Materials were applied either neat or as dilutions in solvent, to the clipped skin of mice two or three times per week for either 2 years or the lifetime of the animal. In these studies there was a significant increase in skin tumour yield with the majority of samples

tested. Numbers of animals showing dermal tumours was relatively small and the tumours had a long latent period. The samples also caused significant non-neoplastic dermal changes including hyperplasia which may have contributed to the tumorigenic response. It is concluded that these materials are at best weakly carcinogenic but that the response may have been mediated by a non-genotoxic mechanism, involving repeated skin damage.

**Reproductive Toxicity:** The effects on fertility have been tested in two studies (van Vesseem, 2022a,b). The information available currently on reproduction toxicity parameters is insufficient to determine the impact on human fertility. An extended one generation reproduction toxicity test (OECD 443) is proposed for the source substance EC941-803-4, subject to approval following ECHA/MSCAs review. A OECD 422 oral dietary study is planned as a range-finder.

No classification is considered appropriate at this time but a testing proposal based on Read Across substance EC 265 -059 -9 is included for an extended one generation fertility study to meet data requirements for this endpoint.

There are several studies on developmental effects (Langedijk et al, 2022a,b; Latour, 2022; van Vesseem, 2022a). In the OECD 414 key-study, an NOAEL  $\geq 1000$  mg/kg bw was derived. Based on the available data, a classification for developmental toxicity is not considered appropriate.”

### Specific Target Organ Toxicity (STOT)

**Single Exposure:** In a key short term oral toxicity study conducted in rats on EC 941-803-4 and sub-chronic oral toxicity study conducted in rats on read across substance, no systemic effects were observed and the NOAEL was determined to be  $\geq 1000$  mg/kg/day (van Vesseem, B., 2022).

**Repeated Exposure:** Newly generated repeated dose data via the oral route on the source and target CoRPC substances does not meet the criteria for classification. However, based on the findings in a sub-chronic Concawe dermal study in rats, with a reported LOEL of 835 mg/kg and a NOAEL of 83.5 mg/kg, it is considered that from a conservative perspective, the material meets the criteria for classification as STOT-RE, Category 2.

**Aspiration Hazard:** CPGOTP is low viscosity mobile hydrocarbon liquid with a viscosity at 40°C of  $\leq 3.483$  mm<sup>2</sup>/s, meeting the classification criteria in CLP Regulation for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

## 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** In a read-across study on a sample of diesel fuel the 96-hr LL50 in rainbow trout was determined to be 65 mg/L. (Girling, A and Cann, B 1996)

Supporting PETROTOX (version 4.01) modelled values are available. The model predicted an acute LL50 to be 30.4 mg/L (Concawe, 2020).

QSAR predictions on short term toxicity to fish of EC 941-364-9 have also been provided to support the read-across.

For the aquatic invertebrates, in a ‘read across’ acute daphnia study with diesel fuel the 48hr EL50 was determined to be 210 mg/L based on immobilisation (Girling, A and Cann, B 1996).

Supporting PETROTOX (version 4.01) modelled values are available. The model predicted LL50 of the substance to aquatic invertebrates to be  $> 1000$  mg/L (Concawe 2006).

**Long-term (chronic) Aquatic Hazard:** No chronic toxicity studies have been carried out on fish with the registered substance. Composition information, derived using two dimensional gas chromatography, has been used in conjunction with the PETROTOX model to calculate this endpoint. The aquatic toxicity was estimated using the PETROTOX computer model, which combines a partitioning model (used to calculate the aqueous concentration of hydrocarbon components as a function of substanceloading) with the Target Lipid Model (used to calculate acute and chronic toxicity of non-polar narcotic chemicals).

The estimated freshwater fish EL10 value is 0.47 mg/L based on mortality (Concawe, 2006).

QSAR predictions on long term toxicity to fish of VHGO and EC 941-364-9 have also been provided to support the read-across.

No chronic toxicity studies have been carried out on aquatic invertebrates with registration substance. Composition information, derived using two dimensional gas chromatography, has been used in conjunction with the PETROTOX model v 4.01 to calculate this endpoint. The model predicted a chronic EL10 of the substance to aquatic invertebrates to be 1.33 mg/L (Concawe, 2006).

The effects on algae / cyanobacteria were studied, by testing a sample of diesel fuel in a 'read-across' acute algal toxicity study. The 72hr EL50 was determined to be 10 mg/L, with a NOEC of 3 mg/L (Girling, A and Cann, B 1996).

Supporting PETROTOX (version 4.01) modelled values are available. The model predicted the LL50 of the substance for *P. subcapitata* to be 9.35 mg/L and EL10, 0.28 mg/L (Concawe, 2020). QSAR predictions on toxicity to aquatic algae of EC 941-364-9 have also been provided to support the read-across.

Based on the evaluation of ecological toxicity data discussed above, diesel fuel fractions meet the criteria for classification as Aquatic Chronic 2 (H411) under the EU CLP Regulation (EC. No. 1272/2008).

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** Diesel / gas oil fractions are not readily biodegradable but are considered inherently biodegradable. In a report on environmental classification (Concawe 2001), it was concluded that, based on the known properties of hydrocarbons in the range C9 to C26, diesel/gas oil fractions are not readily biodegradable, but are regarded as being inherently biodegradable, since they can be degraded by micro-organisms.

In a further investigation (Concawe 2012) on PBT evaluation of petroleum substances Concawe developed QSAR estimates (BioHCwin) and reviewed existing data for individual hydrocarbons representative of the various 'hydrocarbon blocks' covering a range of petroleum substances. Using the Hydrocarbon Block method and data on biodegradation of representative hydrocarbons in the range C9 to C26, it is concluded that diesel / gas oil fractions do not meet the persistence criteria and can be regarded as being inherently biodegradable.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

## Part 2 - Summary of Classification and Labelling Recommendations

There is one single C&L permutation for CPGOTP.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, Liver, Bone marrow Route of exposure: dermal	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated dermal exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure by dermal route.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P235: Keep cool.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*...Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify the appropriate type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*) (*Manufacturer/supplier may specify a cleansing agent if appropriate.*)  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.



P370 + P378: In case of fire: Use ... to extinguish. (If water increases risk.)  
(...Manufacturer/supplier to specify appropriate media.)

P331: Do NOT induce vomiting.

P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool. (For flammable liquids Category 1 and other flammable liquids that are volatile and may generate an explosive atmosphere.)

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

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## 8.27. CO-PROCESSED (HYDROTREATED) NAPHTHA FROM PLANT/ANIMAL ORIGIN (CPNAV)

**Definition / Domain:** This substance is a complex hydrocarbon UVCB manufactured from crude oil or natural gas condensates with substance identity partially defined by the manufacturing process, the boiling point range and the carbon number range as follows:

- Derived from renewable feedstocks.
- Refinery processes
  - atmospheric distillation
  - hydrotreatment / hydrodeoxygenation
- Hydrocarbon types: alkanes, paraffins, aromatics
- Typical boiling point range: approximately 27°C - 195°C
- Typical carbon number range: predominantly C<sub>4</sub> to C<sub>12</sub>

As shown in **Appendix 1**, CPNAV is defined by a single EC number (941-381-1).

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - CPNAV is a liquid.

**Aerosol:** Not relevant - CPNAV is not in aerosol form.

**Oxidising Gas:** Not relevant - CPNAV is a liquid.

**Gas under Pressure:** Not relevant - CPNAV is a liquid.

**Flammable Liquid:** CPNAV is a flammable liquid of a flash point of < 20 °C and variable/ initial boiling points.

**Flammable Solid:** Not relevant - CPNAV is a liquid.

**Self-reactive Substance:** CPNAV is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** CPNAV does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - CPNAV is a liquid.

**Self-heating Substance:** CPNAV does not react exothermically.

**Substance which in contact with water emits flammable gas:** CPNAV does not react with water.

**Oxidising Liquid:** CPNAV is not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - CPNAV is a liquid.

**Organic Peroxide:** CPNAV does not meet the definition of a peroxide.

**Corrosive to Metals:** CPNAV does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** The acute toxicity has been evaluated using read-across data from studies with gasoline. Based on these data, the acute toxicity is summarised as follows:

Rat Oral LD50 > 14063 mg/kg (API, 1980)

Rabbit Dermal LD50 > 3750 mg/kg (API, 1980)

Rat Inhalation LC50 > 5610 mg/m<sup>3</sup> (UBTL, Inc. 1992)

These studies were conducted many years ago, they were, generally, conducted in accordance with regulatory guidelines on good laboratory practice recommendations. The data are thus considered adequate for regulatory purposes and no additional testing is warranted.

The data do not meet the criteria for hazard classification for acute, dermal or inhalation toxicity according to EU CLP Regulation (EC No. 1272/2008); however, warnings for aspiration hazard and potential narcotic effects at high concentrations are considered appropriate.

**Skin Corrosion / Irritation:** Tests in rabbits with supporting substances (structural analogue or surrogate, e.g., unleaded gasoline) showed an adverse effect observed for skin irritation/corrosion (irritating) (API, 1980).

The animal studies were conducted under regulatory guidelines and in accordance with good laboratory practice recommendations. The data can be used without restriction for regulatory purposes and support classification of gasoline and naphtha blending stocks as Skin Irritant 2 according to EU CLP Regulation (EC No. 1272/2008).

**Serious Eye Damage / Eye Irritation:** Tests in rabbits with supporting substances (structural analogue or surrogate, e.g., unleaded gasoline) showed no adverse effect observed for eye irritation (not irritating) (API, 1980).

Gasoline and naphtha blending stocks do not meet the criteria for classification as an eye irritant according to the EU CLP Regulation (EC No. 1272/2008).

**Respiratory or Skin Sensitisation:** In a read-across sensitisation study with gasoline, there was no evidence of dermal sensitization in a Buehler test in guinea pigs (UBTL, Inc. 1986).

There is no study data available on respiratory sensitization. Thus, the data available do not support classification as a sensitizer according to EU CLP Regulation (EC No. 1272/2008).

**Germ Cell Mutagenicity:** There is a relatively large database on genetic toxicity studies of gasoline covering both in vivo and in vitro tests. Blended gasoline was not mutagenic, either with or without metabolic activation, in in vitro test systems, including *Salmonella typhimurium*, *Saccharomyces cerevisiae*, a mammalian cell line (L5178Y), and human lymphoblastoid cells, or in in vivo test systems, including rat micronucleus and rat chromosome aberration assays (API, 1977; Huntingdon Life Sciences, 2005).



Many of the “standard” assays, i.e., Salmonella, mouse lymphoma, in vivo cytogenetics, and the dominant lethal test of gasoline were conducted prior to the publication of regulatory protocols or the promulgation of good laboratory practice guidelines. Nevertheless, they followed the recommendations of the developers of the various assays, and were, therefore, consistent with the guidelines that were subsequently developed. There are no obvious errors or omissions in the various tests. The micronucleus test of gasoline was conducted more recently and were in accordance with regulatory guidelines and procedures. Thus the data can be used without reservations for regulatory purposes.

It should be noted that, although the data do not support classification of gasoline per se for genotoxic potential according to EU CLP Classification (EC no. 1272/2008), there is a regulatory requirement to classify gasoline as genotoxic as it contains >0.1% benzene.

**Carcinogenicity:** The animal data indicate that gasoline exposure by inhalation at high levels can produce kidney tumors in male rats and liver tumors in female mice. The mechanistic data suggest that both the male rat kidney tumors and the female mouse liver tumors were the consequence of promotional processes. The male rat kidney tumors were the consequence of a process that does not occur in humans, and, therefore, are not relevant to human risk assessment. The mouse liver tumors may have been the consequence of a hormonal imbalance although there is no direct evidence that that was the case. Nevertheless, the absence of such tumors in female rats or of male rats or mice brings into question the direct relevance of these tumors to humans. The overall no adverse effect level was 292 ppm (or approximately 1400 mg/m<sup>3</sup>). However, if the kidney and liver tumors are discounted as not being relevant to humans, the overall NOAEL is 2056 ppm or approximately 10,000 mg/m<sup>3</sup> (Kitchen D 1984 ; IRDC 1984 ; API 1983).

According to EU CLP Regulation (EC No. 1272/2008), the data do not support classification of gasoline per se for carcinogenic potential, although there is a regulatory requirement to classify gasoline as carcinogenic as it contains > 0.1% benzene.

**Reproductive Toxicity:** Several developmental toxicity studies of gasoline have been carried out in the rat, and two recent studies were consistent with the most current regulatory guidelines. These studies provided little evidence of developmental toxicity; more specifically, the frequency of malformation was not increased, and there was no evidence of fetal toxicity or lethality. The overall no adverse effect levels in these studies were 20000 - 24000 mg/m<sup>3</sup>, the highest levels tested. Studies with naphtha blending stocks provided similar data. These studies were conducted in accordance with current regulatory protocols, and the data can be used without restriction. (McKee, R. H., G. W. Trimmer, F. T. Whitman, C. S. Nessel, C. R. Mackerer, R. Hagemann, R. A. J. Priston, A. J. Riley, G. Cruzan, B. J. Simpson, J. H. Urbanus 2000 Research Pathology Services, Inc., 1998; L. Roberts, R. White, Q. Bui, W. Daughtrey, F. Koschier, S. Rodney, C. Schreiner, D. Steup, R. Breglia, R. Rhoden, R. Schroeder, and P. Newton, 2001). The data do not provide a basis for classification for developmental toxicity.

A 2-generation reproductive study in rats by inhalation revealed no effects of gasoline on reproductive system development or function at levels >20,000 mg/m<sup>3</sup>, the highest levels tested (McKee *et al*, 1998).

It should be noted that, although the data do not support classification of gasoline per se for reproductive toxicity potential according to EU CLP Regulation (EC No. 1272/2008), there is a regulatory requirement to classify as reprotoxic gasoline and naphtha streams containing >3% toluene and n-hexane.



## Specific Target Organ Toxicity (STOT)

**Single Exposure:** Human studies on acute toxicity after short inhalation exposure showed neuromuscular symptoms and dizziness at a LOAEL = 4320 mg/m<sup>3</sup>. (Drinker P, Yaglou C, Warren M 1943). All the data collected from other studies, namely for acute dermal and oral toxicity, do not meet the criteria for hazard classification for acute, dermal or inhalation toxicity according to EU CLP Regulation (EC No. 1272/2008); however, warnings for potential narcotic effects at high concentrations are considered appropriate.

**Repeated Exposure:** Repeated dose toxicity studies are available for samples of gasoline involving exposure by oral, inhalation and dermal routes (Halder CA, et al., 1985; MacFarland et al. 1984; API, 1983). The only consistent systemic finding was male rat nephropathy, mediated by accumulation of alpha 2 micro globulin in the kidney tubules. This finding is specific to the male rat and is not relevant to human health.

Many of the studies performed to this endpoint followed regulatory guidelines and many have been published in the scientific literature. According to EU CLP regulation (EC No. 1272/2008), the classification for systemic toxicity is not warranted.

**Aspiration Hazard:** CPNAV is low viscosity hydrocarbon liquid with a viscosity at 20° C and 40° C of 0.3 mPas, meeting the classification criteria in CLP Regulation for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

### 1.3 Environmental Hazards

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity to fish testing with various samples of gasoline, using water accommodated or water soluble fractions in either close or open vessels, gave LL50 values in the range 5.4 - 68 mg/L. In the key study the LL50 was 11 mg/L (Concawe 1995; Concawe 1996).

Supporting PETROTOX (version 4.01) modelled values are available. PETROTOX predicted the 96-h LL50 of the substance for *Oncorhynchus mykiss* to be 5.75 mg/L.

The acute aquatic toxicity to aquatic invertebrates endpoint was calculated through two experimental acute aquatic toxicity studies in *daphnia magna* that are available for samples of gasoline. These studies tested water accommodated fractions in closed vessels with minimum headspace, to avoid evaporative loss. LL50 values obtained were 7.6 and 12 mg/L (Concawe 1995; Concawe 1996).

Supporting PETROTOX (version 4.01) modelled values are available. The model predicted 96-h LL50 of the substance to *D. magna* to be 10.0 mg/L (Concawe 2006).

Three aquatic toxicity studies in algae, with samples of gasoline are available. Acute 72-h EL50 values obtained ranged from 3.1 to 56 mg/L, based on growth rate. The NOAEC values ranged between 0.5 and 10 mg/L (Concawe 1995; Springborn Laboratories Inc. 1993).

Supporting PETROTOX (version 4.01) modelled values are available. The model predicted the 72-h LL50 of the substance to aquatic algae to be 4.23 mg/L and 72-h EL10, 0.81 mg/L. (Concawe, 2006).

#### **Long-term (chronic) Aquatic Hazard:**

Read across has been applied for long-term toxicity to fish. Water accommodated fractions of light alkylate naphtha produced a 21-day NOELR value of 2.6 mg/L based on reproduction with *Daphnia magna*. These data are used as read-across to long-term toxicity to fish in the naphtha category (Springborn Laboratories, Inc. 1999).

Supporting PETROTOX (version 4.01) modelled values are available. PETROTOX predicted a chronic 28 -d EL10 of the substance for *Oncorhynchus mykiss* to be 1.10 mg/L (Concawe, 2006).

The long-term toxicity to aquatic invertebrates was obtained through testing on water accommodated fractions of light alkylate naphtha, which produced a 21-day NOELR value of 2.6 mg/L based on reproduction with *Daphnia magna* (Springborn Laboratories, Inc. 1999). These data are used as read-across to all substances in the naphtha category.

Supporting PETROTOX (version 4.01) modelled values are available. PETROTOX model v4.01 predicted a chronic 21-d EL10 of the substance to *Daphnia magna* to be 1.92 mg/L (Concawe, 2006).

According to the EU CLP Regulation (EC No. 1272/2008), table 4.1.0(b)(i), the substance is classified as Chronic Category 2 (H411) for the environment based on chronic invertebrate and algal toxicity.

**Endocrine Disruption for the Environment:** No data.

#### **Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:**

The substance is not PBT and the exposure assessment in the CSR (Section 13) shows there is no risk to the environment. As such, this end-point has been waived as no further data is required.

Also, this substance does not contain PBT/vPvB constituents included in the SVHC candidate list at concentrations above 0.1%. No other representative hydrocarbon structures were found to meet the PBT / vPvB criteria.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

### **1.4 Additional Hazards**

**Hazardous to the Ozone Layer:** No data.

## **Part 2 - Summary of Classification and Labelling Recommendations**

There is one single C&L permutation for CPNAV.

## Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2	H361: Suspected of damaging fertility or the unborn child
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects
Carcinogenicity:	Carc. 1A	H350: May cause cancer
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: CNS Route of exposure: inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H340: May cause genetic defects.

H350: May cause cancer.

H361: Suspected of damaging fertility or the unborn child.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling:

Restricted to professional uses due to classification as mutagenic Category 1B and carcinogenic Category 1A, except for fuel uses.

#### **Full list of Precautionary statements**

##### Prevention:

P201 Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P235 Keep cool.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P273: Avoid release to the environment.

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P321: Specific treatment (see ... on this label). (*Manufacturer/supplier may specify a cleansing agent if appropriate.*)

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*If water increases risk.*)  
(*...Manufacturer/supplier to specify appropriate media.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified).*) (*Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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## 8.28. CO-PROCESSED NAPHTHA FROM THERMALLY CRACKED PLASTICS (CPNTP)

**Definition / Domain:** This substance is a complex hydrocarbon UVCB manufactured from crude oil or natural gas condensates with substance identity partially defined by the manufacturing process, the boiling point range and the carbon number range as follows:

- Derived from renewable feedstocks, crude petroleum and natural gas condensates
- Refinery processes:
  - Atmospheric distillation
  - Hydrotreatment / hydrodeoxygenation
- Hydrocarbon types: branched, linear and cyclic alkanes and olefins, aromatic hydrocarbons
- Co-processed with hydrocarbons derived from thermally cracked plastics
- Typical boiling point: 97.4 °C
- Typical carbon number range: predominantly C<sub>4</sub> to C<sub>10</sub>

As shown in **Appendix 1**, CPNTP is defined by a single EC number (941-806-0).

### Part 1 - Classification Endpoint Rationale / Data Summary

#### 1.1 Physical Hazards

**Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

**Flammable Gas:** Not relevant - CPNTP is a liquid.

**Aerosol:** Not relevant - CPNTP is not in aerosol form.

**Oxidising Gas:** Not relevant - CPNTP is a liquid.

**Gas under Pressure:** Not relevant - CPNTP is a liquid.

**Flammable Liquid:** CPNTP is a flammable liquid with a flash point of < -20 °C

**Flammable Solid:** Not relevant CPNTP - is a liquid.

**Self-reactive Substance:** CPNTP is not self-reactive. It does not undergo exothermic decomposition when heated.

**Pyrophoric Liquid:** CPNTP does not spontaneously ignite in contact with air.

**Pyrophoric Solid:** Not relevant - CPNTP is a liquid.

**Self-heating Substance:** CPNTP does not react exothermically

**Substance which in contact with water emits flammable gas:** CPNTP does not react with water.

**Oxidising Liquid:** CPNTP is not considered oxidising based on structural considerations.

**Oxidising Solid:** Not relevant - CPNTP is a liquid.

**Organic Peroxide:** CPNTP does not meet the definition of a peroxide.

**Corrosive to Metals:** CPNTP is liquid and does not meet the criteria for corrosion of metal.

**Desensitised Explosive:** Not considered explosive, based on structural and oxygen balance considerations.

## 1.2 Health Hazards

**Acute Toxicity:** Samples of low viscosity liquid hydrocarbon have been tested in acute oral, dermal and inhalation studies. Results indicate the following:

Rat oral	LD <sub>50</sub> 14063 mg/kg <sub>bw</sub> (API, 1980)
Rat inhalation (vapour)	LC <sub>50</sub> > 5610 mg/m <sup>3</sup> (analytical) (UBTL Inc., 1992)
Rabbit dermal	LD <sub>50</sub> > 3750 mg/kg <sub>bw</sub> (API, 1980)

The acute toxicity has been evaluated using read-across data from studies with gasoline. Human evidence also indicates that gasoline has very low acute oral, dermal or inhalation toxicity. However, it can produce severe injury if taken into the lung as a liquid, and there may be profound central nervous system depression following prolonged exposure to high levels of vapor. Laboratory animals respond similarly to humans. Gasoline does not produce acute oral, dermal or inhalation toxicity under conditions defined by regulatory testing protocols.

The data do not meet the criteria for hazard classification for acute, dermal or inhalation toxicity according to EU CLP Regulation (EC No. 1272/2008); however, warnings for aspiration hazard and potential narcotic effects at high concentrations are considered appropriate.

**Skin Corrosion / Irritation:** Tests in rabbits with supporting substances (structural analogue or surrogate, e.g., unleaded gasoline, unleaded gasoline containing methanol and others) showed an adverse effect for Skin irritation / corrosion (API, 1980; Concawe, 1987).

The human literature indicates that gasoline can cause dermal irritation but does not appear to be a severe dermal irritant or corrosive agent. Similarly, gasoline produced some dermal irritation but not corrosion when applied to rabbit skin. The level of irritation was enhanced when the test materials were applied under occluded patch.

The animal studies were conducted under regulatory guidelines and in accordance with good laboratory practice recommendations. The data can be used without restriction for regulatory purposes and support classification of gasoline and naphtha blending stocks as Skin Irritant 2 according to EU CLP Regulation (EC No. 1272/2008).

**Serious Eye Damage / Eye Irritation:** Tests in rabbits with supporting substances (structural analogue or surrogate, e.g., unleaded gasoline and others) showed no adverse effect for Eye irritation (API, 1980).

The human literature indicates that, for gasoline, there is some evidence of eye irritation associated with vapor exposure at levels equal to and greater than 200 ppm, but the effects were mild, and the dose-response information was not conclusive.

Similarly, there was very little evidence of irritation when gasoline was instilled into rabbit eyes.

The animal studies were conducted under regulatory guidelines and in accordance with good laboratory practice recommendations. Gasoline and naphtha blending stocks do not meet the criteria for classification as an eye irritant according to the EU CLP Regulation (EC No. 1272/2008).

**Respiratory or Skin Sensitisation:** Tests in guinea pigs with supporting substances (structural analogue or surrogate, e.g., unleaded gasoline and others) were performed for Skin sensitisation (API 1980). In a read-across sensitisation study with gasoline, there was no evidence of dermal sensitization in a Buehler test in guinea pigs.

There are no studies available for Respiratory sensitisation.

Thus, the data available do not support classification as a sensitizer according to EU CLP Regulation (EC No. 1272/2008).

**Germ Cell Mutagenicity:** The mutagenic potential of CPNTP has been extensively tested in both in vivo and in vitro tests. Many of the “standard” assays, i.e., Salmonella, mouse lymphoma, in vivo cytogenetics, and the dominant lethal test of gasoline were conducted prior to the publication of regulatory protocols or the promulgation of good laboratory practice guidelines. Nevertheless, they followed the recommendations of the developers of the various assays, and were, therefore, consistent with the guidelines that were subsequently developed. The micronucleus test of gasoline was conducted more recently and were in accordance with regulatory guidelines and procedures. (API, 1977; Huntingdon Life Sciences, 2005).

Thus the data can be used without reservations for regulatory purposes. The available information goes far beyond the minimum data requirements; accordingly, no additional testing for genetic toxicity is recommended. Further, the data indicate that classification of gasoline is not warranted.

It should be noted that, although the data do not support classification of gasoline per se for genotoxic potential according to EU CLP Classification (EC no. 1272/2008), there is a regulatory requirement to classify gasoline as genotoxic as it contains >0.1% benzene.

**Carcinogenicity:** The carcinogenic potential of CPNTP has been investigated in rats and mice, using key study read-across from supporting substances (structural analogues or surrogates, such as gasoline and others) (Kitchen D 1984; IRDC 1984; API 1983; Broddle W, Dennis MW, Kitchen DN and Vernot EH, 1996).

Chronic dermal application of blended gasoline did not significantly change the incidence of skin tumours, liver haemangiomas, lung adenomas, or of malignant lymphomas in treated animals compared to negative and historical controls. Male rat kidney tumors and female mouse liver tumors were observed following chronic inhalation exposure, but these effects are discounted as not being relevant to humans.

According to EU CLP Regulation (EC No. 1272/2008), the data do not support classification of gasoline per se for carcinogenic potential, although there is a regulatory requirement to classify gasoline as carcinogenic if it contains > 0.1% benzene.

**Reproductive Toxicity:** No reproductive toxicity studies were performed for CPNTP. Studies do not need to be conducted because the substance is known to be a genotoxic carcinogen and appropriate risk management measures are implemented.

CPNTP contains marker substances, benzene, toluene and n-hexane at concentration levels exceeding the generic concentration limits. There is a regulatory requirement to classify gasoline and naphtha streams containing >3% toluene or n-hexane as reprotoxic, therefore this substance will be classified accordingly, H361: Suspected of damaging fertility or the unborn child, Repro Category 2.

#### **Specific Target Organ Toxicity (STOT)**

**Single Exposure:** Exposure to high levels of gasoline can produce acute central nervous system depression in humans and experimental animals. (Saito K., 1973).

**Repeated Exposure:** Repeated exposure at lower, occupational levels of gasoline produced little evidence of chronic neurological effects in humans or in experimental animals (API, 2005; API, 1982)

There is evidence from the clinical literature that repeated exposure to gasoline at very high levels, under abuse conditions, can produce more profound central nervous system effects. There is little evidence of chronic neurological effects in humans exposed repeatedly at lower, occupational levels.

Gasoline exposure does not affect the immune system in experimental animals at levels up to 20000 mg/m<sup>3</sup>.

**Aspiration Hazard:** CPNTP is a low viscosity mobile hydrocarbon liquid with a viscosity at 20 °C and 40 °C of 0.3 mPa s, meeting the classification criteria in CLP Regulation for aspiration hazard.

**Endocrine Disruption for Human Health:** No data.

### **1.3 Environmental Hazards**

**Short-term (acute) Aquatic Hazard:** Acute aquatic toxicity studies on freshwater fish with supporting substances (structural analogue or surrogate, e.g., blended gasoline and others), using water accommodated or water soluble fractions in either close or open vessels, gave LL50 values in the range 5.4 - 68 mg/L. In the key study the LL50 was 11 mg/L (Concawe, 1985, 1996). These results are also supported by PETROTOX modelling which gave a predicted value of 3.14 mg/L (Concawe, 2020).

Two experimental acute aquatic toxicity studies in daphnia magna are available for samples of gasoline. These studies tested water accommodated fractions in closed vessels with minimum headspace, to avoid evaporative loss. LL50 values obtained were 7.6 and 12 mg/L (Concawe 1995, 1996).

A supporting QSAR study using the PETROTOX model (version 4.01) is also available. The modelled EL10 value (long-term), using PETROTOX is 5.48 mg/L (Concawe, 2020).

The model predicted the LL50 of the substance to fish to be 5.48 mg/L.

Three aquatic toxicity studies in algae, with samples of gasoline are available. Acute EL50 values obtained ranged from 3.1 to 56 mg/L, based on growth rate. The NOAEC values ranged between 0.5 and 10 mg/L (Concawe, 1995; Springborn Laboratories Inc., 1993).

Supporting PETROTOX (version 4.01) acute and chronic toxicity to aquatic algae values are available. The model predicted an LL50 of 2.31 and a EL10 of 0.443 mg/L (Concawe, 2020).

**Long-term (chronic) Aquatic Hazard:** No experimental long-term aquatic toxicity for fish are available. The PETROTOX (version 4.01) modelled EL10 value is 0.602 mg/L (Concawe, 2020). Long-term toxicity data of Gasoline have also been provided to support the read-across from Gasoline to registration substance.

No experimental long-term aquatic toxicity data for aquatic invertebrates are available. The PETROTOX (version 4.01) modelled EL10 value is 1.05 mg/L (Concawe, 2020). Long-term toxicity data to aquatic invertebrates of Gasoline have also been provided to support the read-across from Gasoline to registration substance.

According to the EU CLP Regulation (EC No. 1272/2008) criteria, low boiling point gasoline naphtha category are classified as Chronic Category 2 (H411) for the environment based on acute invertebrate and algal toxicity.

**Endocrine Disruption for the Environment:** No data.

**Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative Properties:** The substance is not PBT and the exposure assessment in the CSR (Section 13) shows there is no risk to the environment. As such, this end-point has been waived as no further data is required.

Also, this substance does not contain PBT/vPvB constituents included in the SVHC candidate list at concentrations above 0.1%. No other representative hydrocarbon structures were found to meet the PBT / vPvB criteria.

**Persistent, Mobile and Toxic or Very Persistent, Very Mobile Properties:** No data.

#### 1.4 Additional Hazards

**Hazardous to the Ozone Layer:** No data.

### Part 2 - Summary of Classification and Labelling Recommendations

There is one single C&L permutation for CPNTP.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2	H361: Suspected of damaging fertility or the unborn child
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects
Carcinogenicity:	Carc. 1A	H350: May cause cancer
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: CNS Route of exposure: inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H340: May cause genetic defects.

H350: May cause cancer.

H361: Suspected of damaging fertility or the unborn child.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.



#### Additional labelling:

Restricted to professional uses due to classification as mutagenic Category 1B and carcinogenicity Category 1A except for fuel uses.

#### **Full list of Precautionary statements**

##### Prevention:

P201 Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P235: Keep cool.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify the appropriate type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*Manufacturer/supplier may specify a cleansing agent if appropriate.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*If water increases risk*) (*Manufacturer/supplier to specify appropriate media.*)  
P391: Collect spillage.

##### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulations (to be specified). (Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)*)

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## APPENDIX 1: LISTING OF UVCB HYDROCARBON SUBSTANCES

The tables below lists only those substances with active registrations at the time of issuing this report, with the following exceptions.

- Crude Oils are exempt from registration under REACH but still subject to notification under CLP.

### UVCB hydrocarbon substances

CRUDE OILS		
EC #	CAS #	EC name
232-298-5	8002-05-9	Petroleum

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EC #	CAS #	EC name
232-349-1	8006-61-9	Gasoline, natural
265-041-0	64741-41-9	Naphtha (petroleum), heavy straight-run
265-042-6	64741-42-0	Naphtha (petroleum), full-range straight-run
265-046-8	64741-46-4	Naphtha (petroleum), light straight-run
265-055-7	64741-54-4	Naphtha (petroleum), heavy catalytic cracked
265-056-2	64741-55-5	Naphtha (petroleum), light catalytic cracked
265-065-1	64741-63-5	Naphtha (petroleum), light catalytic reformed
265-066-7	64741-64-6	Naphtha (petroleum), full-range alkylate
265-068-8	64741-66-8	Naphtha (petroleum), light alkylate
265-070-9	64741-68-0	Naphtha (petroleum), heavy catalytic reformed
265-071-4	64741-69-1	Naphtha (petroleum), light hydrocracked
265-073-5	64741-70-4	Naphtha (petroleum), isomerization
265-075-6	64741-74-8	Naphtha (petroleum), light thermal cracked
265-079-8	64741-78-2	Naphtha (petroleum), heavy hydrocracked
265-085-0	64741-83-9	Naphtha (petroleum), heavy thermal cracked
265-086-6	64741-84-0	Naphtha (petroleum), solvent-refined light
265-089-2	64741-87-3	Naphtha (petroleum), sweetened
265-150-3	64742-48-9	Naphtha (petroleum), hydrotreated heavy
265-151-9	64742-49-0	Naphtha (petroleum), hydrotreated light
265-178-6	64742-73-0	Naphtha (petroleum), hydrodesulfurized light
265-185-4	64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy
265-192-2	64742-89-8	Solvent naphtha (petroleum), light aliph.
265-199-0	64742-95-6	Solvent naphtha (petroleum), light arom.
270-660-4	68475-79-6	Distillates (petroleum), catalytic reformed depentanizer
270-686-6	68476-46-0	Hydrocarbons, C3-11, catalytic cracker distillates
270-690-8	68476-50-6	Hydrocarbons, C <sub>≥</sub> 5, C5-6-rich
270-695-5	68476-55-1	Hydrocarbons, C5-rich
270-993-5	68513-03-1	Naphtha (petroleum), light catalytic reformed, arom.-free
271-267-0	68527-27-5	Naphtha (petroleum), full-range alkylate, butane-contg.
271-635-0	68603-08-7	Naphtha (petroleum), arom
271-727-0	68606-11-1	Gasoline, straight-run, topping-plant
272-186-3	68783-12-0	Naphtha (petroleum), unsweetened
272-895-8	68919-37-9	Naphtha (petroleum), full-range reformed
272-931-2	68921-08-4	Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads
273-271-8	68955-35-1	Naphtha (petroleum), catalytic reformed



<b>LOW BOILING POINT NAPHTHAS (GASOLINES)</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
285-510-3	85116-59-2	Naphtha (petroleum), catalytic reformed light, arom.-free fraction
289-220-8	86290-81-5	Gasoline
295-298-4	91995-38-9	Hydrocarbons, C4-6, depentanizer lights, arom. hydrotreater
295-331-2	91995-68-5	Extracts (petroleum), catalytic reformed light naphtha solvent
295-418-5	92045-37-9	Kerosine (petroleum), straight-run wide-cut
295-433-7	92045-52-8	Naphtha (petroleum), hydrodesulfurized full-range
295-440-5	92045-58-4	Naphtha (petroleum), isomerization, C6-fraction
295-441-0	92045-59-5	Naphtha (petroleum), light catalytic cracked sweetened
295-442-6	92045-60-8	Naphtha (petroleum), light, C5-rich, sweetened
295-445-2	92045-63-1	Hydrocarbons, C4-11, naphtha-cracking, arom.-free
295-446-8	92045-64-2	Hydrocarbons, C6-7, naphtha-cracking, solvent-refined
296-903-4	93165-19-6	Distillates (petroleum), C6-rich
297-401-8	93571-75-6	Aromatic hydrocarbons, C7-12, C8-rich
614-725-0	68783-11-9	Naphtha (petroleum), light polymn.
940-595-2		Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction)

<b>KEROSINES</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
941-379-0		Petroleum kerosene fraction, co-processed with renewable hydrocarbons of plant and/or animal origin - CPKAV
232-366-4	8008-20-6	Kerosine (petroleum)
265-149-8	64742-47-8	Distillates (petroleum), hydrotreated light
265-184-9	64742-81-0	Kerosine (petroleum), hydrodesulfurized
294-799-5	91770-15-9	Kerosine (petroleum), sweetened
931-250-7		MK1 diesel fuel

<b>STRAIGHT-RUN GAS OILS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
265-043-1	64741-43-1	Gas oils (petroleum), straight-run
265-044-7	64741-44-2	Distillates (petroleum), straight-run middle
272-341-5	68814-87-9	Distillates (petroleum), full-range straight-run middle
272-817-2	68915-96-8	Distillates (petroleum), heavy straight-run

CRACKED GAS OILS		
EC #	CAS #	EC name
265-060-4	64741-59-9	Distillates (petroleum), light catalytic cracked
265-062-5	64741-60-2	Distillates (petroleum), intermediate catalytic cracked
265-084-5	64741-82-8	Distillates (petroleum), light thermal cracked
295-411-7	92045-29-9	Gas oils (petroleum), thermal-cracked, hydrodesulfurized

VACUUM GAS OILS, HYDROCRACKED GAS OILS & DISTILLATE FUELS		
EC #	CAS #	EC name
265-049-4	64741-49-7	Condensates (petroleum), vacuum tower
265-059-9	64741-58-8	Gas oils (petroleum), light vacuum
265-078-2	64741-77-1	Distillates (petroleum), light hydrocracked
269-822-7	68334-30-5	Fuels, diesel
270-671-4	68476-30-2	Fuel oil, no. 2
270-673-5	68476-31-3	Fuel oil, no. 4
270-676-1	68476-34-6	Fuels, diesel, no. 2

OTHER GAS OILS		
EC #	CAS #	EC name
265-148-2	64742-46-7	Distillates (petroleum), hydrotreated middle
265-182-8	64742-79-6	Gas oils (petroleum), hydrodesulfurized
265-183-3	64742-80-9	Distillates (petroleum), hydrodesulfurized middle

HEAVY FUEL OIL COMPONENTS		
EC #	CAS #	EC name
265-045-2	64741-45-3	Residues (petroleum), atm. Tower
265-058-3	64741-57-7	Gas oils (petroleum), heavy vacuum
265-063-0	64741-61-3	Distillates (petroleum), heavy catalytic cracked
265-064-6	64741-62-4	Clarified oils (petroleum), catalytic cracked
265-069-3	64741-67-9	Residues (petroleum), catalytic reformer fractionator
265-076-1	64741-75-9	Residues (petroleum), hydrocracked
265-081-9	64741-80-6	Residues (petroleum), thermal cracked
265-082-4	64741-81-7	Distillates (petroleum), heavy thermal cracked
265-162-9	64742-59-2	Gas oils (petroleum), hydrotreated vacuum
265-181-2	64742-78-5	Residues (petroleum), hydrodesulfurized atmospheric tower
265-189-6	64742-86-5	Gas oils (petroleum), hydrodesulfurized heavy vacuum
269-777-3	68333-22-2	Residues (petroleum), atmospheric
270-675-6	68476-33-5	Fuel oil, residual
270-796-4	68478-17-1	Residues (petroleum), heavy coker gas oil and vacuum gas oil
271-384-7	68553-00-4	Fuel oil, no. 6
271-763-7	68607-30-7	Residues (petroleum), topping plant, low-sulfur
272-184-2	68783-08-4	Gas oils (petroleum), heavy atmospheric
273-263-4	68955-27-1	Distillates (petroleum), Petroleum residues vacuum
274-684-6	70592-77-7	Distillates (petroleum), light vacuum
274-685-1	70592-78-8	Distillates (petroleum), vacuum
292-658-2	90669-76-4	Residues (petroleum), vacuum, light

<b>HEAVY FUEL OIL COMPONENTS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
295-511-0	92061-97-7	Residues (petroleum), catalytic cracking
298-754-0	93821-66-0	Residual oils (petroleum)

<b>UNREFINED / ACID TREATED OILS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
265-051-5	64741-50-0	Distillates (petroleum), light paraffinic
265-052-0	64741-51-1	Distillates (petroleum), heavy paraffinic

<b>HIGHLY REFINED BASE OILS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
232-455-8	8042-47-5	White mineral oil (petroleum)

<b>LUBRICANT BASE OILS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
265-077-7	64741-76-0	Distillates (petroleum), heavy hydrocracked
265-090-8	64741-88-4	Distillates (petroleum), solvent-refined heavy paraffinic
265-091-3	64741-89-5	Distillates (petroleum), solvent-refined light paraffinic
265-096-0	64741-95-3	Residual oils (petroleum), solvent deasphalted
265-097-6	64741-96-4	Distillates (petroleum), solvent-refined heavy naphthenic
265-101-6	64742-01-4	Residual oils (petroleum), solvent-refined
265-155-0	64742-52-5	Distillates (petroleum), hydrotreated heavy naphthenic
265-156-6	64742-53-6	Distillates (petroleum), hydrotreated light naphthenic
265-157-1	64742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic
265-158-7	64742-55-8	Distillates (petroleum), hydrotreated light paraffinic
265-159-2	64742-56-9	Distillates (petroleum), solvent-dewaxed light paraffinic
265-160-8	64742-57-0	Residual oils (petroleum), hydrotreated
265-166-0	64742-62-7	Residual oils (petroleum), solvent-dewaxed
265-169-7	64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic
265-174-4	64742-70-7	Paraffin oils (petroleum), catalytic dewaxed heavy
265-176-5	64742-71-8	Paraffin oils (petroleum), catalytic dewaxed light
276-736-3	72623-85-9	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity
276-737-9	72623-86-0	Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based
276-738-4	72623-87-1	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
278-012-2	74869-22-0	Lubricating oils

<b>UNTREATED DISTILLATE AROMATIC EXTRACTS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
265-103-7	64742-04-7	Extracts (petroleum), heavy paraffinic distillate solvent
265-104-2	64742-05-8	Extracts (petroleum), light paraffinic distillate solvent

TREATED DISTILLATE AROMATIC EXTRACTS		
EC #	CAS #	EC name
272-180-0	68783-04-0	Extracts (petroleum), solvent-refined heavy paraffinic distillate solvent

RESIDUAL AROMATIC EXTRACTS		
EC #	CAS #	EC name
265-110-5	64742-10-5	Extracts (petroleum), residual oil solvent

SLACK WAXES		
EC #	CAS #	EC name
265-165-5	64742-61-6	Slack wax (petroleum)
292-660-3	90669-78-6	Slack wax (petroleum), clay-treated
295-523-6	92062-09-4	Slack wax (petroleum), hydrotreated

PARAFFIN AND HYDROCARBON WAXES		
EC #	CAS #	EC name
232-315-6	8002-74-2	Paraffin waxes and Hydrocarbon waxes
264-038-1	63231-60-7	Paraffin waxes and Hydrocarbon waxes, microcryst.
265-144-0	64742-42-3	Hydrocarbon waxes (petroleum), clay-treated microcryst.
265-145-6	64742-43-4	Paraffin waxes (petroleum), clay-treated
265-154-5	64742-51-4	Paraffin waxes (petroleum), hydrotreated
265-163-4	64742-60-5	Hydrocarbon waxes (petroleum), hydrotreated microcryst.

FOOTS OILS		
EC #	CAS #	EC name
265-171-8	64742-67-2	Foots oil (petroleum)
295-394-6	92045-12-0	Foots oil (petroleum), hydrotreated

PETROLATUMS		
EC #	CAS #	EC name
232-373-2	8009-03-8	Petrolatum

BITUMENS		
EC #	CAS #	EC name
232-490-9	8052-42-4	Asphalt
265-057-8	64741-56-6	Residues (petroleum), vacuum
295-518-9	92062-05-0	Residues (petroleum), thermal cracked vacuum

OXIDIZED ASPHALT		
EC #	CAS #	EC name
265-196-4	64742-93-4	Asphalt, oxidized

<b>SULFUR</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
231-722-6	7704-34-9	Sulfur

<b>RENEWABLE DEOXYGENATE DIESEL</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
951-915-5		Renewable hydrocarbons (deoxygenate diesel type fraction)

<b>SOLVENT NAPHTHA</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
265-198-5	64742-94-5	Solvent naphtha (petroleum), heavy arom.

<b>CO-PROCESSED GAS OIL FROM PLANT/ANIMAL ORIGIN</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
941-364-9		Petroleum gas oil fraction, co-processed with renewable hydrocarbons of plant and/or animal origin.

<b>CO-PROCESSED (THERMAL CRACKING) GAS OIL FROM WASTE PLASTICS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
955-454-0		Residues from petroleum gas oil fractions, co-processed (thermal cracking) with waste plastics.

<b>CO-PROCESSED DIESEL/GAS OIL FROM THERMALLY CRACKED PLASTICS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
941-803-4		Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons derived from thermally cracked plastics.

<b>CO-PROCESSED (HYDROTREATED) NAPHTHA FROM PLANT/ANIMAL ORIGIN</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
941-381-1		Petroleum naphtha fraction, co-processed (hydrotreatment) with renewable hydrocarbons of plant and/or animal origin

<b>CO-PROCESSED NAPHTHA FROM THERMALLY CRACKED PLASTICS</b>		
<b>EC #</b>	<b>CAS #</b>	<b>EC name</b>
941-806-0		Petroleum naphtha fraction, co-processed with hydrocarbons derived from thermally cracked plastics

## APPENDIX 2: REGULATORY AND OIL INDUSTRY NOTES

The classification and labelling recommendations in this report for the various categories of UVCB hydrocarbon substances have been developed by Concawe based on available information and application of a default most severe classification. It is recognised however that for some endpoints, alternative classifications may be applicable, due to the variable properties of individual substances. The ‘default’ classifications apply, unless the conditions identified in the classification Notes listed below are met. These Notes are either derived from Annex VI Part 1 of the CLP Regulation, or have been developed by the oil industry as a practical solution for the provision of reliable and consistent hazard classifications.

Note = as in the Regulation (EC) No 1272/2008, as amended by the 16<sup>th</sup> ATP.

OIN = Oil Industry Note

Note	Text
Note L	The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3% of dimethyl sulphoxide extract as measured by IP 346 (“Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method” Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.
Note N	The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.
Note P	The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1% w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.
OIN 5	The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (Einecs No 203-625-9).
OIN 6	The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3% w/w n-hexane (Einecs No 203-777-6).
OIN 8	The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.
OIN 10	The classification as a carcinogen needs not apply if it can be shown that the substance has mutagenicity index (MI) less than 0.4 as measured by the test method described in ASTM E 1687-04 or if another predictive test demonstrates the substance is not a carcinogen.
OIN 14	The classification as a specific target organ toxicant category 2; H373 (May cause damage to organs through prolonged or repeated exposure) needs not apply if the substance is not classified as carcinogenic.
OIN P	The following Oil industry note (OIN) applies instead of Note P: The classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1% w/w benzene (Einecs No 200-753-7), in which case

Note	Text
	a classification in accordance with Title II of CLP Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.
OIN 15	The following Oil industry note (OIN) applies only when Note P applies, (<0.1% benzene): The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (Einecs No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.
OIN 16	The following Oil industry note (OIN) applies to Kerosines : The classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (Einecs No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.



## **APPENDIX 3: APPLICATIONS FOR USING TEST DATA FOR THE UVCB SUBSTANCES**

### **1. Application of Specific Target Organ Toxicity - Repeated Exposure (STOT RE) Classifications (Benzene) to Low Boiling Naphthas (Gasolines)**

In Regulation (EC) No 1272/2008 (CLP), Annex VI, benzene (Index No. 601-020-00-8) is classified for specific target organ toxicity after repeated exposure as STOT RE 1 (H372) based on effects on the haematopoietic system. According to the rules laid down in CLP, classification and labelling of low boiling naphthas (and gasoline) for STOT RE 2 (H373) would be triggered at benzene concentrations equal to or greater than 1% (w/w) and below 10% (w/w). At concentrations  $\geq 10\%$  (w/w) of benzene, the low boiling naphthas (gasolines) would need to be classified as STOT RE 1 (H372).

Concawe believes it inappropriate to apply classification for STOT RE 2 to low boiling naphthas (gasolines) with concentrations of benzene below 10% for the following reasons:

- Repeated dermal dose toxicity studies with naphthas with exposures up to 2000 mg/kg bw/day showed no evidence of haematologic effects.
- Repeated inhalation toxicity studies with gasoline and naphthas also showed no evidence of haematologic effects.
- Naphtha blending streams tested in sub-chronic inhalation toxicity studies with exposures up to 7500 ppm showed some haematological changes, mainly reduced haemoglobin and haematocrit levels and some reductions in leukocyte and lymphocyte numbers in male rats from the highest exposure groups. Since these effects were exclusively found in the male rat, and spleen weights were unaltered, the effects are believed to be secondary to the renal changes (alpha-2 $\mu$ -globulin-induced nephropathy) and therefore rat-specific.

### **2. Application of Specific Target Organ Toxicity - Repeated Exposure (STOT RE) Classifications (Toluene) to Low Boiling Naphthas (Gasolines)**

In Regulation (EC) No 1272/2008 (CLP), Annex VI, toluene (Index No. 601-021-00-3) is classified for specific target organ toxicity after repeated exposure as STOT RE 2 (H373) based on ototoxicity observed in animal studies at prolonged exposure to toluene vapours. According to the rules laid down in CLP, classification of low boiling naphthas (gasolines) for STOT RE 2 would be triggered at toluene concentrations equal to or greater than 10% (w/w). Concawe believes that it is inappropriate to classify low boiling naphthas (gasolines) for STOT RE 2 for the following reasons:

- Long-term inhalation studies with gasoline (PS-6) at concentrations up to 2056 ppm did not reveal any signs of neurotoxicity.
- Prolonged gasoline abuse (gasoline sniffing) has led to various (reversible) neurological effects but not ototoxicity.
- Toluene-induced ototoxicity cannot realistically be achieved since ototoxicity was only observed at prolonged exposure to concentrations of toluene that would cause explosive mixtures with gasoline.
- Exposure to gasoline vapours, and hence the toluene therein, is sufficiently limited by classification of gasoline as Cat. 1B carcinogen to prevent any ototoxicity from gasoline; existing occupational exposure limits for hydrocarbons would further restrict potential exposure.

### 3. Application of Specific Target Organ Toxicity - Repeated Exposure (STOT RE) Classifications (n-hexane) to Low Boiling Naphthas (Gasolines)

Normal-hexane (n-hexane - CAS 110-54-3) is a linear hydrocarbon of 6 carbon atoms.

Exposure to n-hexane has been associated with peripheral neuropathy in humans. This is reflected in EU-CLP harmonised classification for n-hexane as STOT RE 2; H373 (Index No. 601-037-00-0). This classification has a specific concentration limit of  $\geq 5\%$  (w/w), for substances or mixtures containing n-hexane.

The toxicity on the peripheral nervous system has been shown to result from the action of a specific n-hexane metabolite: 2,5-hexane dione. This distinguishes n-hexane from other C<sub>6</sub> hydrocarbons (hexane isomers) and hydrocarbon substances' stream constituents, because only n-hexane is metabolised to the toxic metabolite and has a threshold depending on whether exposure is to pure n-hexane or commercial hexane (hexane isomers with up to 53% n-hexane).

This was demonstrated in a series of studies comparing n-hexane to commercial hexane.

Rats exposed to n-hexane at 500 ppm ( $\sim 1760 \text{ mg/m}^3$ ) developed neuropathy after 6 months of treatment. Co-exposure to hexane isomers did not potentiate n-hexane associated neurotoxicity.

In a neurotoxicity test where functional battery performance and motor activity was assessed, rats were exposed to concentrations of up to 9000 ppm ( $\sim 31680 \text{ mg/m}^3$ ) to commercial hexane. Results showed no effects to behaviour or evidence of toxicity setting the NOAEC for sub-chronic neurological effects at 9000 ppm.

Lifetime exposure of rats and mice to 9000 ppm of commercial hexane did not indicate significant differences in survivorship between treated and control animals.

Therefore, test data of commercial hexane indicates that peripheral neuropathy is a threshold effect which doesn't manifest itself in complex substances with n-hexane concentrations below 53%. Thus petroleum streams (e.g. Naphtha) which contain n-hexane at considerably lower concentrations than 53% can be considered to be below the threshold of concern and thus not classifiable as STOT RE 2; H373.

## APPENDIX 4: HAZARD CLASSIFICATION FOR TOXICITY TO REPRODUCTION ACCORDING TO CLP

According to CLP, Reproductive Toxicity is differentiated into three sub-headings:

- A) Adverse effects on sexual function and fertility;
- B) Adverse effects on development of the offspring;
- C) Adverse effects on or via lactation.

Developmental toxicity refers primarily to part B. Most often used guideline study designs that enable evaluation of this parameter are OECD TG 414 and TG 443. Alternatively, relevant data can be derived from the screening studies OECD TG 421/ 422 or through other non-guideline studies, although these are not typically considered sufficiently robust to drive classification. These screening tests are not meant to provide complete information on all aspects of reproduction and development because of limited postnatal exposure duration and inadequate coverage of key aspects/parameters. The results of a screening study should be interpreted with caution. A result showing no effects in a OECD TGs 421 or 422 screening test does not provide reassurance of the absence of any hazardous property for reproductive toxicity.

The prenatal developmental toxicity study (OECD TG 414) provides a focused evaluation of potential effects following prenatal exposure, although only effects that are manifested before birth can be detected. More specifically, this study is designed to provide information on substance-induced effects on growth and survival of the fetuses, and increased incidences in external, skeletal and soft tissue malformations and variations in fetuses.

The OECD TG 443 guideline extended one-generation reproductive toxicity (EOGRT) study has generally replaced the 2-generation reproductive toxicity study design OECD TG 416. The OECD TG 443 EOGRT is designed to provide an evaluation of the pre- and postnatal effects of chemicals on development as well as a thorough evaluation of systemic toxicity in pregnant and lactating females and young and adult offspring. Detailed examination of key developmental endpoints, such as offspring viability, neonatal health, developmental status at birth, and physical and functional development until adulthood, is expected to identify specific target organs in the offspring. In addition, the study is designed to provide and / or confirm information about the effects of a test chemical on the integrity and performance of the adult male and female reproductive systems. The information obtained from the developmental neurotoxicity and developmental immunotoxicity assessments included in the optional cohorts 2 and 3, will characterize potential effects in those systems.

If there are serious concerns about potential adverse neurological effects, an additional developmental neurotoxicity study (OECD TG 426) is designed to provide information on the potential functional and morphological hazards of the nervous system arising in the offspring from exposure of the mother during pregnancy and lactation.

Epidemiological studies, case reports and clinical data may provide sufficient hazard and dose-response evidence for classification of chemicals as developmental toxicants. However, convincing human evidence of developmental toxicity for a specific substance is rarely available because it is often impossible to identify a population suitable to study that is/was exposed only to the substance of interest.

For parts A and/or C studies OECD TG 416, TG 426 or TG 443 are applicable; however, these aspects are not further discussed here.

Developmental toxicity generally includes any effect which interferes with normal development of the conceptus, either before or after birth, and resulting from exposure of either parent prior to conception, or exposure of the developing offspring during prenatal development, or postnatally, to the time of sexual maturation. However, it is considered that classification under the heading of developmental toxicity is primarily intended to provide a hazard warning for pregnant women, and for men and women of reproductive capacity. Therefore, for pragmatic purposes of classification, developmental toxicity essentially means adverse effects induced during pregnancy, or as a result of parental exposure.

When reviewing developmental toxicity study data for the purposes of classification and labelling, key concerns are: (a) death of the developing organism, (b) structural abnormality, (c) altered growth, and (d) functional deficiency. Whereas the OECD TG 414 is designed for investigating (a), (b) and (c), at the end of the gestation period, (d) functional deficiency is examined in detail by the OECD TG 443. It is also clear that a distinction is made between significant (i.e., irreversible) effects and those indicative of developmental delays. If any developmental effect is observed in the presence of maternal toxicity, there is a need to carefully evaluate both the severity of the developmental effect and the nature of the maternal effect(s) as both may ultimately influence the decision to classify. Development of the offspring throughout gestation and during the early postnatal stages can be influenced by toxic effects in the mother either through non-specific mechanisms related to stress and the disruption of maternal homeostasis, or by specific maternally-mediated mechanisms. Expert judgement and a weight of evidence approach, using all available studies, shall be used to determine the degree of influence that shall be attributed to maternal toxicity when interpreting the criteria for classification for developmental effects.

The classification guidelines emphasize that the evaluation should start with an assessment of the developmental effects before the potential for maternal influence is considered along with any other factors which are likely to have influenced these effects, as weight of evidence, to help reach a conclusion about classification. Accordingly, when developmental effects are reported, it is best to review the original study reports, considering both groups' mean and individual litter data. Although some valuable insight can be gained from individual pup data, it is important to recognise that the recognised statistical unit in reproductive toxicity studies is the litter and not the individual foetus/pup. Among the parameters that should be considered are pre- and post-implantation loss, total number of progeny and percentage live.

As stated in the CLP legislation (3.7.2.4.3) classification for reproductive toxicity is not necessarily the outcome in the case of minor developmental changes, when there is only a small reduction in foetal/pup body weight or retardation of ossification when seen in association with maternal toxicity. However, classification shall be considered where there is a significant toxic effect in the offspring, e.g. irreversible effects such as structural malformations, embryo/foetal lethality and /or significant post-natal functional deficiencies. In these cases, in depth review of the study report is warranted and if appropriate a comprehensive overview on a litter by litter basis to assess the impact of maternal toxicity on foetal development. Additionally, the statistical significance of any deficiencies should be considered in the evaluation of biological significance. Small changes of statistical significance but of no biological significance are not considered sufficient to classify as a developmental toxicant.

In general, when there is evidence of severe developmental toxicity such as foetal death, resorptions and/or major malformations, and there is no basis to judge these effects as not relevant to humans, then maternal toxicity needs to be considered. Normally, such effects would lead to classification unless the maternal toxicity is severe, e.g. lethality, significant weight loss or reduced weight gain, or inanition. In such cases, a justification should be prepared taking into consideration the nature of both the foetal and maternal effects. When evaluating whether

maternal toxicity may be present, factors such as irritation (mild or severe), body weight gain throughout gestation, and food consumption should be examined. Classification may not be justified if the developmental effect is judged to be of low or minimal toxicological significance, for example reductions in pup weight gain, delayed ossification, rib variations, and/or other evidence of developmental delays.

Classification should not automatically be discounted for substances that produce developmental toxicity only in association with maternal toxicity, even if a specific maternally-mediated mechanism has been demonstrated. In such a case, classification in Category 2 may be considered more appropriate than Category 1. However, when a substance is so toxic that maternal death or severe inanition results, or the dams are prostrate and incapable of nursing the pups, it is reasonable to assume that developmental toxicity is produced solely as a secondary consequence of maternal toxicity and discount the developmental effects. In cases where a causal relationship is established between reproductive and parental toxicity and the effects on the offspring can be proved to be secondary to maternal toxicity, they may still be relevant for developmental classification, dependent on the severity of the effects.

Once this initial assessment has been completed, then other factors can be considered. Ultimately, classification as a reproductive toxicant is based on 'expert judgement' taking into account the total weight of evidence. This means that all available information that bears on the determination of reproductive toxicity is considered together, such as epidemiological studies, case reports in humans and specific reproduction studies along with sub-chronic, chronic and special study results in animals that provide relevant information regarding toxicity to growth, development and reproduction. The weight given to the available evidence will be influenced by factors such as the quality of the studies, consistency of results, nature and severity of effects, the presence of maternal toxicity in experimental animal studies, level of statistical significance for inter-group differences, number of endpoints affected, relevance of route of administration to humans and freedom from bias.

Classification of mixtures and substances containing CMR constituents will be based on the available test data for the individual ingredients of the mixture or substance using concentration limits for the ingredients of the mixture or substance. On a case-by-case basis, test data on mixtures or substances may be used for classification when demonstrating effects that have not been established from the evaluation based on the individual components. In such cases, the test results for the mixture or substance as a whole must be shown to be conclusive taking into account dose and other factors such as duration, observations, sensitivity and statistical analysis of reproduction test systems. Adequate documentation supporting the classification should be retained and available for review.

#### REFERENCES:

*Guidance on the Application of the CLP Criteria, Version 6.0, Jan 2024*

*Guidance on Information Requirements and Chemical Safety Assessment, European Chemicals Agency, Chapter R.7a: Endpoint specific guidance, Version 6.0, July 2017*

*Test No. 443: Extended One-Generation Reproductive Toxicity Study, OECD, 27 June 2018*

*Test No. 414: Prenatal Developmental Toxicity Study, OECD, 25 June 2018*

*Test No. 416: Two-Generation Reproduction Toxicity Study, OECD, 22 Jan 2001*

*Test No. 421: Reproduction/Developmental Toxicity Screening Test, OECD, 29 July 2016*

*Test No. 422: Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test, OECD, 29 July 2016*

*Test No. 426: Developmental Neurotoxicity Study, OECD, 16 Oct 2007*

## APPENDIX 5: C&L PERMUTATIONS

The information included in this Appendix is aimed at supporting the industry with recommended classification and labelling (C&L), as needed for either direct inclusion in the safety data sheet (SDS) for UVCB hydrocarbon substances or as basis for devising the classification and labelling of mixtures containing UVCB hydrocarbon substances, while considering the relevant substance characteristics (C&L drivers) leading to a certain classification and labelling (C&L permutation).

For each classified C&L permutation the following information is provided:

- **Classification and labelling according to CLP / GHS.** Contains the classification of the substance for each classified endpoint (for Section 2.1 of the SDS):
  - hazard class;
  - hazard category;
  - associated hazard statement (H), with code and full text including variable parts completed.
- **Labelling.** Contains the following elements (for the Label and for Section 2.2 of the SDS):
  - signal word;
  - hazard pictogram(s) (GHS), with code, description and picture;
  - hazard statement(s) (H), with code and full text including variable parts completed;
  - not more than six recommended precautionary statement(s) (P), with code and full text - the text in *italics* between brackets provides instructions where the applicable precautionary statement text must be adapted by each manufacturer/supplier;
  - when relevant, additional applicable label elements (EUH066, ‘lamp oils and grill lighters’, ‘restricted to professional users’).
- **Full list of Precautionary statements.** For inclusion into appropriate sections of the SDS main body, as deemed useful for industrial and professional users:
  - all precautionary statement(s) (P) relevant for the hazard classification, with code and full text - the text in *italics* between brackets provides instructions where the applicable precautionary statement text must be adapted by each manufacturer/supplier.

The C&L permutations result from the entry in Part 3 of Annex VI of CLP, if any, and from the self-classification for all other hazard classes or differentiations not covered there, as relevant. Where relevant, the Note(s) from Part 3 of Annex VI of CLP and/or the Oil Industry Note(s) (OIN) that have been applied to the C&L permutation are provided.

Each chapter in this Appendix is named with the full group name and (in brackets) the short name of the group.

Each chapter contains all permutations that could be applied to the relevant UVCB hydrocarbon substances category. For substances which have been registered under REACH not all permutations listed within a UVCB hydrocarbon substance category are applicable to every substance. The tables in each chapter show which C&L permutations codes can currently be assigned to each substance within the UVCB hydrocarbon substance Categories.

The classification given in the SDS should be the same as the classification provided in the notification to the C&L inventory and/or the substance registration dossier submitted to ECHA.



## CRUDE OILS (CRUDEOIL)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. Crudeoil) must be applied.

C&L drivers		C&L permutation	
Viscosity $\leq$ 20.5 mm <sup>2</sup> /s at 40 °C	Flash point < 23 °C	Initial boiling point $\leq$ 35 °C	CLP 1. Crudeoil
		Initial boiling point > 35 °C	CLP 2. Crudeoil
	Flash point $\geq$ 23 °C and $\leq$ 60 °C		CLP 3. Crudeoil
	Flash point > 60 °C		CLP 4. Crudeoil
Viscosity > 20.5 mm <sup>2</sup> /s at 40 °C	Flash point < 23 °C	Initial boiling point $\leq$ 35 °C	CLP 5. Crudeoil
		Initial boiling point > 35 °C	CLP 6. Crudeoil
	Flash point $\geq$ 23 °C and $\leq$ 60 °C		CLP 7. Crudeoil
	Flash point > 60 °C		CLP 8. Crudeoil

Due to the variability of crude oil composition, the environmental toxicity may differ from that given below; therefore, crude oils can be classified using specific experimental data on the actual type of crude oil under consideration.

CRUDE OILS		
EC #	CAS #	Acceptable C&L permutations
232-298-5	8002-05-9	CLP 1, CLP 2, CLP 3, CLP 4, CLP 5, CLP 6, CLP 7, CLP 8

### CLP 1. Crudeoil (Viscosity $\leq$ 20.5 mm<sup>2</sup>/s at 40 °C; Flash point < 23 °C and Initial boiling point $\leq$ 35 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...

*(Manufacturer/supplier to specify type of equipment.)*

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...

*(Manufacturer/supplier to specify type of equipment.)*

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
 P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P308 + P313: IF exposed or concerned: Get medical advice/attention.  
 P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
 P314: Get medical advice/attention if you feel unwell.  
 P331: Do NOT induce vomiting.  
 P337 + P313: If eye irritation persists: Get medical advice/attention.  
 P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
 P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 2. Crudeoil (Viscosity $\leq 20.5 \text{ mm}^2/\text{s}$ at $40^\circ\text{C}$ ; Flash point $< 23^\circ\text{C}$ and Initial boiling point $> 35^\circ\text{C}$ )

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H225: Highly flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P314: Get medical advice/attention if you feel unwell.  
P331: Do NOT induce vomiting.  
P337 + P313: If eye irritation persists: Get medical advice/attention.  
P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

CLP 3. Crudeoil (Viscosity  $\leq 20.5 \text{ mm}^2/\text{s}$  at  $40^\circ\text{C}$ ; Flash point  $\geq 23^\circ\text{C}$  and  $\leq 60^\circ\text{C}$ )

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

P337 + P313: If eye irritation persists: Get medical advice/attention.

P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 4. Crudeoil (Viscosity  $\leq 20.5$  mm<sup>2</sup>/s at 40 °C; Flash point > 60 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.



## Labelling

Signal word: Danger

### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

P337 + P313: If eye irritation persists: Get medical advice/attention.

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 5. Crudeoil (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point < 23 °C and Initial boiling point ≤ 35 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P337 + P313: If eye irritation persists: Get medical advice/attention.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 6. Crudeoil (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point < 23 °C and Initial boiling point > 35 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H225: Highly flammable liquid and vapour.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.  
Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P337 + P313: If eye irritation persists: Get medical advice/attention.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

#### CLP 7. Crudeoil (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point ≥ 23 °C and ≤ 60 °C)

##### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.  
Restricted to professional users due to classification as carcinogenic Category 1B.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P337 + P313: If eye irritation persists: Get medical advice/attention.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

##### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

##### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)



**CLP 8. Crudeoil (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point > 60 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Serious damage / eye irritation:	Eye Irrit. 2	H319: Causes serious eye irritation.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, liver, spleen, thymus	H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H319: Causes serious eye irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H373: May cause damage to blood, liver, spleen and thymus through prolonged or repeated exposure.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.  
Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P337 + P313: If eye irritation persists: Get medical advice/attention.

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## LOW BOILING POINT NAPHTHAS (GASOLINES) (NAPHTHA)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 01. Naphtha) must be applied.

C&L drivers					C&L permutation
Benzene ≥ 0.1%w/w	Toluene ≥ 3% w/w	n-hexane ≥ 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 01. Naphtha
				Initial boiling point > 35°C	CLP 02. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 03. Naphtha
	Toluene ≥ 3% w/w	n-hexane < 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 04. Naphtha
				Initial boiling point > 35°C	CLP 05. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 06. Naphtha
	Toluene < 3% w/w	n-hexane ≥ 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 07. Naphtha
				Initial boiling point > 35°C	CLP 08. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 09. Naphtha
	Toluene < 3% w/w	n-hexane < 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 10. Naphtha
				Initial boiling point > 35°C	CLP 11. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 12. Naphtha
Benzene < 0.1%w/w Cumene < 0.1%w/w	Toluene ≥ 3% w/w	n-hexane ≥ 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 13. Naphtha
				Initial boiling point > 35°C	CLP 14. Naphtha
	Toluene ≥ 3% w/w	n-hexane < 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 16. Naphtha
				Initial boiling point > 35°C	CLP 17. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 18. Naphtha
	Toluene < 3% w/w	n-hexane ≥ 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 19. Naphtha
				Initial boiling point > 35°C	CLP 20. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 21. Naphtha
	Toluene < 3% w/w	n-hexane < 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 22. Naphtha
				Initial boiling point > 35°C	CLP 23. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 24. Naphtha
Benzene < 0.1%w/w Cumene ≥ 0.1%w/w	Toluene ≥ 3% w/w	n-hexane ≥ 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 25. Naphtha
				Initial boiling point > 35°C	CLP 26. Naphtha
	Toluene ≥ 3% w/w	n-hexane < 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 28. Naphtha
				Initial boiling point > 35°C	CLP 29. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 30. Naphtha
	Toluene < 3% w/w	n-hexane ≥ 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 31. Naphtha
				Initial boiling point > 35°C	CLP 32. Naphtha
			Flash point ≥ 23°C and ≤ 60°C		CLP 33. Naphtha
	Toluene < 3% w/w	n-hexane < 3% w/w	Flash point < 23°C	Initial boiling point ≤ 35°C	CLP 34. Naphtha

			Initial boiling point > 35 °C	CLP 35. Naphtha
			Flash point ≥ 23 °C and ≤ 60 °C	CLP 36. Naphtha

**Note:** The substances with EC# No 295-418-5, 613-683-0 and 614-725-0 are not included in Annex VI of CLP and therefore Note OIN P is applied instead of Note P to permutations CLP 13 to CLP 36.

**In accordance with the 5<sup>th</sup> ATP to the CLP Regulation, the following additional classification applies to the substance with EC No 265-185-4.**

Hazard class	Hazard category	Hazard statement
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Central nervous system	H372: Causes damage to central nervous system through prolonged or repeated exposure.

**Note 1:** In the registration dossiers, the permutations CLP 01 to CLP 24 for EC No 265-185-4 are named as **White Spirit** instead of Naphtha, to highlight the different hazard profile.

**Note 2:** Additional classification and labelling STOT RE 1 applies case-by-case if Benzene content is ≥10% w/w in Naphtha category substances.

In this particular case, the following precautionary statements will add (if not already included) to the full list as mentioned for each permutation:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P314: Get medical advice/attention if you feel unwell.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EC #	CAS #	Acceptable C&L permutations
232-349-1	8006-61-9	CLP 01
265-041-0	64741-41-9	CLP 01, CLP 02, CLP 05, CLP 06, CLP 08, CLP 11, CLP 12, CLP 18, CLP 23, CLP 24, CLP 30, CLP 35, CLP 36
265-042-6	64741-42-0	CLP 01, CLP 02, CLP 03, CLP 04, CLP 05, CLP 06, CLP 07, CLP 08, CLP 09, CLP 10, CLP 13, CLP 19, CLP 20, CLP 22, CLP 23, CLP 25, CLP 31, CLP 32, CLP 34, CLP 35
265-046-8	64741-46-4	CLP 01, CLP 02, CLP 04, CLP 07, CLP 08, CLP 09, CLP 10
265-055-7	64741-54-4	CLP 01, CLP 02, CLP 03, CLP 04, CLP 05, CLP 10, CLP 11, CLP 16, CLP 17, CLP 18, CLP 22, CLP 23, CLP 24, CLP 28, CLP 29, CLP 30, CLP 34, CLP 35, CLP 36
265-056-2	64741-55-5	CLP 01, CLP 02, CLP 04, CLP 05, CLP 07, CLP 10, CLP 11
265-065-1	64741-63-5	CLP 01, CLP 02, CLP 04, CLP 05, CLP 07, CLP 08, CLP 09, CLP 10
265-066-7	64741-64-6	CLP 01, CLP 19, CLP 22, CLP 23, CLP 31, CLP 34, CLP 35
265-068-8	64741-66-8	CLP 20, CLP 23, CLP 32, CLP 35
265-070-9	64741-68-0	CLP 01, CLP 02, CLP 05, CLP 17, CLP 24, CLP 29, CLP 36
265-071-4	64741-69-1	CLP 01, CLP 02, CLP 03, CLP 05, CLP 07, CLP 08, CLP 09, CLP 10, CLP 11, CLP 19, CLP 20, CLP 22, CLP 23, CLP 31, CLP 32, CLP 34, CLP 35
265-073-5	64741-70-4	CLP 01, CLP 02, CLP 07, CLP 10, CLP 13, CLP 19, CLP 20, CLP 21, CLP 22, CLP 23, CLP 25, CLP 31, CLP 32, CLP 33, CLP 34, CLP 35
265-075-6	64741-74-8	CLP 01, CLP 07, CLP 08, CLP 11
265-079-8	64741-78-2	CLP 02, CLP 05, CLP 07, CLP 08, CLP 11, CLP 14, CLP 17, CLP 20, CLP 21, CLP 23, CLP 24, CLP 26, CLP 29, CLP 32, CLP 33, CLP 35, CLP 36

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EC #	CAS #	Acceptable C&L permutations
265-085-0	64741-83-9	CLP 01, CLP 02, CLP 04, CLP 07, CLP 08, CLP 10, CLP 24, CLP 36
265-086-6	64741-84-0	CLP 01, CLP 02, CLP 08, CLP 13, CLP 20, CLP 22, CLP 23, CLP 25, CLP 32, CLP 34, CLP 35
265-089-2	64741-87-3	CLP 01, CLP 02, CLP 04, CLP 05, CLP 08, CLP 10, CLP 20, CLP 24, CLP 32, CLP 36
265-150-3	64742-48-9	CLP 01, CLP 02, CLP 05, CLP 11, CLP 14, CLP 17, CLP 18, CLP 23, CLP 24, CLP 26, CLP 29, CLP 30, CLP 35, CLP 36
265-151-9	64742-49-0	CLP 01, CLP 02, CLP 03, CLP 04, CLP 07, CLP 08, CLP 09, CLP 10, CLP 13, CLP 16, CLP 20, CLP 22, CLP 23, CLP 24, CLP 25, CLP 28, CLP 32, CLP 34, CLP 35, CLP 36
265-178-6	64742-73-0	CLP 01, CLP 02, CLP 04, CLP 05, CLP 07, CLP 08, CLP 10, CLP 11, CLP 17, CLP 29
265-185-4	64742-82-1	CLP 01, CLP 02, CLP 03, CLP 05, CLP 07, CLP 11, CLP 20, CLP 23, CLP 24
265-192-2	64742-89-8	CLP 01, CLP 07, CLP 08, CLP 22, CLP 23, CLP 24, CLP 34, CLP 35, CLP 36
265-199-0	64742-95-6	CLP 04, CLP 05, CLP 08, CLP 24, CLP 36
270-660-4	68475-79-6	CLP 01, CLP 02, CLP 03, CLP 10, CLP 22, CLP 34
270-686-6	68476-46-0	CLP 02, CLP 05, CLP 10, CLP 11
270-690-8	68476-50-6	CLP 01, CLP 02, CLP 04, CLP 07, CLP 08, CLP 19, CLP 22, CLP 31, CLP 34
270-695-5	68476-55-1	CLP 01, CLP 10, CLP 11, CLP 22, CLP 34
270-993-5	68513-03-1	CLP 01, CLP 02, CLP 08
271-267-0	68527-27-5	CLP 01, CLP 04, CLP 10, CLP 11, CLP 22, CLP 23, CLP 34, CLP 35
271-635-0	68603-08-7	CLP 05
271-727-0	68606-11-1	CLP 01, CLP 02, CLP 07, CLP 08, CLP 22, CLP 23, CLP 24, CLP 34, CLP 35, CLP 36
272-186-3	68783-12-0	CLP 01, CLP 02, CLP 07, CLP 08, CLP 16, CLP 17, CLP 21, CLP 22, CLP 23, CLP 24, CLP 28, CLP 29, CLP 33, CLP 34, CLP 35, CLP 36
272-895-8	68919-37-9	CLP 01, CLP 02, CLP 05, CLP 10, CLP 11, CLP 22, CLP 23, CLP 24, CLP 34, CLP 35, CLP 36
272-931-2	68921-08-4	CLP 01, CLP 07, CLP 08
273-271-8	68955-35-1	CLP 01, CLP 02, CLP 04, CLP 05, CLP 07, CLP 08, CLP 24, CLP 36
285-510-3	85116-59-2	CLP 01, CLP 02, CLP 10, CLP 20, CLP 32
289-220-8	86290-81-5	CLP 01, CLP 02, CLP 03, CLP 04, CLP 05, CLP 06, CLP 07, CLP 08, CLP 09, CLP 10, CLP 11, CLP 12, CLP 13, CLP 14, CLP 16, CLP 17, CLP 19, CLP 20, CLP 22, CLP 23, CLP 25, CLP 26, CLP 28, CLP 29, CLP 31, CLP 32, CLP 34, CLP 35
295-298-4	91995-38-9	CLP 07, CLP 10, CLP 22, CLP 34
295-331-2	91995-68-5	CLP 01, CLP 05
295-418-5	92045-37-9	CLP 08, CLP 23, CLP 24
295-433-7	92045-52-8	CLP 01, CLP 04, CLP 05, CLP 07, CLP 08
295-440-5	92045-58-4	CLP 08, CLP 23, CLP 35
295-441-0	92045-59-5	CLP 01, CLP 02, CLP 04, CLP 05, CLP 10, CLP 11, CLP 12, CLP 23, CLP 35
295-442-6	92045-60-8	CLP 19, CLP 20, CLP 21, CLP 22, CLP 23, CLP 24, CLP 31, CLP 32, CLP 33, CLP 34, CLP 35, CLP 36
295-445-2	92045-63-1	CLP 08
295-446-8	92045-64-2	CLP 08
296-903-4	93165-19-6	CLP 01, CLP 02, CLP 05, CLP 08, CLP 19, CLP 20, CLP 22, CLP 23, CLP 31, CLP 32, CLP 34, CLP 35
297-401-8	93571-75-6	CLP 02, CLP 05, CLP 06, CLP 17, CLP 23, CLP 24, CLP 29, CLP 35, CLP 36
613-683-0	64741-72-6	CLP 04, CLP 22, CLP 23, CLP 34, CLP 35
614-725-0	68783-11-9	CLP 13, CLP 22, CLP 23, CLP 24

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EC #	CAS #	Acceptable C&L permutations
940-595-2		CLP 01, CLP 02, CLP 07, CLP 10, CLP 13, CLP 19, CLP 20, CLP 21, CLP 22, CLP 23, CLP 25, CLP 31, CLP 32, CLP 33, CLP 34, CLP 35

**CLP 01. Naphtha (Benzene  $\geq$  0.1% w/w; Toluene  $\geq$  3% w/w; n-hexane  $\geq$  3% w/w; Flashpoint  $<$  23 °C and Initial boiling point  $\leq$  35 °C)**

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H340: May cause genetic defects.

H350: May cause cancer.

H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.



#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

#### CLP 02. Naphtha (Benzene $\geq 0.1\%$ w/w; Toluene $\geq 3\%$ w/w; n-hexane $\geq 3\%$ w/w; Flashpoint $< 23^\circ\text{C}$ and Initial boiling point $> 35^\circ\text{C}$ )

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H225: Highly flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H340: May cause genetic defects.  
 H350: May cause cancer.  
 H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

CLP 03. Naphtha (Benzene  $\geq$  0.1% w/w; Toluene  $\geq$  3% w/w; n-hexane  $\geq$  3% w/w; Flashpoint  $\geq$  23 °C and  $\leq$  60 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

#### CLP 04. Naphtha (Benzene $\geq$ 0.1% w/w; Toluene $\geq$ 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point $\leq$ 35 °C)

The following Oil Industry Note (OIN) has been applied:

- OIN 6 - The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3% w/w n-hexane (EINECS No 203-777-6).

#### **Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### **Labelling**

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H340: May cause genetic defects.  
 H350: May cause cancer.  
 H361d: Suspected of damaging the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

##### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 05. Naphtha (Benzene  $\geq$  0.1% w/w; Toluene  $\geq$  3% w/w; n-hexane  $<$  3% w/w; Flashpoint  $<$  23 °C and Initial boiling point  $>$  35 °C)**

The following Oil Industry Note (OIN) has been applied:

- OIN 6 - The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3% w/w n-hexane (EINECS No 203-777-6).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H225: Highly flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H361d: Suspected of damaging the unborn child.



H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).

P331: Do NOT induce vomiting.

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 06. Naphtha (Benzene ≥ 0.1% w/w; Toluene ≥ 3% w/w; n-hexane < 3% w/w; Flashpoint ≥ 23 °C and ≤ 60 °C)**

The following Oil Industry Note (OIN) has been applied:

- OIN 6 - The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3% w/w n-hexane (EINECS No 203-777-6).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

- H226: Flammable liquid and vapour.
- H304: May be fatal if swallowed and enters airways.
- H315: Causes skin irritation.
- H336: May cause drowsiness or dizziness.
- H340: May cause genetic defects.
- H350: May cause cancer.

H361d: Suspected of damaging the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 07. Naphtha (Benzene  $\geq$  0.1% w/w; Toluene < 3% w/w; n-hexane  $\geq$  3% w/w; Flashpoint < 23 °C and Initial boiling point  $\leq$  35 °C)**

The following Oil Industry Note (OIN) has been applied:

- OIN 5 - The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion/irritation	Skin Irrit. 2	H315: Causes skin irritation
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...*Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (... *Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
 P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

#### CLP 08. Naphtha (Benzene $\geq$ 0.1% w/w; Toluene < 3% w/w; n-hexane $\geq$ 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)

The following Oil Industry Note (OIN) has been applied:  
 - OIN 5 - The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:



H225: Highly flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)



P321: Specific treatment (see ... on this label). (... *Reference to supplemental first aid instruction.*)  
 P331: Do NOT induce vomiting.  
 P332 + P313: If skin irritation occurs: Get medical advice/attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...*Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
 P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

CLP 09. Naphtha (Benzene  $\geq$  0.1% w/w; Toluene  $<$  3% w/w; n-hexane  $\geq$  3% w/w; Flashpoint  $\geq$  23 °C and  $\leq$  60 °C)

The following Oil Industry Note (OIN) has been applied:

- OIN 5 - The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame      GHS07: exclamation mark      GHS08: health hazard      GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 10. Naphtha (Benzene $\geq$ 0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point $\leq$ 35 °C)

The following Oil Industry Notes (OIN) have been applied:

- OIN 5 - The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).
- OIN 6 - The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3% w/w n-hexane (EINECS No 203-777-6).

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.

Hazard class	Hazard category	Hazard statement
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H340: May cause genetic defects.  
 H350: May cause cancer.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)  
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
 P331: Do NOT induce vomiting.  
 P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
 P202: Do not handle until all safety precautions have been read and understood.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P233: Keep container tightly closed.  
 P240: Ground and bond container and receiving equipment.  
 P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
 P242: Use non-sparking tools.  
 P243: Take action to prevent static discharges.  
 P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
 P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
 P271: Use only outdoors or in a well-ventilated area.  
 P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 11. Naphtha (Benzene  $\geq$  0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**

The following Oil Industry Notes (OIN) have been applied:

- OIN 5 - The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).
- OIN 6 - The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3% w/w n-hexane (EINECS No 203-777-6).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.

Hazard class	Hazard category	Hazard statement
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H225: Highly flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H340: May cause genetic defects.  
 H350: May cause cancer.  
 H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
 (*Manufacturer/supplier to specify type of equipment.*)  
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
 P331: Do NOT induce vomiting.  
 P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
 P202: Do not handle until all safety precautions have been read and understood.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P233: Keep container tightly closed.  
 P240: Ground and bond container and receiving equipment.  
 P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
 P242: Use non-sparking tools.  
 P243: Take action to prevent static discharges.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 12. Naphtha (Benzene $\geq$ 0.1% w/w; Toluene $<$ 3% w/w; n-hexane $<$ 3% w/w; Flashpoint $\geq$ 23 °C and $\leq$ 60 °C)

The following Oil Industry Notes (OIN) have been applied:

- OIN 5 - The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).
- OIN 6 - The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3% w/w n-hexane (EINECS No 203-777-6).

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.



Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as mutagenic Category 1B and carcinogenic Category 1B, except for fuel uses.

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 13. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene ≥ 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance

contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).

P331: Do NOT induce vomiting.

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in

accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

## Full list of Precautionary statements

### General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P262: Do not get in eyes, on skin, or on clothing

P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... *(Manufacturer/supplier to specify type of equipment.)*

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*

P302 + P352: IF ON SKIN: Wash with plenty of water/... *(...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)*

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*

P321: Specific treatment (see ... on this label). *(... Reference to supplemental first aid instruction.)*

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. *(...Manufacturer/supplier to specify appropriate media. – if water increases risk.)*

P391: Collect spillage.

### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 14. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene ≥ 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 15 - The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H225: Highly flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.  
H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

### **Full list of Precautionary statements**

#### General:

P102: Keep out of reach of children, (*In case of consumer use P102 should be added on the label*)

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P308 + P313: IF exposed or concerned: Get medical advice/attention.  
 P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
 P321: Specific treatment (see ... on this label). (... *Reference to supplemental first aid instruction.*)  
 P331: Do NOT induce vomiting.  
 P332 + P313: If skin irritation occurs: Get medical advice/attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...*Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
 P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 16. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene ≥ 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203 777-6).

- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.



Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H224: Extremely flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H361d: Suspected of damaging the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
 (Manufacturer/supplier to specify type of equipment.)  
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
 P331: Do NOT induce vomiting.  
 P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

### Full list of Precautionary statements

#### General:

P102: Keep out of reach of children. (In case of consumer use P102 should be added on the label)

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### CLP 17. Naphtha (Benzene < 0.1% w/w ; Cumene < 0.1% w/w; Toluene ≥ 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in

accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).
- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H225: Highly flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H361d: Suspected of damaging the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

#### **Full list of Precautionary statements**

##### General:

P102: Keep out of reach of children. (*In case of consumer use P102 should be added on the label*)

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...*Manufacturer/supplier to specify appropriate media.*  
 – *if water increases risk.*)  
 P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified).* *Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 18. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene ≥ 3% w/w; n-hexane < 3% w/w; Flashpoint ≥ 23 °C and ≤ 60 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-) P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H361d: Suspected of damaging the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

## Full list of Precautionary statements

### General:

P102: Keep out of reach of children. (*In case of consumer use P102 should be added on the label*)

### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing



P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 19. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene < 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.



### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the

substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

## Full list of Precautionary statements

### General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P262: Do not get in eyes, on skin, or on clothing

P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... *(Manufacturer/supplier to specify type of equipment.)*

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*

P302 + P352: IF ON SKIN: Wash with plenty of water/... *(...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)*

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*

P321: Specific treatment (see ... on this label). *(... Reference to supplemental first aid instruction.)*

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. *(...Manufacturer/supplier to specify appropriate media. – if water increases risk.)*

P391: Collect spillage.

### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 20. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene < 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

**Hazard pictogram:**

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



**Hazard statements:**

H225: Highly flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einescs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

### Full list of Precautionary statements

#### General:

P102: Keep out of reach of children. (*In case of consumer use P102 should be added on the label*)

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### CLP 21. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene < 3% w/w; n-hexane ≥ 3% w/w; Flashpoint ≥ 23 °C and ≤ 60 °C)

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

### Full list of Precautionary statements

#### General:

P102: Keep out of reach of children. (In case of consumer use P102 should be added on the label)

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 22. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in



accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).
- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).
- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

----Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

- H224: Extremely flammable liquid and vapour.
- H304: May be fatal if swallowed and enters airways.
- H315: Causes skin irritation.
- H336: May cause drowsiness or dizziness.
- H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

- P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

#### **Full list of Precautionary statements**

##### General:

P102: Keep out of reach of children. (*In case of consumer use P102 should be added on the label*)

##### Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 23. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

-----Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H225: Highly flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

### **Full list of Precautionary statements**

#### General:

P102: Keep out of reach of children. (In case of consumer use P102 should be added on the label)

#### Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### CLP 24. Naphtha (Benzene < 0.1% w/w; Cumene < 0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint ≥ 23 °C and ≤ 60 °C)

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

- OIN 15: The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

-----Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: **Danger**

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
 (Manufacturer/supplier to specify type of equipment.)  
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
 P331: Do NOT induce vomiting.  
 P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.]

### Full list of Precautionary statements

General:

P102: Keep out of reach of children. (In case of consumer use P102 should be added on the label)

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P262: Do not get in eyes, on skin, or on clothing  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### CLP 25. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene ≥ 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.



### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...

(Manufacturer/supplier to specify type of equipment.)

P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).

P331: Do NOT induce vomiting.

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international*

regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.

**CLP 26. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene ≥ 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**

The following Note has been applied:

- Note P - The classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1% w/w benzene (EINECS No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility and unborn child	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H225: Highly flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H350: May cause cancer.  
 H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

## Full list of Precautionary statements

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (...*Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national /international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 28. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene ≥ 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)**The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

--**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H224: Extremely flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H361d: Suspected of damaging the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.

**CLP 29. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene ≥ 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

**---Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.



Hazard class	Hazard category	Hazard statement
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H225: Highly flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H361d: Suspected of damaging the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the

substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/ national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 30. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene ≥ 3% w/w; n-hexane < 3% w/w; Flashpoint ≥ 23 °C and ≤ 60 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

**---Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

**Hazard pictogram:**

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



**Hazard statements:**

H226: Flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H350: May cause cancer.  
 H361d: Suspected of damaging the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media.  
 – if water increases risk.)  
 P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.

**CLP 31. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene < 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H224: Extremely flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 32. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene < 3% w/w; n-hexane ≥ 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102- )P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity -	STOT Single Exp. 3	



Hazard class	Hazard category	Hazard statement
single exposure:	Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H225: Highly flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H350: May cause cancer.  
 H361f: Suspected of damaging fertility.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
 (Manufacturer/supplier to specify type of equipment.)  
 P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
 P331: Do NOT induce vomiting.  
 P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

### Full list of Precautionary statements

#### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.

**CLP 33. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene < 3% w/w; n-hexane ≥ 3% w/w; Flashpoint ≥ 23 °C and ≤ 60 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Note (OIN) has been applied:

- OIN 5- The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3% w/w toluene (EINECS No 203-625-9).

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Fertility	H361f: Suspected of damaging fertility.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H361f: Suspected of damaging fertility.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

### Full list of Precautionary statements

#### Prevention:

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233: Keep container tightly closed.
- P240: Ground and bond container and receiving equipment.
- P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.
- P242: Use non-sparking tools.
- P243: Take action to prevent static discharges.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)
- P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)
- P271: Use only outdoors or in a well-ventilated area.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

#### Response:

- P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)
- P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
- P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P308 + P313: IF exposed or concerned: Get medical advice/attention.
- P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)
- P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)
- P331: Do NOT induce vomiting.
- P332 + P313: If skin irritation occurs: Get medical advice/attention.
- P362 + P364: Take off contaminated clothing and wash it before reuse.
- P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)
- P391: Collect spillage.

#### Storage:

- P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
- P403 + P235: Store in a well-ventilated place. Keep cool.
- P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.

### CLP 34. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point ≤ 35 °C)

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

#### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (... *Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (...*Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/ regional/ national/ international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 35. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint < 23 °C and Initial boiling point > 35 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 2	H225: Highly flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.



Hazard class	Hazard category	Hazard statement
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H225: Highly flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*.  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

### Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102) P260-P262-P301 + P310-P331 shall apply.]

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.

P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/ regional/ national/ international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.

**CLP 36. Naphtha (Benzene <0.1% w/w; Cumene ≥ 0.1% w/w; Toluene < 3% w/w; n-hexane < 3% w/w; Flashpoint ≥ 23 °C and ≤ 60 °C)**

The following Note has been applied:

- Note P: The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 +P310-P331 shall apply.

The following Oil Industry Notes (OIN) have been applied:

- OIN 5: The classification as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) needs not apply if it can be shown that the substance contains less than 3 % w/w toluene (EINECS No 203-625-9).

- OIN 6: The classification as a reproductive toxicant category 2; H361f (Suspected of damaging fertility) needs not apply if it can be shown that the substance contains less than 3 % w/w n-hexane (EINECS No 203-777-6).

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*).  
P331: Do NOT induce vomiting.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

Notes:

Note P [The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102)P260-P262-P301 + P310-P331 shall apply.]

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## KEROSINES (Kerosine)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 3. Kerosine) must be applied.

C&L drivers	C&L permutation
Cumene <0.1% w/w; Flashpoint $\geq 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$	CLP 1. Kerosine
Cumene <0.1% w/w; Flashpoint $> 60^{\circ}\text{C}$	CLP 2. Kerosine
Cumene $\geq 0.1\%$ w/w; Flashpoint $\geq 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$	CLP 3. Kerosine
Cumene $\geq 0.1\%$ w/w; Flashpoint $> 60^{\circ}\text{C}$	CLP 4. Kerosine

KEROSINES		
EC #	CAS #	Acceptable C&L permutations
232-366-4	8008-20-6	CLP 1, CLP 2, CLP 3, CLP 4
265-149-8	64742-47-8	CLP 1, CLP 2, CLP 3, CLP 4
265-184-9	64742-81-0	CLP 1, CLP 2, CLP 3, CLP 4
294-799-5	91770-15-9	CLP 1, CLP 2, CLP 3, CLP 4
931-250-7		CLP 1, CLP 2, CLP 3, CLP 4
941-379-0		CLP 1, CLP 2, CLP 3, CLP 4

**CLP 1. Kerosine (Cumene <0.1% w/w; Flashpoint  $\geq 23^{\circ}\text{C}$  and  $\leq 60^{\circ}\text{C}$ )** The following Oil Industry Note (OIN) has been applied:

- OIN 16: The classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*  
P331: Do NOT induce vomiting.

Additional labelling requirements:

For use by Consumers in grill lighters, container labels should be marked as follows: Just a sip of grill lighter may lead to life-threatening lung damage.

**Full list of Precautionary statements**

General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*  
P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*



P302 + P352: IF ON SKIN: Wash with plenty of water/... (...*Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (... *Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (...*Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 2. Kerosine (Cumene <0.1% w/w; Flashpoint > 60 °C)

The following Oil Industry Note (OIN) has been applied:

- OIN 16: The classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*

P331: Do NOT induce vomiting.

**Full list of Precautionary statements**

General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*

Prevention:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*

P302 + P352: IF ON SKIN: Wash with plenty of water/... *(...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)*

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*

P321: Specific treatment (see ... on this label). *(... Reference to supplemental first aid instruction.)*

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 3. Kerosine (Cumene $\geq$ 0.1% w/w; Flashpoint $\geq$ 23 °C and $\leq$ 60 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H350: May cause cancer.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P273: Avoid release to the environment.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)  
 P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
 P331: Do NOT induce vomiting.

## Full list of Precautionary statements

### General:

P201: Obtain special instructions before use.

### Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 4. Kerosine (Cumene  $\geq$  0.1% w/w; Flashpoint  $>$  60 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

**Hazard pictogram:**

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



**Hazard statements:**

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H411: Toxic to aquatic life with long lasting effects.

**Precautionary statements:**

P201: Obtain special instructions before use.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

**Full list of Precautionary statements**

**General:**

P201: Obtain special instructions before use.

**Prevention:**

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

## STRAIGHT-RUN GAS OILS (SRGO)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. SRGO) must be applied.

C&L drivers		C&L permutation
Viscosity $\leq 20.5 \text{ mm}^2/\text{s}$ at $40^\circ\text{C}$	Flash point $\geq 23^\circ\text{C}$ and $\leq 75^\circ\text{C}$	CLP 1. SRGO
	Flash point $> 75^\circ\text{C}$	CLP 2. SRGO
Viscosity $> 20.5 \text{ mm}^2/\text{s}$ at $40^\circ\text{C}$	Flash point $\geq 23^\circ\text{C}$ and $\leq 75^\circ\text{C}$	CLP 3. SRGO
	Flash point $> 75^\circ\text{C}$	CLP 4. SRGO

STRAIGHT-RUN GAS OILS		
EC No	CAS No	Acceptable C&L permutations
265-043-1	64741-43-1	CLP 1, CLP 2, CLP 3, CLP 4
265-044-7	64741-44-2	CLP 1, CLP 2
272-341-5	68814-87-9	CLP 1, CLP 2
272-817-2	68915-96-8	CLP 1, CLP 2, CLP 4

### CLP 1. SRGO (Viscosity $\leq 20.5 \text{ mm}^2/\text{s}$ at $40^\circ\text{C}$ ; Flash point $\geq 23^\circ\text{C}$ and $\leq 75^\circ\text{C}$ )

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Liver, spleen, bone marrow	H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^\circ\text{C}$  and  $\leq 75^\circ\text{C}$  may be regarded as Category 3.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment





Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H332: Harmful if inhaled.  
H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P273: Avoid release to the environment.  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

**Full list of Precautionary statements**

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P331: Do NOT induce vomiting.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

CLP 2. SRGO (Viscosity  $\leq 20.5$  mm<sup>2</sup>/s at 40 °C; Flash point > 75 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Liver, spleen, bone marrow	H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H304: May be fatal if swallowed and enters airways.  
H332: Harmful if inhaled.  
H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.).  
P273: Avoid release to the environment.  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P331: Do NOT induce vomiting.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

## Full list of Precautionary statements

### Prevention:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

P391: Collect spillage.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CLP 3. SRGO (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point ≥ 23 °C and ≤ 75 °C)

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Liver, spleen, bone marrow	H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between ≥ 55 °C and ≤ 75 °C may be regarded as Category 3.

### Labelling

Signal word: Warning

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.

H332: Harmful if inhaled.

H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

**Full list of Precautionary statements**

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/.... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.

### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 4. SRGO (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point > 75 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Liver, spleen, bone marrow	H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Warning

#### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H332: Harmful if inhaled.

H373: May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P273: Avoid release to the environment.

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

### Full list of Precautionary statements

#### Prevention:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.).

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/....  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P391: Collect spillage.

Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified).* *Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CRACKED GAS OILS (CRACKEDGO)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1, CrackedGO) must be applied.

C&L drivers	C&L permutation
Flash point $\geq 23^{\circ}\text{C}$ and $\leq 75^{\circ}\text{C}$	CLP 1, CrackedGO
Flash point $> 75^{\circ}\text{C}$	CLP 2, CrackedGO

CRACKED GAS OILS		
EC #	CAS #	Acceptable C&L permutations
265-060-4	64741-59-9	CLP 1, CLP 2
265-062-5	64741-60-2	CLP 1, CLP 2
265-084-5	64741-82-8	CLP 1, CLP 2
295-411-7	92045-29-9	CLP 1, CLP 2

### CLP 1, CrackedGO (Flash point $\geq 23^{\circ}\text{C}$ and $\leq 75^{\circ}\text{C}$ )

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life (M-Factor =1).
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment





#### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H332: Harmful if inhaled.  
H341: Suspected of causing genetic defects by dermal route.  
H350: May cause cancer.  
H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.  
H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P308 + P313: IF exposed or concerned: Get medical advice/attention.  
 P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
 P314: Get medical advice/attention if you feel unwell.  
 P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
 P331: Do NOT induce vomiting.  
 P332 + P313: If skin irritation occurs: Get medical advice/attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
 P391: Collect spillage.

Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 2. CrackedGO (Flash point > 75 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Mutagenicity:	Muta. 1B Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life (M-Factor =1).
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H332: Harmful if inhaled.  
H341: Suspected of causing genetic defects by dermal route.  
H350: May cause cancer.  
H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.  
H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

#### Precautionary statements:

P201: Obtain special instructions before use.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

### **Full list of Precautionary statements**

#### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.  
P391: Collect spillage.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## VACUUM GAS OILS, HYDROCRACKED GAS OILS & DISTILLATE FUELS (VHGO)

### Although Part 3 of Annex VI of CLP includes Note N

("The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.") for the VHGO substance with EC 269-822-7, this Note is not applied in any of the C&L permutations and, therefore, all VHGO substances are classified as Carcinogenic Cat. 2.

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. VHGO) must be applied.

C&L drivers		C&L permutation
Viscosity $\leq$ 20.5 mm <sup>2</sup> /s at 40 °C	Flash point $\geq$ 23 °C and $\leq$ 75 °C	CLP 1. VHGO
	Flash point > 75 °C	CLP 2. VHGO
Viscosity > 20.5 mm <sup>2</sup> /s at 40 °C	Flash point $\geq$ 23 °C and $\leq$ 75 °C	CLP 3. VHGO
	Flash point > 75 °C	CLP 4. VHGO

VACUUM GAS OILS, HYDROCRACKED GAS OILS & DISTILLATE FUELS		
EC #	CAS #	Acceptable C&L permutations
265-049-4	64741-49-7	CLP 1, CLP 2, CLP 3, CLP 4
265-059-9	64741-58-8	CLP 1, CLP 2, CLP 3, CLP 4
265-078-2	64741-77-1	CLP 1, CLP 2, CLP 3, CLP 4
269-822-7	68334-30-5	CLP 1, CLP 2
270-671-4	68476-30-2	CLP 1, CLP 2, CLP 4
270-673-5	68476-31-3	CLP 1, CLP 2
270-676-1	68476-34-6	CLP 1

### CLP 1. VHGO (Viscosity $\leq$ 20.5 mm<sup>2</sup>/s at 40 °C; Flash point $\geq$ 23 °C and $\leq$ 75 °C)

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, liver, bone marrow	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq$  55 °C and  $\leq$  75 °C may be regarded as Category 3.

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
P391: Collect spillage.

Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

CLP 2. VHGO (Viscosity  $\leq 20.5 \text{ mm}^2/\text{s}$  at  $40^\circ\text{C}$ ; Flash point  $> 75^\circ\text{C}$ )

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, liver, bone marrow	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.



## Labelling

Signal word: Danger

### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P321: Specific treatment (see ... on this label). (... *Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 3. VHGO (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point ≥ 23 °C and ≤ 75 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, liver, bone marrow	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between ≥ 55 °C and ≤ 75 °C may be regarded as Category 3.

#### Labelling

Signal word: Warning

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P332 + P313: If skin irritation occurs: Get medical advice/attention.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

##### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

#### CLP 4. VHGO (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C; Flash point > 75 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, liver, bone marrow	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Warning

#### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...

(Manufacturer/supplier to specify type of equipment.)

P332 + P313: If skin irritation occurs: Get medical advice/attention.

## Full list of Precautionary statements

### Prevention:

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)
- P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)
- P271: Use only outdoors or in a well-ventilated area.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

### Response:

- P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)
- P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P308 + P313: IF exposed or concerned: Get medical advice/attention.
- P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)
- P314: Get medical advice/attention if you feel unwell.
- P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)
- P332 + P313: If skin irritation occurs: Get medical advice/attention.
- P362 + P364: Take off contaminated clothing and wash it before reuse.
- P391: Collect spillage.

### Storage:

- P405: Store locked up.

### Disposal:

- P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## OTHER GAS OILS (OTHERGO)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. OtherGO) must be applied.

C&L drivers		C&L permutation
Carcinogenic or unknown feed-stock	Flash point $\geq 23^{\circ}\text{C}$ and $\leq 75^{\circ}\text{C}$	CLP 1. OtherGO
	Flash point $> 75^{\circ}\text{C}$	CLP 2. OtherGO
Non-carcinogenic feed-stock	Flash point $\geq 23^{\circ}\text{C}$ and $\leq 75^{\circ}\text{C}$	CLP 3. OtherGO
	Flash point $> 75^{\circ}\text{C}$	CLP 4. OtherGO

OTHER GAS OILS		
EC #	CAS #	Acceptable C&L permutations
265-148-2	64742-46-7	CLP 1, CLP 2, CLP 3, CLP 4
265-182-8	64742-79-6	CLP 1, CLP 2, CLP 3, CLP 4
265-183-3	64742-80-9	CLP 1, CLP 2, CLP 3, CLP 4

### CLP 1. OtherGO (Carcinogenic or unknown feed-stock; Flash point $\geq 23^{\circ}\text{C}$ and $\leq 75^{\circ}\text{C}$ )

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H332: Harmful if inhaled.  
H350: May cause cancer.  
H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.



P308 + P313: IF exposed or concerned: Get medical advice/attention.  
 P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
 P314: Get medical advice/attention if you feel unwell.  
 P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
 P331: Do NOT induce vomiting.  
 P332 + P313: If skin irritation occurs: Get medical advice/attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
 P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 2. OtherGO (Carcinogenic or unknown feed-stock; Flash point > 75 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H332: Harmful if inhaled.  
 H350: May cause cancer.

H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P391: Collect spillage.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 3. OtherGO (Non-carcinogenic feed-stock; Flash point  $\geq 23^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$ )**

The following Note has been applied:

Note N The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

The following Oil Industry Note (OIN) has been applied:

- OIN 14 - The classification as a specific target organ toxicant category 2; H373 (May cause damage to organs through prolonged or repeated exposure) needs not apply if the substance is not classified as carcinogenic.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

- H226: Flammable liquid and vapour.
- H304: May be fatal if swallowed and enters airways.
- H315: Causes skin irritation.
- H332: Harmful if inhaled.
- H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

#### Notes:

Note N [The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

#### **Full list of Precautionary statements**

##### Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

##### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 4. OtherGO (Non-carcinogenic feed-stock; Flash point > 75 °C)**

The following Note has been applied:

Note N -The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

The following Oil Industry Note (OIN) has been applied:

- OIN 14 - The classification as a specific target organ toxicant category 2; H373 (May cause damage to organs through prolonged or repeated exposure) needs not apply if the substance is not classified as carcinogenic.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P331: Do NOT induce vomiting.

Notes:

Note N [The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

### Full list of Precautionary statements

#### Prevention:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P391: Collect spillage.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

## HEAVY FUEL OIL COMPONENTS (HFO)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. HFO) must be applied.

C&L drivers	C&L permutation
Viscosity $\leq$ 20.5 mm <sup>2</sup> /s at 40°C	CLP 1. HFO
Viscosity $>$ 20.5 mm <sup>2</sup> /s at 40°C	CLP 2. HFO

HEAVY FUEL OIL COMPONENTS		
EC #	CAS #	Acceptable C&L permutations
265-045-2	64741-45-3	CLP 1, CLP 2
265-058-3	64741-57-7	CLP 1, CLP 2
265-063-0	64741-61-3	CLP 1, CLP 2
265-064-6	64741-62-4	CLP 1, CLP 2
265-069-3	64741-67-9	CLP 1, CLP 2
265-076-1	64741-75-9	CLP 1, CLP 2
265-081-9	64741-80-6	CLP 1, CLP 2
265-082-4	64741-81-7	CLP 1, CLP 2
265-162-9	64742-59-2	CLP 1, CLP 2
265-181-2	64742-78-5	CLP 2
265-189-6	64742-86-5	CLP 1, CLP 2
269-777-3	68333-22-2	CLP 1, CLP 2
270-675-6	68476-33-5	CLP 1, CLP 2
270-796-4	68478-17-1	CLP 1, CLP 2
270-984-6	68512-62-9	CLP 1, CLP 2
271-384-7	68553-00-4	CLP 2
271-763-7	68607-30-7	CLP 1, CLP 2
272-184-2	68783-08-4	CLP 1, CLP 2
273-263-4	68955-27-1	CLP 1, CLP 2
274-684-6	70592-77-7	CLP 1, CLP 2
274-685-1	70592-78-8	CLP 1, CLP 2
292-658-2	90669-76-4	CLP 2
295-396-7	92045-14-2	CLP 2
295-511-0	92061-97-7	CLP 1, CLP 2
298-754-0	93821-66-0	CLP 1, CLP 2

### CLP 1. HFO (Viscosity $\leq$ 20.5 mm<sup>2</sup>/s at 40°C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.



Hazard class	Hazard category	Hazard statement
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life (M-Factor =1).
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

## Labelling

Signal word: Danger

### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H332: Harmful if inhaled.

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.

H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

P391: Collect spillage.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 2. HFO (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life (M-Factor =1).
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H332: Harmful if inhaled.

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H373: May cause damage to blood, thymus and liver through prolonged or repeated exposure.

H410: Very toxic to aquatic life with long lasting effects (M-Factor =1).

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P391: Collect spillage.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

## UNREFINED / ACID TREATED OILS (UATO)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. UATO) must be applied.

C&L drivers	C&L permutation
Viscosity $\leq$ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 1. UATO
Viscosity $>$ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 2. UATO

UNREFINED / ACID TREATED OILS		
EC #	CAS #	Acceptable C&L permutations
265-051-5	64741-50-0	CLP 1, CLP 2
265-052-0	64741-51-1	CLP 1, CLP 2

### CLP 1. UATO (Viscosity $\leq$ 20.5 mm<sup>2</sup>/s at 40 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1A	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Oral and dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard



GHS09: environment



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H341: Suspected of causing genetic defects by dermal route

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1A.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

P391: Collect spillage.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CLP 2. UATO (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1A	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Oral and dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard



GHS09: environment



#### Hazard statements:

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1A.



## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*

### Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P391: Collect spillage.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... *(... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)*

## HIGHLY REFINED BASE OILS (HRBO)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. HRBO) must be applied.

C&L drivers	C&L permutation
Viscosity $\leq 20.5$ mm <sup>2</sup> /s at 40 °C	CLP 1. HRBO
Viscosity $> 20.5$ mm <sup>2</sup> /s at 40 °C	CLP 2. HRBO

HIGHLY REFINED BASE OILS		
EC #	CAS #	EC name
232-455-8	8042-47-5	CLP 1, CLP 2

### CLP 1. HRBO (Viscosity $\leq 20.5$ mm<sup>2</sup>/s at 40 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS08: health hazard



### Hazard statements:

H304: May be fatal if swallowed and enters airways.

### Precautionary statements:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label) \**

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

P405: Store locked up. \*

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**\*This P-statement is not automatically triggered by the classification and labelling rules for these substances, however based on its physical chemical properties having a viscosity  $\leq 20.5$  mm<sup>2</sup>/s @ 40 °C it is advised when used in consumer products.**

## Full list of Precautionary statements

### General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label) \**

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

### Storage:

P405: Store locked up. \*

### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**\*This P-statement is not automatically triggered by the classification and labelling rules for these substances, however based on its physical chemical properties having a viscosity  $\leq 20.5 \text{ mm}^2/\text{s}$  @  $40^\circ\text{C}$  it is advised when used in consumer products.**

### CLP 2. HRBO (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)

The substance is not classified.

## LUBRICANT BASE OILS (LBO)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. LBO) must be applied.

C&L drivers		C&L permutation
IP 346 ≥ 3% w/w	Viscosity ≤ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 1. LBO
	Viscosity > 20.5 mm <sup>2</sup> /s at 40 °C	CLP 2. LBO
IP 346 < 3% w/w	Viscosity ≤ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 3. LBO
	Viscosity > 20.5 mm <sup>2</sup> /s at 40 °C	CLP 4. LBO

OTHER LUBRICANT BASE OILS		
EC #	CAS #	Acceptable C&L permutations
265-077-7	64741-76-0	CLP 1, CLP 3, CLP 4
265-090-8	64741-88-4	CLP 1, CLP 2, CLP 3, CLP 4
265-091-3	64741-89-5	CLP 3, CLP 4
265-096-0	64741-95-3	CLP 2, CLP 3, CLP 4
265-097-6	64741-96-4	CLP 2, CLP 4
265-101-6	64742-01-4	CLP 3, CLP 4
265-155-0	64742-52-5	CLP 2, CLP 3, CLP 4
265-156-6	64742-53-6	CLP 1, CLP 3, CLP 4
265-157-1	64742-54-7	CLP 2, CLP 3, CLP 4
265-158-7	64742-55-8	CLP 1, CLP 3, CLP 4
265-159-2	64742-56-9	CLP 1, CLP 3, CLP 4
265-160-8	64742-57-0	CLP 2, CLP 4
265-166-0	64742-62-7	CLP 3, CLP 4
265-169-7	64742-65-0	CLP 3, CLP 4
265-174-4	64742-70-7	CLP 3, CLP 4
265-176-5	64742-71-8	CLP 3, CLP 4
276-736-3	72623-85-9	CLP 3, CLP 4
276-737-9	72623-86-0	CLP 3, CLP 4
276-738-4	72623-87-1	CLP 3, CLP 4
278-012-2	74869-22-0	CLP 3, CLP 4

### CLP 1. LBO (IP 346 ≥ 3% w/w; Viscosity ≤ 20.5 mm<sup>2</sup>/s at 40 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child Route of exposure: Dermal	H361d: Suspected of damaging the unborn child by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by dermal route.

#### Labelling

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H304: May be fatal if swallowed and enters airways.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child by dermal route.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by dermal route.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

### Full list of Precautionary statements

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

CLP 2. LBO (IP 346  $\geq$  3% w/w; Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child Route of exposure: Dermal	H361d: Suspected of damaging the unborn child by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by dermal route.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H350: May cause cancer.

H361d: Suspected of damaging the unborn child by dermal route.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by dermal route.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 3. LBO (IP 346 < 3% w/w; Viscosity ≤ 20.5 mm<sup>2</sup>/s at 40 °C)**

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

- Note L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346 "Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method", Institute of Petroleum, London in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.



## Labelling

Signal word: Danger

### Hazard pictogram:

GHS08: health hazard



### Hazard statements:

H304: May be fatal if swallowed and enters airways.

### Precautionary statements:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

### Notes:

Note L [The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3 % of dimethyl sulphoxide extract as measured by IP 346 ("Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method" Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

## Full list of Precautionary statements

### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 4. LBO (IP 346 < 3% w/w; Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

Note L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346 "Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method", Institute of Petroleum, London, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

#### **Classification and labelling according to CLP / GHS**

The substance is not classified.

#### **Notes:**

Note L [The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3 % of dimethyl sulphoxide extract as measured by IP 346 ("Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method" Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

## UNTREATED DISTILLATE AROMATIC EXTRACTS (UDAE)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. UDAE) must be applied.

C&L drivers	C&L permutation
Viscosity $\leq$ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 1. UDAE
Viscosity $>$ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 2. UDAE

UNTREATED DISTILLATE AROMATIC EXTRACTS		
EC #	CAS #	Acceptable C&L permutations
265-103-7	64742-04-7	CLP 1, CLP 2
265-104-2	64742-05-8	CLP 1, CLP 2

### CLP 1. UDAE (Viscosity $\leq$ 20.5 mm<sup>2</sup>/s at 40 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard



GHS09: environment



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

P391: Collect spillage.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CLP 2. UDAE (Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Mutagenicity:	Muta. 2 Route of exposure: dermal	H341: Suspected of causing genetic defects by dermal route.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard



GHS09: environment



#### Hazard statements:

H341: Suspected of causing genetic defects by dermal route.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

## Full list of Precautionary statements

### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*

P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*

### Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P391: Collect spillage.

### Storage:

P405: Store locked up.

### Disposal:

P501: Dispose of contents/container to ... *(... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)*

## TREATED DISTILLATE AROMATIC EXTRACTS (TDAE)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. TDAE) must be applied.

C&L drivers		C&L permutation
IP 346 ≥ 3% w/w	Viscosity ≤ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 1. TDAE
	Viscosity > 20.5 mm <sup>2</sup> /s at 40 °C	CLP 2. TDAE
IP 346 < 3% w/w	Viscosity ≤ 20.5 mm <sup>2</sup> /s at 40 °C	CLP 3. TDAE
	Viscosity > 20.5 mm <sup>2</sup> /s at 40 °C	CLP 4. TDAE

TREATED DISTILLATE AROMATIC EXTRACTS		
EC #	CAS #	Acceptable C&L permutations
272-180-0	68783-04-0	CLP 1, CLP 2, CLP 3, CLP 4

### CLP 1. TDAE (IP 346 ≥ 3% w/w, Viscosity ≤ 20.5 mm<sup>2</sup>/s at 40 °C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.



#### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

##### Storage:

P405: Store locked up.

##### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 2. TDAE (IP 346  $\geq$  3% w/w, Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 3. TDAE (IP 346 < 3% w/w, Viscosity ≤ 20.5 mm<sup>2</sup>/s at 40 °C)**

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

Note L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346 "Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method", Institute of Petroleum, London, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H304: May be fatal if swallowed and enters airways.

#### Precautionary statements:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

#### Notes:

Note L [The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3 % of dimethyl sulphoxide extract as measured by IP 346 ("Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method" Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

#### **Full list of Precautionary statements**

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

##### Storage:

P405: Store locked up.

##### Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### **CLP 4. TDAE (IP 346 < 3% w/w, Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)**

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

Note L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346 "Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method", Institute of Petroleum, London, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

### **Classification and labelling according to CLP / GHS**

The substance is not classified.

#### Notes:

Note L [The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3 % of dimethyl sulphoxide extract as measured by IP 346 (“Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method” Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

## RESIDUAL AROMATIC EXTRACTS (RAE)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. RAE) must be applied.

C&L drivers	C&L permutation
Mutagenicity Index $\geq 0.4$	CLP 1. RAE
Mutagenicity Index $< 0.4$	CLP 2. RAE

RESIDUAL AROMATIC EXTRACTS		
EC #	CAS #	Acceptable C&L permutations
265-110-5	64742-10-5	CLP 1, CLP 2

### CLP 1. RAE (Mutagenicity Index $\geq 0.4$ )

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer.

### Labelling

Signal word: Warning

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H351: Suspected of causing cancer.

Precautionary statements:

P201: Obtain special instructions before use.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### Full list of Precautionary statements

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

**CLP 2. RAE (Mutagenicity Index < 0.4)**

The following Oil Industry Note (OIN) has been applied:

- OIN 10 - The classification as a carcinogen needs not apply if it can be shown that the substance has mutagenicity index (MI) less than 0.4 as measured by the test method described in ASTM E 1687-04 or if another predictive test demonstrates the substance is not a carcinogen.

**Classification and labelling according to CLP / GHS**

The substance is not classified.



## SLACK WAXES (SLACKWAX)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. Slackwax) must be applied.

C&L drivers	C&L permutation
Carcinogenic or unknown feed-stock	CLP 1. Slackwax
Non-carcinogenic feed-stock	CLP 2. Slackwax

SLACK WAXES		
EC #	CAS #	Acceptable C&L permutations
265-165-5	64742-61-6	CLP 2
292-660-3	90669-78-6	CLP 2
295-523-6	92062-09-4	CLP 2

### CLP 1. Slackwax (Carcinogenic or unknown feed-stock)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child Route of exposure: Dermal	H361d: Suspected of damaging the unborn child by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Oral and dermal	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal route.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H350: May cause cancer.

H361d: Suspected of damaging the unborn child by dermal route.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal route.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

##### Storage:

P405: Store locked up.

##### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## **CLP 2. Slackwax (Non-carcinogenic feed-stock)**

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

- Note N - The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

### **Classification and labelling according to CLP / GHS**

The substance is not classified.

Notes:

Note N [The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

## PARAFFIN AND HYDROCARBON WAXES (PARAFFINWAX)

There is one single C&L Permutation for Paraffinwax substances.

PARAFFIN AND HYDROCARBON WAXES		
EC #	CAS #	Acceptable C&L permutations
232-315-6	8002-74-2	CLP 1
264-038-1	63231-60-7	CLP 1
265-144-0	64742-42-3	CLP 1
265-145-6	64742-43-4	CLP 1
265-154-5	64742-51-4	CLP 1
265-163-4	64742-60-5	CLP 1

### CLP 1. Paraffinwax

Classification and labelling according to CLP / GHS

The substance is not classified.

## FOOTS OILS (FOOTSOIL)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. Footsoil) must be applied.

C&L drivers		C&L permutation
IP 346 ≥ 3% w/w	Viscosity ≤ 20.5 mm <sup>2</sup> /s at 40°C	CLP 1. Footsoil
	Viscosity > 20.5 mm <sup>2</sup> /s at 40°C	CLP 2. Footsoil
IP 346 < 3% w/w	Viscosity ≤ 20.5 mm <sup>2</sup> /s at 40°C	CLP 3. Footsoil
	Viscosity > 20.5 mm <sup>2</sup> /s at 40°C	CLP 4. Footsoil

FOOTS OILS		
EC #	CAS #	Acceptable C&L permutations
265-171-8	64742-67-2	CLP 3, CLP 4
295-394-6	92045-12-0	CLP 3, CLP 4

### CLP 1. Footsoil (IP 346 ≥ 3% w/w; Viscosity ≤ 20.5 mm<sup>2</sup>/s at 40°C)

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS08: health hazard



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P331: Do NOT induce vomiting.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 2. Footsoil (IP 346  $\geq$  3% w/w; Viscosity > 20.5 mm<sup>2</sup>/s at 40 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, liver, lymph nodes, kidney, stomach, thymus	H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H350: May cause cancer.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

**Full list of Precautionary statements**

Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)



P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 3. Footsoil (IP 346 < 3% w/w; Viscosity ≤ 20,5 mm<sup>2</sup>/s at 40 °C)**

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

- Note L - The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3% of dimethyl sulphoxide extract as measured by IP 346 ('Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method' Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



Hazard statements:

H304: May be fatal if swallowed and enters airways.

#### Precautionary statements:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified).* *Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### Notes:

Note L [The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3 % of dimethyl sulphoxide extract as measured by IP 346 ("Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method" Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

### Full list of Precautionary statements

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...*Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

#### Storage:

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... *in accordance with local/regional/national/international regulation (to be specified).* *Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 4. Footsoil (IP 346 < 3% w/w; Viscosity > 20,5 mm<sup>2</sup>/s at 40 °C)

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

- Note L - The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3% of dimethyl sulphoxide extract as measured by IP 346 ('Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method' Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

### Classification and labelling according to CLP / GHS

The substance is not classified.

#### Notes:

Note L [The harmonised classification as a carcinogen applies unless it can be shown that the substance contains less than 3 % of dimethyl sulphoxide extract as measured by IP 346 (“Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions - Dimethyl sulphoxide extraction refractive index method” Institute of Petroleum, London), in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

## PETROLATUMS (PETROLATUM)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. Petrolatum) must be applied.

C&L drivers	C&L permutation
Carcinogenic or unknown feed-stock	CLP 1. Petrolatum
Non-carcinogenic feed-stock	CLP 2. Petrolatum

PETROLATUMS		
EC #	CAS #	Acceptable C&L permutations
232-373-2	8009-03-8	CLP 2

### CLP 1. Petrolatum (Carcinogenic or unknown feed-stock)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement	
Reproductive Toxicity:		Repr. 2 Specific effect: Unborn child Route of exposure: Dermal	H361d: Suspected of damaging the unborn child by dermal route.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.	
Specific target organ toxicity - repeated exposure:		STOT Rep. Exp. 1 Affected organs: Adrenals, bone marrow, blood, liver, lymph nodes, kidney, stomach, thymus Route of exposure: Oral and dermal	H372: Causes damage to adrenals, bone marrow, blood, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.

### Labelling

Signal word: Danger

### Hazard pictogram:

GHS08: health hazard



### Hazard statements:

H350: May cause cancer.

H361d: Suspected of damaging the unborn child by dermal route.

H372: Causes damage to adrenals, bone marrow, blood, liver, lymph nodes, kidney, stomach and thymus through prolonged or repeated exposure by oral and dermal routes.

#### Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

#### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

##### Storage:

P405: Store locked up.

##### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified).*)

#### **CLP 2. Petrolatum (Non-carcinogenic feed-stock)**

The following Oil Industry Note (OIN) has been applied:

- OIN 8 - The classifications as a reproductive toxicant category 2; H361d (Suspected of damaging the unborn child) and specific target organ toxicant category 1; H372 (Causes damage to organs through prolonged or repeated exposure) need not apply if the substance is not classified as carcinogenic.

The following Note has been applied:

- Note N - The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.

#### **Classification and labelling according to CLP / GHS**

The substance is not classified.

Notes:

Note N [The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

## BITUMENS (BITUMEN)

There is one single C&L Permutation for Bitumen substances.

BITUMENS		
EC #	CAS #	Acceptable C&L permutations
232-490-9	8052-42-4	CLP 1
265-057-8	64741-56-6	CLP 1
295-518-9	92062-05-0	CLP 1

### CLP 1. Bitumen

Classification and labelling according to CLP / GHS

The substance is not classified.



## OXIDIZED ASPHALT (OXIASPH)

There is one single C&L Permutation for OxiAsph.

OXIDIZED ASPHALT		
EC #	CAS #	Acceptable C&L permutations
265-196-4	64742-93-4	CLP 1

### CLP 1. OxiAsph

#### Classification and labelling according to CLP / GHS

The substance is not classified.

## SULFUR (SULFUR)

There is one single C&L permutation for Sulfur.

SULFUR		
EC #	CAS #	Acceptable C&L permutations
231-722-6	7704-34-9	CLP 1

### CLP 1. Sulfur

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.

### Labelling

Signal word: Warning

Hazard pictogram:

GHS07: exclamation mark



Hazard statements:

H315: Causes skin irritation.

Precautionary statements:

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (...*Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P332 + P313: If skin irritation occurs: Get medical advice/attention.

### Full list of Precautionary statements

Prevention:

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(*Manufacturer/supplier to specify type of equipment.*)

Response:

P302 + P352: IF ON SKIN: Wash with plenty of water/... (...*Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P321: Specific treatment (see ... on this label). (... *Reference to supplemental first aid instruction.*)

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

## RENEWABLE DEOXYGENATE DIESEL (RENEWDD)

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 1. RenewDD) must be applied.

C&L drivers		C&L permutation
Non-carcinogenic feed-stock	Flash point $\geq 23^{\circ}\text{C}$ and $\leq 75^{\circ}\text{C}$	CLP 1. RenewDD
	Flash point $> 75^{\circ}\text{C}$	CLP 2. RenewDD

RENEWABLE DEOXYGENATE DIESEL		
EC #	CAS #	Acceptable C&L permutations
951-915-5		CLP 1, CLP 2

### CLP 1. RenewDD (Non-carcinogenic feed-stock; Flash point $\geq 23^{\circ}\text{C}$ and $\leq 75^{\circ}\text{C}$ )

The following Note has been applied:

Note N -

"The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class."

The following Oil Industry Note (OIN) has been applied:

- OIN 14 - The classification as a specific target organ toxicant category 2; H373 (May cause damage to organs through prolonged or repeated exposure) needs not apply if the substance is not classified as carcinogenic.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3 *	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

\* For the purpose of CLP gas oils, diesel and light heating oils having a flash point between  $\geq 55^{\circ}\text{C}$  and  $\leq 75^{\circ}\text{C}$  may be regarded as Category 3.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H332: Harmful if inhaled.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

Notes:

Note N [The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

**Full list of Precautionary statements**

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

### CLP 2. RenewDD (Non-carcinogenic feed-stock; Flash point > 75 °C)

The following Note has been applied:

Note N -

"The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class."

The following Oil Industry Note (OIN) has been applied:

- OIN 14 - The classification as a specific target organ toxicant category 2; H373 (May cause damage to organs through prolonged or repeated exposure) needs not apply if the substance is not classified as carcinogenic.

#### **Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### **Labelling**

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P331: Do NOT induce vomiting.

Notes:

Note N [The harmonised classification as a carcinogen applies unless the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen, in which case a classification in accordance with Title II of this Regulation shall be performed also for that hazard class.]

**Full list of Precautionary statements**

Prevention:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)



## SOLVENT NAPHTHA

The Table below should be used to find the applicable C&L permutation according to the values of the relevant C&L drivers determined by each manufacturer/supplier; in the absence of information on the C&L drivers, the worst-case classification (permutation CLP 3. Kerosine) must be applied.

C&L drivers	C&L permutation
Cumene <0.1% w/w; Flashpoint $\geq 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$	CLP 1. Kerosine
Cumene <0.1% w/w; Flashpoint $> 60^{\circ}\text{C}$	CLP 2. Kerosine
Cumene $\geq 0.1\%$ w/w; Flashpoint $\geq 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$	CLP 3. Kerosine
Cumene $\geq 0.1\%$ w/w; Flashpoint $> 60^{\circ}\text{C}$	CLP 4. Kerosine

SOLVENT NAPHTHA		
EC #	CAS #	Acceptable C&L permutations
265-198-5	64742-94-5	CLP 1, CLP 2, CLP 3, CLP 4

### CLP 1. Kerosine (Cumene <0.1% w/w; Flashpoint $\geq 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$ )

The following Oil Industry Note (OIN) has been applied:

- OIN 16: The classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*  
P331: Do NOT induce vomiting.

#### Additional labelling requirements:

For use by Consumers in lamp oils, container labels should be marked as follows: Keep lamps filled with this liquid out of the reach of children. Just a sip of lamp oil - or even sucking the wick of lamps may lead to life-threatening lung damage.

#### Additional labelling:

For use by Consumers in grill lighters, container labels should be marked as follows: Just a sip of grill lighter may lead to life-threatening lung damage.

### Full list of Precautionary statements

#### General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*

#### Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P235: Keep cool.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*  
P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*  
P302 + P352: IF ON SKIN: Wash with plenty of water/... *(...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)*  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
 P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction.)  
 P331: Do NOT induce vomiting.  
 P332 + P313: If skin irritation occurs: Get medical advice/attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.  
 P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
 P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
 P403 + P235: Store in a well-ventilated place. Keep cool.  
 P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

### CLP 2. Kerosine (Cumene <0.1% w/w; Flashpoint > 60 °C)

The following Oil Industry Note (OIN) has been applied:

- OIN 16: The classification as a carcinogen applies unless it can be shown that the substance contains less than 0.1% w/w cumene (EINECS No 202-704-5), in which case a classification in accordance with Title II of CLP Regulation shall be performed also for that hazard class.

#### Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

#### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*  
P331: Do NOT induce vomiting.

Additional labelling requirements (CLP supplemental hazard statement):

(For use by Consumers in lamp oils, container labels should be marked as follows: Keep lamps filled with this liquid out of the reach of children. Just a sip of lamp oil - or even sucking the wick of lamps may lead to life-threatening lung damage.)

(For use by Consumers in grill lighters, container labels should be marked as follows: Just a sip of grill lighter may lead to life-threatening lung damage.)

Full list of Precautionary statements

General:

P102: Keep out of reach of children. *(In case of consumer use P102 should be added on the label)*

Prevention:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. *(Manufacturer/supplier to specify applicable conditions.)*  
P264: Wash ... thoroughly after handling. *(Manufacturer/supplier to specify parts of the body to be washed after handling.)*  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
*(Manufacturer/supplier to specify type of equipment.)*

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*  
P302 + P352: IF ON SKIN: Wash with plenty of water/... *(...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)*  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. *(...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)*  
P321: Specific treatment (see ... on this label). *(... Reference to supplemental first aid instruction.)*  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

CLP 3. Kerosine (Cumene  $\geq$  0.1% w/w; Flashpoint  $\geq$  23 °C and  $\leq$  60 °C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.  
H304: May be fatal if swallowed and enters airways.  
H315: Causes skin irritation.  
H336: May cause drowsiness or dizziness.  
H350: May cause cancer.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection/... (Manufacturer/supplier to specify type of equipment.)  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P331: Do NOT induce vomiting.

### Additional labelling requirements:

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

### **Full list of Precautionary statements**

#### General:

P201: Obtain special instructions before use.

#### Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P235: Keep cool.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

#### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)

P391: Collect spillage.

#### Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

#### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

**CLP 4. Kerosine (Cumene  $\geq$  0.1% w/w; Flashpoint  $>$  60 °C)**

**Classification and labelling according to CLP / GHS**

Hazard class	Hazard category	Hazard statement
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Specific target organ toxicity - single exposure:	STOT Single Exp. 3 Affected organs: Central nervous system Route of exposure: Inhalation	H336: May cause drowsiness or dizziness.
Carcinogenicity:	Carc. 1B	H350: May cause cancer.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

**Hazard pictogram:**

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



**Hazard statements:**

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H350: May cause cancer.

H411: Toxic to aquatic life with long lasting effects.

**Precautionary statements:**

P201: Obtain special instructions before use.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/...  
(Manufacturer/supplier to specify type of equipment.)

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)

P331: Do NOT induce vomiting.

**Additional labelling requirements:**

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

**Full list of Precautionary statements**

**General:**

P201: Obtain special instructions before use.



Prevention:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/... (*Manufacturer/supplier to specify type of equipment.*)

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction.*)

P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CO-PROCESSED GAS OIL FROM PLANT/ANIMAL ORIGIN (CPGOAV)

There is one single C&L permutation for CPGOAV.

CPGOAV		
EC #	CAS #	Acceptable C&L permutations
941-364-9		CLP 1

### CLP 1. CPGOAV

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 2 Route of exposure: dermal	H351: Suspected of causing cancer by dermal route
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, Liver, Bone marrow Route of exposure: dermal	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure by dermal route.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer by dermal route.

H373: May cause damage to thymus, liver, bone marrow through prolonged or repeated exposure by dermal route.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/...  
P331: Do NOT induce vomiting.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray (*Manufacturer/supplier to specify applicable conditions.*)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction. Manufacturer/supplier may specify a cleansing agent if appropriate.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

##### Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.)

## CO-PROCESSED (THERMAL CRACKING) GAS OIL FROM WASTE PLASTICS (CPGOPW)

There is one single C&L permutation for CPGOPW

CPGOPW		
EC #	CAS #	Acceptable C&L permutations
955-454-0		CLP 1

### CLP 1. CPGOPW (Viscosity > 20.5 mm<sup>2</sup>/s at 40°C)

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Reproductive Toxicity:	Repr. 2 Specific effect: Unborn child	H361d: Suspected of damaging the unborn child
Carcinogenicity:	Carc. 1B	H350: May cause cancer
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Blood, thymus, liver	H373: May cause damage to blood, thymus, liver, through prolonged or repeated exposure
Hazards to the aquatic environment (acute/short-term):	Aquatic Acute 1	H400: Very toxic to aquatic life.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects.
M-Factor acute: 1		
M-Factor chronic: 1		

### Labelling

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H332: Harmful if inhaled.

H350: May cause cancer

H361d: Suspected of damaging the unborn child

H373: May cause damage to blood, thymus, liver, through prolonged or repeated exposure.

H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify type of equipment.*)

P308 + P313: IF exposed or concerned: Get medical advice/attention.

#### Additional labelling requirements:

EUH066: Repeated exposure may cause skin dryness or cracking.

Restricted to professional users due to classification as carcinogenic Category 1B, except for fuel uses.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapours/spray (*Manufacturer/supplier to specify applicable conditions.*)

P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)

P314: Get medical advice/attention if you feel unwell.

P391: Collect spillage.

##### Storage:

P405: Store locked up.

##### Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CO-PROCESSED DIESEL/GAS OIL FROM THERMALLY CRACKED PLASTICS (CPGOTP)

There is one single C&L permutation for CPGOTP.

CPGOTP		
EC #	CAS #	Acceptable C&L permutations
941-803-4		CLP 1. CPGOTP

### CLP 1. CPGOTP

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 3	H226: Flammable liquid and vapour.
Acute toxicity - inhalation:	Acute Tox. 4	H332: Harmful if inhaled.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer
Specific target organ toxicity - repeated exposure:	STOT Rep. Exp. 2 Affected organs: Thymus, Liver, Bone marrow Route of exposure: dermal	H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure by dermal route.
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H373: May cause damage to thymus, liver and bone marrow through prolonged or repeated exposure by dermal route.

H411: Toxic to aquatic life with long lasting effects.



#### Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P331: Do NOT induce vomiting.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P235: Keep cool.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P260: Do not breathe dust/fume/gas/mist/vapours/spray ((Manufacturer/supplier to specify applicable conditions.)  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (Manufacturer/supplier to specify applicable conditions.)  
P264: Wash ... thoroughly after handling. (Manufacturer/supplier to specify parts of the body to be washed after handling.)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection (Manufacturer/supplier to specify type of equipment.)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (...Manufacturer/supplier to specify the appropriate source of emergency medical advice.)  
P314: Get medical advice/attention if you feel unwell.  
P321: Specific treatment (see ... on this label). (... Reference to supplemental first aid instruction. Manufacturer/supplier may specify a cleansing agent if appropriate.)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (...Manufacturer/supplier to specify appropriate media. – if water increases risk.)  
P391: Collect spillage.

Storage:

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CO-PROCESSED (HYDROTREATED) NAPHTHA FROM PLANT/ANIMAL ORIGIN (CPNAV)

There is one single C&L permutation for CPNAV.

CPNAV		
EC #	CAS #	Acceptable C&L permutations
941-381-1		CLP 1. CPNAV

### CLP 1. CPNAV

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2	H361: Suspected of damaging fertility or the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects
Carcinogenicity:	Carc. 1A	H350: May cause cancer
Specific target organ toxicity - single exposure:	STOT Single. Exp. 3 Affected organs: Central nervous system Route of exposure: inhalation	H336: May cause drowsiness or dizziness
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H224: Extremely flammable liquid and vapour  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H340: May cause genetic defects.  
 H350: May cause cancer.  
 H361: Suspected of damaging fertility or the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify type of equipment.*)  
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.  
P403+P233: Store in a well-ventilated place. Keep container tightly closed.

#### Additional labelling:

Restricted to professional uses due to classification as mutagenic Category 1B and carcinogenic Category 1A, except for fuel uses.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P235: Keep cool.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P280: Wear protective gloves/protective clothing/eye protection/face protection (*Manufacturer/supplier to specify type of equipment.*)  
P280: Wear protective gloves/protective clothing/eye protection/face protection (*Manufacturer/supplier to specify type of equipment.*)  
P273: Avoid release to the environment.

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction. Manufacturer/supplier may specify a cleansing agent if appropriate.*)  
P331: Do NOT induce vomiting.

P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (...*Manufacturer/supplier to specify appropriate media. – if water increases risk.*)  
P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

## CO-PROCESSED NAPHTHA FROM THERMALLY CRACKED PLASTICS (CPNTP)

There is one single C&L permutation for CPNTP.

CPNTP		
EC #	CAS #	Acceptable C&L permutations
941-806-0		CLP 1. CPNTP

### CLP 1. CPNTP

Classification and labelling according to CLP / GHS

Hazard class	Hazard category	Hazard statement
Flammable liquids:	Flam. Liquid 1	H224: Extremely flammable liquid and vapour.
Skin corrosion / irritation:	Skin Irrit. 2	H315: Causes skin irritation.
Aspiration hazard:	Asp. Tox. 1	H304: May be fatal if swallowed and enters airways.
Reproductive Toxicity:	Repr. 2	H361: Suspected of damaging fertility or the unborn child.
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects.
Carcinogenicity:	Carc. 1A	H350: May cause cancer.
Specific target organ toxicity - single exposure:	STOT Single. Exp. 3 Affected organs: Central nervous system Route of exposure: inhalation	H336: May cause drowsiness or dizziness
Hazards to the aquatic environment (chronic/long-term):	Aquatic Chronic 2	H411: Toxic to aquatic life with long lasting effects.

### Labelling

Signal word: Danger

#### Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



#### Hazard statements:

H224: Extremely flammable liquid and vapour.  
 H304: May be fatal if swallowed and enters airways.  
 H315: Causes skin irritation.  
 H336: May cause drowsiness or dizziness.  
 H340: May cause genetic defects.  
 H350: May cause cancer.  
 H361: Suspected of damaging fertility or the unborn child.  
 H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P201: Obtain special instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection. (*Manufacturer/supplier to specify type of equipment.*)  
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P331: Do NOT induce vomiting.

#### Additional labelling:

Restricted to professional uses due to classification as mutagenic Category 1B and carcinogenicity Category 1A except for fuel uses.

#### **Full list of Precautionary statements**

##### Prevention:

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P235: Keep cool.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. (*Manufacturer/supplier to specify applicable conditions.*)  
P264: Wash ... thoroughly after handling. (*Manufacturer/supplier to specify parts of the body to be washed after handling.*)  
P271: Use only outdoors or in a well-ventilated area.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection (*Manufacturer/supplier to specify type of equipment.*)

##### Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P302 + P352: IF ON SKIN: Wash with plenty of water/... (*...Manufacturer/supplier may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate.*)  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313: IF exposed or concerned: Get medical advice/attention.  
P312: Call a POISON CENTRE/doctor/... if you feel unwell. (*...Manufacturer/supplier to specify the appropriate source of emergency medical advice.*)  
P321: Specific treatment (see ... on this label). (*... Reference to supplemental first aid instruction. Manufacturer/supplier may specify a cleansing agent if appropriate.*)  
P331: Do NOT induce vomiting.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.  
P362 + P364: Take off contaminated clothing and wash it before reuse.  
P370 + P378: In case of fire: Use ... to extinguish. (*...Manufacturer/supplier to specify appropriate media. – if water increases risk.*)



P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to ... (*... in accordance with local/regional/national/international regulation (to be specified). Manufacturer/supplier to specify whether disposal requirements apply to contents, container or both.*)

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