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First Aid Reference Guide - 2015

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First Aid Reference Guide - 2015

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ABSTRACT

This reference guide is designed to provide additional information on the first aid measures in the event of significant on-site exposures to petroleum substances.

This document is intended for trained first aiders and site medical professionals and is not intended to replace the Safety Data Sheets, or other company specific procedures. This reference guide only address exposure from acute occupational exposure. First aid treatment should be carried out by appropriately qualified persons.

KEYWORDS

First aid, petroleum substances

INTERNET

This report is available as an Adobe pdf file on the Concawe website (www.concawe.org).

DISCLAIMER

This document is intended for information only and sets out a best practice reference guide on first aid for on-site personnel. The information provided in this reference guide is provided in good faith and, while it is accurate as far as the authors are aware, no representations or warranties are made with regards to its completeness. It is not intended to be a comprehensive guide on emergency response measures. The European Petroleum Refiners Association, Concawe division, assumes no responsibility in relation to the information contained in these Guidelines. Each company should decide based on its own decision-making process to use and apply the information in this reference guide, in full, partly or to adopt other measures.

This report does not necessarily represent the views of any company participating in Concawe.

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GENERAL STATEMENTS

This reference guide is designed to provide additional information on the first aid measures in the event of significant on-site exposures to petroleum substances. First aid treatment should be carried out by appropriately qualified persons.

This document:

- is intended for trained first aiders and site medical professionals
- is not intended to replace the SDS, or other company specific procedures
- only addresses exposures from acute occupational exposure via inhalation, eye and skin contact; it is assumed there are safety measures in place to prevent ingestion.

The following should be considered when assessing how an individual who may have been acutely exposed to a petroleum substance should be treated:

- Always assess scene safety prior to attempting to rescue casualties and administering first aid!
- If there are burning fumes, stay away from smoke.
- When the mechanism of injury includes high-pressure injection, then appropriate specialty care may be needed.
- Many products have the potential for exposure to hydrogen sulphide (H2S). Where co-exposure to H2S is possible, then appropriate precautions must be taken to avoid exposure to this toxic gas.
- The majority of substances in this document are considered to be aspiration hazards. If the substance enters the airways they can cause significant lung injury and death. Coughing and/or choking would be a sign of aspiration and medical help should be provided immediately.
- Oxygen inhalation is not regarded a routine first aid element but under certain circumstances it can be administered by a specifically trained first aider especially in cases of inhalation of gases and/or potential aspiration. The application of oxygen by layperson depends on local laws, regulations and processes, including liability protection. Consideration must also be given to maintenance of equipment, storage and care of compressed gas cylinders and local regulatory testing and inspection.
- Patient position with breathing difficulties: If the victim is conscious and breathes with difficulty, the most effective position for effective breathing should be upright or leaning slightly forward in a sitting position.

For concerns arising from other forms of exposure (such as long term repeated exposures) and their associated health hazards, contact your local poison control centre or medical professional.

For further information on basic life support manoeuvres, refer to the American Heart Association / International Red Cross (e.g. First Aid Guidelines of the International Federation of Red Cross/Red Crescent), or other company specified procedures.

Unless otherwise noted, recommendations are based on guidelines from the Hazardous Substance Database (HSDB), the petroleum substances category chemical safety assessments conducted as part of REACH, Concawe report No. 9/15 on hazard classification and, where appropriate, extrapolation based on class-effect.

In the case of the following substances, which are considered to be of low acute toxicity, then no special first aid recommendations are provided here. Refer to the company SDS and/or other company specified procedures.

- Highly refined base oils (HRBO)
- Other lubricating base oils (OLBO)

The following classes are not included in this publication because they do not possess any acute health effects:

- Residual aromatic extracts (RAE)
- Paraffin and hydrocarbon waxes
- Petrolatums
- Slack waxes

A list of CAS Nos for each category of petroleum substances are provided in Appendix A. This list was compiled on May 2015, consult the Concawe website, www.concawe/org for an updated list of CAS Nos.

PETROLEUM GASES

Description:
The petroleum gases category covers mono-constituent C1-C4 alkanes. Members of this category include liquid petroleum gases (LPGs) and are products of hydrocarbon refining operations, such as catalytic cracking, catalytic reforming and steam-cracking, or are produced in association with natural gas processing as well as processing in chemical plants.

Physical/Chemical Properties:
Flammable Gas: Petroleum gases have flash points which range from -104 to -60.0°C.
Flammability data for the petroleum gases have maximum lower and upper explosion limits from 5-15 %.

Route of Exposure	Health Effects	First Aid Statements
Inhalation	Weakness, headache, light-headedness, nausea, confusion, blurred vision and increased drowsiness may be experienced at >10 % exposure. Exposure to very high concentrations may result in loss of consciousness, convulsions and even asphyxiation as a consequence	Move to well-ventilated area. Monitor for respiratory distress; administer oxygen and assist ventilation as required. Seek medical assistance immediately.
Skin	NA	
Skin (in liquid form)	Frost bite injury	Seek specialised medical treatment immediately. If safe and possible to do so initiate warming of the affected tissue (water bath at 37 – 42°C)
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

OTHER PETROLEUM GASES

Description:
This category covers hydrocarbon streams containing petroleum gases (alkanes/alkenes) predominantly in the C1-C5 range (with some carbon numbers present at levels up to C10) and includes some LPGs. Members of this category are products of refining for example distillation of crude oil, catalytic cracking and catalytic reforming, sometimes in association with steam-crackers, or they are produced in association with natural gas processing.

Physical/Chemical Properties:
Flammable Gas: Other petroleum gases have flash points which range from -104 to -60.0°C. Flammability data for the petroleum gases have maximum lower and upper explosion limits from 1.8-15 %.

Route of Exposure	Health Effects	First Aid Statements
Inhalation	Weakness, headache, light-headedness, nausea, confusion, blurred vision and increased drowsiness may be experienced at >10 % exposure. Exposure to very high concentrations may result in loss of consciousness, convulsions and even asphyxiation as a consequence	Move to well-ventilated area. Monitor for respiratory distress; administer oxygen and assist ventilation as required. Seek medical assistance immediately.
Skin	NA	
Skin (in liquid form)	Frost bite injury	Seek specialised medical treatment immediately. If safe and possible to do so initiate warming of the affected tissue (water bath at 37 – 42°C)
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

LOW BOILING POINT NAPHTHAS (GASOLINES)

Description:
This category is established by the refining processes in which the category members are produced, the predominant hydrocarbon classes present, the boiling point range and the carbon number range. Hydrocarbon types: saturated, olefinic, aromatic. Typical boiling point range: approximately -88°C to 260°C. Typical carbon number range: predominantly C4 to C12.

Physical/Chemical Properties:
Liquids of variable flash point / initial boiling points.
Typical value for flash point is < 0°C.
Initial boiling point < 35°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Headache, nausea, and dizziness are not uncommon after exposure. Central nervous system depression including confusion, altered mental status, and seizure can occur after acute, high dose exposure. Cardiac rhythm abnormalities can occur after acute, high dose exposure.	Move to well-ventilated area. Monitor for respiratory distress; administer oxygen and assist ventilation as required. Seek medical assistance immediately.
Skin	Causes skin irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible eye irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

KEROSINES

Description:
This category is established by the refining processes by which the category members are produced. 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 C6 to C17.

Physical/Chemical Properties:
Kerosines are liquids of variable flash point, typically with a flash point range of ≥23°C and ≤70°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Headache, nausea, and dizziness are not uncommon after exposure. Central nervous system depression including confusion, altered mental status, and seizure can occur after acute, high dose exposure. Cardiac rhythm abnormalities can occur after acute, high dose exposure.	Move to well-ventilated area. Monitor for respiratory distress; administer oxygen and assist ventilation as required. Seek medical assistance immediately.
Skin	Causes skin irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible eye irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

MK1 DIESEL FUEL

Description:

MK1 diesel fuel is a light petroleum distillate derived from crude petroleum, manufactured by treatment of a petroleum fraction with hydrogen in the presence of a catalyst. Given the similarity in carbon number distribution and distillation temperature range to kerosene MK1 diesel fuel is often described as a kerosine rather than a gas oil. MK1 diesel fuel properties are defined by the predominant hydrocarbon classes present, the boiling point range and the carbon number range. Hydrocarbon types: Branched and straight chain paraffins and cycloparaffins. Typical boiling point range: approximately 180°C to 295°C. Typical carbon number range: predominantly C10 to C18.

Physical/Chemical Properties:

Flammable Liquid: MK1 diesel fuel is a liquid of variable flash point / initial boiling points.
Flash point is ≈ 67°C and initial boiling point ≈180°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Headache, nausea, and dizziness are not uncommon after exposure. Central nervous system depression including confusion, altered mental status, and seizure can occur after acute, high dose exposure.	Move to well-ventilated area. Seek medical assistance immediately.
Skin	Causes skin irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild eye irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

STRAIGHT- RUN GAS OILS

Description:
This category is established by the refining process by which the category members are produced, the boiling point and the carbon number ranges.

Hydrocarbon types: straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes, aromatics and mixed aromatic cycloalkanes. Boiling point range: 150 – 471°C. Carbon number range: predominantly C9 to C25.

Physical/Chemical Properties:
Liquids of variable flash points with typical values >56°C.
For liquids, only flash point data are required to characterise flammability.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Headache, nausea, and dizziness are not uncommon after exposure. Central nervous system depression including confusion, altered mental status, and seizure can occur after acute, high dose exposure. Cardiac rhythm abnormalities can occur after acute, high dose exposure.	Move to well-ventilated area
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible eye irritation.	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

CRACKED GAS OILS

Description:
This category is established by the refining processes by which the category members are produced and the boiling point and the carbon number range.

Hydrocarbon types: aromatics, alkylated aromatics, mixed aromatic cycloalkanes, straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes. Boiling point range: 150 - 450°C. Carbon number range: predominantly C9 to C30.

Physical/Chemical Properties:
Liquids of variable flash points with typical values >56°C.
For liquids, only flash point data are required to characterise flammability.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Headache, nausea, and dizziness are not uncommon after exposure. Central nervous system depression including confusion, altered mental status, and seizure can occur after acute, high dose exposure. Cardiac rhythm abnormalities can occur after acute, high dose exposure.	Move to well-ventilated area
Skin	Causes skin irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible eye irritation.	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

VACUUM GAS OILS, HYDROCRACKED GAS OILS, AND DISTILLATE FUELS

Description:
This category is established by the refining processes by which the category members are produced and the boiling point and the carbon number range.

Hydrocarbon types: straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes, aromatics and mixed aromatic cycloalkanes. Boiling point range: 141- 500°C. Carbon number range: predominantly C9 to C30.

Physical/Chemical Properties:
Liquids of variable flash points with typical values >56°C. (gas oils, diesel and light heating oils having a flash point between ≥ 55°C and ≤ 75°C).

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Headache, nausea, and dizziness are not uncommon after exposure. Central nervous system depression including confusion, altered mental status, and seizure can occur after acute, high dose exposure. Cardiac rhythm abnormalities can occur after acute, high dose exposure.	Move to well-ventilated area.
Skin	Causes skin irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible eye irritation.	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

OTHER GAS OILS

Description:
This category is established by the refining process by which the category members are produced and the boiling point and the carbon number range.

Hydrocarbon types: aromatics, alkylated aromatics, mixed aromatic cycloalkanes. straight and branched alkanes and alkenes, cycloalkanes and cycloalkenes. Boiling point range: 150°C - 400°C. Carbon number range: predominantly C9 to C36.

Physical/Chemical Properties:
Liquids of variable flash points with typical values >56°C.
For liquids, only flash point data are required to characterise flammability.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Headache, nausea, and dizziness are not uncommon after exposure. Central nervous system depression including confusion, altered mental status, and seizure can occur after acute, high dose exposure. Cardiac rhythm abnormalities can occur after acute, high dose exposure.	Move to well-ventilated area
Skin	Causes skin irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible eye irritation.	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

HEAVY FUEL OIL COMPONENTS

Description:
This category is defined as streams obtained as either distillates or residues from distillation and cracking processes and containing saturated, aromatic and olefinic hydrocarbons, with carbon numbers >C8 and boiling point range of 150 to >750°C. Heavy Fuel Oil Components (HFO) are produced using various refinery distillation and cracking processes.

Physical/Chemical Properties:
Heavy Fuel Oil Components are liquids of variable flash point.
Typical values reported are > 60°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Irritation of nose and respiratory tract.	Move to well-ventilated area.
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

UNREFINED/ACID TREATED OILS

Description:
The unrefined base oils, or vacuum distillate fractions, are complex aliphatic and aromatic hydrocarbon substances. These 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.

Hydrocarbon types: highly alkylated multi ring structures, branched alkanes, aromatic hydrocarbons. Typical boiling range: 210°C to 800°C. Typical carbon number range: C15 to C50.

Physical/Chemical Properties:
Liquids with a flash point >98°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	NA	
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

HIGHLY REFINED BASE OILS

Description:
This category is established by the refining processes by which the category members are produced and the low level of polyaromatic content present in the oils.

Hydrocarbon types: saturated, naphthenic, isoparaffinic. Boiling point range: 200 to < 600°C. Carbon number range: predominantly C12 to C50. Very low aromatic and sulphur content.

Physical/Chemical Properties:
Liquids with a flashpoint >112°C.

Route of Exposure	Health Effects	First Aid Statements
Inhalation	May cause irritation to the nose and respiratory tract	Move to well-ventilated area.
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

OTHER LUBRICANT BASE OILS

Description:

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.

Hydrocarbon types: aromatics, paraffins, naphthenics. Typical boiling ranges of 200ºC to 800ºC. Typical carbon number range: predominantly C12 to C120.

Physical/Chemical Properties:

Other Lubricant Base Oils typically have flash points >98°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	May cause irritation to the nose and respiratory tract	Move to well-ventilated area.
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

UNTREATED DISTILLATE AROMATIC EXTRACTS

Description:
Distillate aromatic extract (DAE) is the generic name for extracts of a vacuum distillate produced as by-products in the refining of lubricant base oils and waxes. The 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.

Hydrocarbon types: mostly alkylated PAC, naphthenic and isoparaffinic. Typical Boiling range: 250ºC to 640ºC. Typical carbon number range: C15 to C50.

Physical/Chemical Properties:
DAE typically have flash points > 140°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Exposure to spray may cause irritation of the nose and respiratory tract and may cause headaches and nausea.	Move to well-ventilated area.
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

TREATED DISTILLATE AROMATIC EXTRACTS

Description:
Distillate aromatic extracts (DAE) is the generic name for extracts of a vacuum distillate produced as by-products in the refining of lubricant base oils and waxes. When the DAE is further processed it is termed a treated DAE (TDAE) as the specifications are changed meet physical-chemical and technical specifications, rather than chemical composition.

The category domain of TDAE 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. Hydrocarbon types: mostly alkylated PAC, naphthenic and isoparaffinic. TDAE subjected to hydrotreatment may significantly decrease levels of PAC contained in them. Typical boiling range: 250ºC to 640ºC. Typical carbon number range: C13 to C50.

Physical/Chemical Properties:
TDAEs typically have flash points>140°C.

Route of Exposure*	Health Effects	First Aid Statements
Inhalation	Exposure to spray may cause irritation of the nose and respiratory tract and may cause headaches and nausea.	Move to well-ventilated area.
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

FOOTS OILS

Description:

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.

Hydrocarbon types: aromatics, paraffins, naphthenics. Typical carbon number range: predominantly C20 to C50.

Physical/Chemical Properties:

Foots oils typically have flash points >98°C.

Route of Exposure*	Health Effects *	First Aid Statements
Inhalation	NA	
Skin	May cause mild irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild reversible eye irritation.	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

* Incidental oral exposure: aspiration hazard; may be fatal if it enters the airways after swallowing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. If vomiting does occur, have victim lean forward to reduce risk of aspiration.

BITUMEN

Description:
This category is established by the petroleum refining processes, or combination of, by which the category members are produced, the predominant hydrocarbon classes present, the boiling point range and the carbon number range.

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 320°C to more than 500°C. Typical carbon number range: predominantly greater than C25 but with the bulk of the material having carbon numbers greater than C50 and up to C80.

Physical/Chemical Properties:
Flash point > 180°C.

Route of Exposure	Health Effects	First Aid Statements
Inhalation	Inhalation of hot asphalt fumes can produce eye, nose, throat and respiratory tract irritation, headache, nausea, and nervousness due to the formation of hydrogen sulphide gas	Move to well-ventilated area. Monitor for respiratory distress; administer oxygen and assist ventilation as required.
Skin	Dermal exposure to hot asphalt fumes can cause thermal burns.	Do not remove contaminated clothing adhered to the skin or hot bitumen or asphalt **at the scene**, plunge into cold water and transport to a clinic or emergency room. If bitumen is to be removed at clinic it should be done with mineral oil. Transport to emergency medical facility if the bitumen or asphalt creates a band around an extremity that could be constricting.
Eye	Hot fumes can cause severe irritation of eyes and mucous membranes.	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

OXIDIZED ASPHALT

Description:
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.

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 C25 but with the bulk of the material having carbon numbers greater than C50 and up to C80.

Physical/Chemical Properties:
Flash point > 180°C.

Route of Exposure	Health Effects	First Aid Statements
Inhalation	Inhalation of hot asphalt fumes can produce eye, nose, throat and respiratory tract irritation, headache, nausea, and nervousness due to the formation of hydrogen sulphide gas	Move to well-ventilated area. Monitor for respiratory distress; administer oxygen and assist ventilation as required.
Skin	Dermal exposure to hot asphalt fumes can cause thermal burns.	Do not remove contaminated clothing adhered to the skin or hot bitumen or asphalt **at the scene**, plunge into cold water and transport to a clinic or emergency room. If bitumen is to be removed at clinic it should be done with mineral oil. Transport to emergency medical facility if the bitumen or asphalt creates a band around an extremity that could be constricting.
Eye	Hot fumes can cause severe irritation of eyes and mucous membranes.	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

SULFUR

Description:
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%.

Physical/Chemical Properties:
Solid

Route of Exposure	Health Effects	First Aid Statements
Inhalation	May cause respiratory difficulties such as shortness of breath, coughing, wheezing.	Move to well-ventilated area. Monitor for respiratory distress; administer oxygen and assist ventilation as required.
Skin	Causes skin irritation	Remove all contaminated clothing. Wash area with soap and water for 10 to 15 minutes.
Eye	May cause mild irritation	Remove contact lenses and irrigate exposed eyes for at least 15 minutes. Irrigate before and after removing the lenses to prevent a carry-over of the substances to the shielded area of the lens.

GLOSSARY

Acronym	Definition
DAE	Distillate aromatic extract
H_2S	Hydrogen sulphide
HFO	Heavy Fuel Oil Components
HRBO	Highly refined base oils
HSDB	Hazardous Substance Database
LPG	Liquid Petroleum Gas
OLBO	Other lubricating base oils
PAC	Polycyclic aromatic compound
PAHs	Polycyclic aromatic hydrocarbons
RAE	Residual aromatic extracts
REACH	Registration, Evaluation and Authorisation of CHemicals
SDS	Safety Data Sheet
TDAE	Treated distillate aromatic extract

REFERENCES

1. Concawe (2015) Hazard classification and labelling of petroleum substances in the European Economic Area – 2015. Report No. 9/15. Brussels: Concawe

Consult the Concawe website (www.concawe.org) for the most recent version of the Hazard classification and labelling of petroleum substances in the European Economic Area, as this document is updated periodically.

APPENDIX A: CATEGORY AND CAS NUMBERS

CRUDE OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
232-298-5	8002-05-9	Petroleum

PETROLEUM GASES		
EINECS No.	CAS Registry No.	SUBSTANCE
200-827-9	74-98-6	Propane
200-857-2	75-28-5	Isobutane
203-448-7	106-97-8	Butane

OTHER PETROLEUM GASES		
EINECS No.	CAS Registry No.	SUBSTANCE
268-629-5	68131-75-9	Gases (petroleum), C3-4
269-617-2	68307-98-2	Tail gas (petroleum), catalytic cracked distillate and catalytic cracked naphtha fractionation absorber
269-618-8	68307-99-3	Tail gas (petroleum), catalytic polymn. naphtha fractionation stabilizer
269-619-3	68308-00-9	Tail gas (petroleum), catalytic reformed naphtha fractionation stabilizer, hydrogen sulfide-free
269-620-9	68308-01-0	Tail gas (petroleum), cracked distillate hydrotreater stripper
269-623-5	68308-03-2	Tail gas (petroleum), gas oil catalytic cracking absorber
269-624-0	68308-04-3	Tail gas (petroleum), gas recovery plant
269-625-6	68308-05-4	Tail gas (petroleum), gas recovery plant deethanizer
269-626-1	68308-06-5	Tail gas (petroleum), hydrodesulfurized distillate and hydrodesulfurized naphtha fractionator, acid-free
269-627-7	68308-07-6	Tail gas (petroleum), hydrodesulfurized vacuum gas oil stripper, hydrogen sulfide-free
269-628-2	68308-08-7	Tail gas (petroleum), isomerized naphtha fractionation stabilizer
269-629-8	68308-09-8	Tail gas (petroleum), light straight-run naphtha stabilizer, hydrogen sulfide-free
269-630-3	68308-10-1	Tail gas (petroleum), straight-run distillate hydrodesulfurizer, hydrogen sulfide-free
269-631-9	68308-11-2	Tail gas (petroleum), propane-propylene alkylation feed prep deethanizer
269-632-4	68308-12-3	Tail gas (petroleum), vacuum gas oil hydrodesulfurizer, hydrogen sulfide-free
269-640-8	68308-27-0	Fuel gases, refinery

OTHER PETROLEUM GASES		
EINECS No.	CAS Registry No.	SUBSTANCE
270-071-2	68409-99-4	Gases (petroleum), catalytic cracked overheads
270-651-5	68475-57-0	Alkanes, C1-2
270-652-0	68475-58-1	Alkanes, C2-3
270-653-6	68475-59-2	Alkanes, C3-4
270-654-1	68475-60-5	Alkanes, C4-5
270-667-2	68476-26-6	Fuel gases
270-670-9	68476-29-9	Fuel gases, crude oil distillates
270-681-9	68476-40-4	Hydrocarbons, C3-4
270-682-4	68476-42-6	Hydrocarbons, C4-5
270-689-2	68476-49-3	Hydrocarbons, C2-4, C3-rich
270-704-2	68476-85-7	Petroleum gases, liquefied
270-705-8	68476-86-8	Petroleum gases, liquefied, sweetened
270-724-1	68477-33-8	Gases (petroleum), C3-4, isobutane-rich
270-726-2	68477-35-0	Distillates (petroleum), C3-6, piperylene-rich
270-746-1	68477-65-6	Gases (petroleum), amine system feed
270-747-7	68477-66-7	Gases (petroleum), benzene unit hydrodesulfurizer off
270-748-2	68477-67-8	Gases (petroleum), benzene unit recycle, hydrogen-rich
270-749-8	68477-68-9	Gases (petroleum), blend oil, hydrogen-nitrogen-rich
270-750-3	68477-69-0	Gases (petroleum), butane splitter overheads
270-751-9	68477-70-3	Gases (petroleum), C2-3
270-752-4	68477-71-4	Gases (petroleum), catalytic-cracked gas oil depropanizer bottoms, C4-rich acid-free
270-754-5	68477-72-5	Gases (petroleum), catalytic-cracked naphtha debutanizer bottoms, C3-5-rich
270-755-0	68477-73-6	Gases (petroleum), catalytic cracked naphtha depropanizer overhead, C3-rich acid-free
270-756-6	68477-74-7	Gases (petroleum), catalytic cracker
270-757-1	68477-75-8	Gases (petroleum), catalytic cracker, C1-5-rich
270-758-7	68477-76-9	Gases (petroleum), catalytic polymd. naphtha stabilizer overhead, C2-4-rich
270-759-2	68477-77-0	Gases (petroleum), catalytic reformed naphtha stripper overheads
270-760-8	68477-79-2	Gases (petroleum), catalytic reformer, C1-4-rich
270-761-3	68477-80-5	Gases (petroleum), C6-8 catalytic reformer recycle
270-762-9	68477-81-6	Gases (petroleum), C6-8 catalytic reformer
270-763-4	68477-82-7	Gases (petroleum), C6-8 catalytic reformer recycle, hydrogen-rich
270-765-5	68477-83-8	Gases (petroleum), C3-5 olefinic-paraffinic alkylation feed
270-766-0	68477-84-9	Gases (petroleum), C2-return stream

OTHER PETROLEUM GASES		
EINECS No.	CAS Registry No.	SUBSTANCE
270-767-6	68477-85-0	Gases (petroleum), C4-rich
270-768-1	68477-86-1	Gases (petroleum), deethanizer overheads
270-769-7	68477-87-2	Gases (petroleum), deisobutanizer tower overheads
270-772-3	68477-90-7	Gases (petroleum), depropanizer dry, propene-rich
270-773-9	68477-91-8	Gases (petroleum), depropanizer overheads
270-774-4	68477-92-9	Gases (petroleum), dry sour, gas-concn.-unit-off
270-776-5	68477-93-0	Gases (petroleum), gas concn. reabsorber distn.
270-777-0	68477-94-1	Gases (petroleum), gas recovery plant depropanizer overheads
270-778-6	68477-95-2	Gases (petroleum), Girbatol unit feed
270-779-1	68477-96-3	Gases (petroleum), hydrogen absorber off
270-780-7	68477-97-4	Gases (petroleum), hydrogen-rich
270-781-2	68477-98-5	Gases (petroleum), hydrotreater blend oil recycle, hydrogennitrogen-rich
270-782-8	68477-99-6	Gases (petroleum), isomerized naphtha fractionator, C4-rich, hydrogen sulfide-free
270-783-3	68478-00-2	Gases (petroleum), recycle, hydrogen-rich
270-784-9	68478-01-3	Gases (petroleum), reformer make-up, hydrogen-rich
270-785-4	68478-02-4	Gases (petroleum), reforming hydrotreater
270-787-5	68478-03-5	Gases (petroleum), reforming hydrotreater, hydrogen-methanerich
270-788-0	68478-04-6	Gases (petroleum), reforming hydrotreater make-up, hydrogen-rich
270-789-6	68478-05-7	Gases (petroleum), thermal cracking distn.
270-802-5	68478-21-7	Tail gas (petroleum), catalytic cracked clarified oil and thermal cracked vacuum residue fractionation reflux drum
270-803-0	68478-22-8	Tail gas (petroleum), catalytic cracked naphtha stabilization absorber
270-804-6	68478-24-0	Tail gas (petroleum), catalytic cracker, catalytic reformer and hydrodesulfurizer combined fractionater
270-805-1	68478-25-1	Tail gas (petroleum), catalytic cracker refractionation absorber
270-806-7	68478-26-2	Tail gas (petroleum), catalytic reformed naphtha fractionation stabilizer
270-807-2	68478-27-3	Tail gas (petroleum), catalytic reformed naphtha separator
270-808-8	68478-28-4	Tail gas (petroleum), catalytic reformed naphtha stabilizer
270-809-3	68478-29-5	Tail gas (petroleum), cracked distillate hydrotreater separator
270-810-9	68478-30-8	Tail gas (petroleum), hydrodesulfurized straight-run naphtha separator
270-813-5	68478-32-0	Tail gas (petroleum), saturate gas plant mixed stream, C4-rich
270-814-0	68478-33-1	Tail gas (petroleum), saturate gas recovery plant, C1-2-rich

OTHER PETROLEUM GASES		
EINECS No.	CAS Registry No.	SUBSTANCE
270-815-6	68478-34-2	Tail gas (petroleum), vacuum residues thermal cracker
270-990-9	68512-91-4	Hydrocarbons, C3-4-rich, petroleum distillate
270-999-8	68513-14-4	Gases (petroleum), catalytic reformed straight-run naphtha stabilizer overheads
271-000-8	68513-15-5	Gases (petroleum), full-range straight-run naphtha dehexanizer off
271-001-3	68513-16-6	Gases (petroleum), hydrocracking depropanizer off, hydrocarbonrich
271-002-9	68513-17-7	Gases (petroleum), light straight-run naphtha stabilizer off
271-003-4	68513-18-8	Gases (petroleum), reformer effluent high-pressure flash drum off
271-005-5	68513-19-9	Gases (petroleum), reformer effluent low-pressure flash drum off
271-010-2	68513-66-6	Residues (petroleum), alkylation splitter, C4-rich
271-032-2	68514-31-8	Hydrocarbons, C1-4
271-038-5	68514-36-3	Hydrocarbons, C1-4, sweetened
271-258-1	68527-15-1	Gases (petroleum), oil refinery gas distn. off
271-259-7	68527-16-2	Hydrocarbons, C1-3
271-261-8	68527-19-5	Hydrocarbons, C1-4, debutanizer fraction
271-623-5	68602-82-4	Gases (petroleum), benzene unit hydrotreater depentanizer overheads
271-624-0	68602-83-5	Gases (petroleum), C1-5, wet
271-625-6	68602-84-6	Gases (petroleum), secondary absorber off, fluidized catalytic cracker overheads fractionator
271-734-9	68606-25-7	Hydrocarbons, C2-4
271-735-4	68606-26-8	Hydrocarbons, C3
271-737-5	68606-27-9	Gases (petroleum), alkylation feed
271-742-2	68606-34-8	Gases (petroleum), depropanizer bottoms fractionation off
271-750-6	68607-11-4	Petroleum products, refinery gases
272-182-1	68783-06-2	Gases (petroleum), hydrocracking low-pressure separator
272-183-7	68783-07-3	Gases (petroleum), refinery blend
272-203-4	68783-64-2	Gases (petroleum), catalytic cracking
272-205-5	68783-65-3	Gases (petroleum), C2-4, sweetened
272-338-9	68814-67-5	Gases (petroleum), refinery
272-343-6	68814-90-4	Gases (petroleum), platformer products separator off
272-775-5	68911-58-0	Gases (petroleum), hydrotreated sour kerosine depentanizer stabilizer off
272-776-0	68911-59-1	Gases (petroleum), hydrotreated sour kerosine flash drum
272-871-7	68918-99-0	Gases (petroleum), crude oil fractionation off
272-872-2	68919-00-6	Gases (petroleum), dehexanizer off

OTHER PETROLEUM GASES		
EINECS No.	CAS Registry No.	SUBSTANCE
272-873-8	68919-01-7	Gases (petroleum), distillate unifiner desulfurization stripper off
272-874-3	68919-02-8	Gases (petroleum), fluidized catalytic cracker fractionation off
272-875-9	68919-03-9	Gases (petroleum), fluidized catalytic cracker scrubbing secondary absorber off
272-876-4	68919-04-0	Gases (petroleum), heavy distillate hydrotreater desulfurization stripper off
272-878-5	68919-05-1	Gases (petroleum), light straight run gasoline fractionation stabilizer off
272-879-0	68919-06-2	Gases (petroleum), naphtha unifiner desulfurization stripper off
272-880-6	68919-07-3	Gases (petroleum), platformer stabilizer off, light ends fractionation
272-881-1	68919-08-4	Gases (petroleum), preflash tower off, crude distn.
272-882-7	68919-09-5	Gases (petroleum), straight-run naphtha catalytic reforming off
272-883-2	68919-10-8	Gases (petroleum), straight-run stabilizer off
272-884-8	68919-11-9	Gases (petroleum), tar stripper off
272-885-3	68919-12-0	Gases (petroleum), unifiner stripper off
272-893-7	68919-20-0	Gases (petroleum), fluidized catalytic cracker splitter overheads
273-169-3	68952-76-1	Gases (petroleum), catalytic cracked naphtha debutanizer
273-170-9	68952-77-2	Tail gas (petroleum), catalytic cracked distillate and naphtha stabilizer
273-173-5	68952-79-4	Tail gas (petroleum), catalytic hydrodesulfurized naphtha separator
273-174-0	68952-80-7	Tail gas (petroleum), straight-run naphtha hydrodesulfurizer
273-175-6	68952-81-8	Tail gas (petroleum), thermal-cracked distillate, gas oil and naphtha absorber
273-176-1	68952-82-9	Tail gas (petroleum), thermal cracked hydrocarbon fractionation stabilizer, petroleum coking
273-265-5	68955-28-2	Gases (petroleum), light steam-cracked, butadiene conc.
273-269-7	68955-33-9	Gases (petroleum), sponge absorber off, fluidized catalytic cracker and gas oil desulfurizer overhead fractionation
273-270-2	68955-34-0	Gases (petroleum), straight-run naphtha catalytic reformer stabilizer overhead
273-563-5	68989-88-8	Gases (petroleum), crude distn. and catalytic cracking
289-339-5	87741-01-3	Hydrocarbons, C4
292-456-4	90622-55-2	Alkanes, C1-4, C3-rich
295-397-2	92045-15-3	Gases (petroleum), gas oil diethanolamine scrubber off
295-398-8	92045-16-4	Gases (petroleum), gas oil hydrodesulfurization effluent
295-399-3	92045-17-5	Gases (petroleum), gas oil hydrodesulfurization purge
295-400-7	92045-18-6	Gases (petroleum), hydrogenator effluent flash drum off
295-401-2	92045-19-7	Gases (petroleum), naphtha steam cracking high-pressure residual

OTHER PETROLEUM GASES		
EINECS No.	CAS Registry No.	SUBSTANCE
295-402-8	92045-20-0	Gases (petroleum), residue visbreaking off
295-404-9	92045-22-2	Gases (petroleum), steam-cracker C3-rich
295-405-4	92045-23-3	Hydrocarbons, C4, steam-cracker distillate
295-463-0	92045-80-2	Petroleum gases, liquefied, sweetened, C4 fraction
306-004-1	95465-89-7	Hydrocarbons, C4, 1,3-butadiene- and isobutene-free
307-769-4	97722-19-5	Raffinates (petroleum), steam-cracked C4 fraction cuprous ammonium acetate extn., C3-5 and C3-5 unsatd., butadiene-free

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EINECS No.	CAS Registry No.	SUBSTANCE
232-349-1	8006-61-9	Gasoline, natural
232-443-2	8030-30-6	Naphtha
232-453-7	8032-32-4	Ligroine
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
265-047-3	64741-47-5	Natural gas condensates (petroleum)
265-048-9	64741-48-6	Natural gas (petroleum), raw liq. mix
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
265-067-2	64741-65-7	Naphtha (petroleum), heavy 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
613-683-0	64741-72-6	Naphtha (petroleum), polymn.
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
265-095-5	64741-92-0	Naphtha (petroleum), solvent-refined heavy
265-115-2	64742-15-0	Naphtha (petroleum), acid-treated
265-122-0	64742-22-9	Naphtha (petroleum), chemically neutralized heavy
265-123-6	64742-23-0	Naphtha (petroleum), chemically neutralized light
265-150-3	64742-48-9	Naphtha (petroleum), hydrotreated heavy
265-151-9	64742-49-0	Naphtha (petroleum), hydrotreated light

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EINECS No.	CAS Registry No.	SUBSTANCE
265-170-2	64742-66-1	Naphtha (petroleum), catalytic dewaxed
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.
267-563-4	67891-79-6	Distillates (petroleum), heavy arom.
267-565-5	67891-80-9	Distillates (petroleum), light arom.
268-618-5	68131-49-7	Aromatic hydrocarbons, C6-10, acid-treated, neutralized
270-077-5	68410-05-9	Distillates (petroleum), straight-run Light
270-088-5	68410-71-9	Raffinates (petroleum), catalytic reformer ethylene glycol-water countercurrent exts.
270-092-7	68410-96-8	Distillates (petroleum), hydrotreated middle, intermediate boiling
270-093-2	68410-97-9	Distillates (petroleum), light distillate hydrotreating process, low-boiling
270-094-8	68410-98-0	Distillates (petroleum), hydrotreated heavy naphtha, deisohexanizer overheads
270-344-6	68425-29-6	Distillates (petroleum), naphtha-raffinate pyrolyzate-derived, gasoline-blending
270-349-3	68425-35-4	Raffinates (petroleum), reformer, Lurgi unit-sepd.
270-658-3	68475-70-7	Aromatic hydrocarbons, C6-8, naphtha-raffinate pyrolyzate-derived
270-660-4	68475-79-6	Distillates (petroleum), catalytic reformed depentanizer
270-686-6	68476-46-0	Hydrocarbons, C3-11, catalytic cracker distillates
270-687-1	68476-47-1	Hydrocarbons, C2-6, C6-8 catalytic reformer
270-690-8	68476-50-6	Hydrocarbons, C≥5, C5-6-rich
270-695-5	68476-55-1	Hydrocarbons, C5-rich
270-725-7	68477-34-9	Distillates (petroleum), C3-5, 2-methyl-2-butene-rich
270-741-4	68477-61-2	Extracts (petroleum), cold-acid, C4-6
270-771-8	68477-89-4	Distillates (petroleum), depentanizer overheads
270-791-7	68478-12-6	Residues (petroleum), butane splitter bottoms
270-794-3	68478-15-9	Residues (petroleum), C6-8 catalytic reformer
270-795-9	68478-16-0	Residual oils (petroleum), deisobutanizer tower
270-988-8	68512-78-7	Solvent naphtha (petroleum), light arom., hydrotreated
270-991-4	68513-02-0	Naphtha (petroleum), full-range coker
270-993-5	68513-03-1	Naphtha (petroleum), light catalytic reformed, arom.-free
271-008-1	68513-63-3	Distillates (petroleum), catalytic reformed straight-run naphtha overheads
271-025-4	68514-15-8	Gasoline, vapor-recovery
271-058-4	68514-79-4	Petroleum products, hydrofiner-powerformer reformates
271-262-3	68527-21-9	Naphtha (petroleum), clay-treated full-range straight-run
271-263-9	68527-22-0	Naphtha (petroleum), clay-treated light straight-run
271-267-0	68527-27-5	Naphtha (petroleum), full-range alkylate, butane-contg.
271-631-9	68603-00-9	Distillates (petroleum), thermal cracked naphtha and gas oil

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EINECS No.	CAS Registry No.	SUBSTANCE
271-632-4	68603-01-0	Distillates (petroleum), thermal cracked naphtha and gas oil, C5-dimer-contg.
271-634-5	68603-03-2	Distillates (petroleum), thermal cracked naphtha and gas oil, extractive
271-635-0	68603-08-7	Naphtha (petroleum), arom
271-726-5	68606-10-0	Gasoline, pyrolysis, debutanizer bottoms
271-727-0	68606-11-1	Gasoline, straight-run, topping-plant
272-185-8	68783-09-5	Naphtha (petroleum), catalytic cracked light distd.
614-725-0	68783-11-9	Naphtha (petroleum), light polymn.
272-186-3	68783-12-0	Naphtha (petroleum), unsweetened
272-206-0	68783-66-4	Naphtha (petroleum), light, sweetened
272-895-8	68919-37-9	Naphtha (petroleum), full-range reformed
272-896-3	68919-39-1	Natural gas condensates
272-931-2	68921-08-4	Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads
272-932-8	68921-09-5	Distillates (petroleum), naphtha unifiner stripper
273-266-0	68955-29-3	Distillates (petroleum), light thermal cracked, debutanized arom.
273-271-8	68955-35-1	Naphtha (petroleum), catalytic reformed
285-509-8	85116-58-1	Distillates (petroleum), catalytic reformed hydrotreated light, C8-12 arom. fraction
285-510-3	85116-59-2	Naphtha (petroleum), catalytic reformed light, arom.-free fraction
285-511-9	85116-60-5	Naphtha (petroleum), hydrodesulfurized thermal cracked light
285-512-4	85116-61-6	Naphtha (petroleum), hydrotreated light, cycloalkane-contg.
289-220-8	86290-81-5	Gasoline
292-695-4	90989-39-2	Aromatic hydrocarbons, C8-10
292-698-0	90989-42-7	Aromatic hydrocarbons, C7-8, dealkylation products, distn. residues
295-279-0	91995-18-5	Aromatic hydrocarbons, C8, catalytic reforming-derived
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
295-430-0	92045-49-3	Naphtha (petroleum), C4-12 butane-alkylate, isooctane-rich
295-431-6	92045-50-6	Naphtha (petroleum), heavy catalytic cracked, sweetened
295-433-7	92045-52-8	Naphtha (petroleum), hydrodesulfurized full-range
295-434-2	92045-53-9	Naphtha (petroleum), hydrodesulfurized light, dearomatized
295-436-3	92045-55-1	Hydrocarbons, hydrotreated light naphtha distillates, solvent-refined
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
295-444-7	92045-62-0	Hydrocarbons, C8-11, naphtha-cracking, toluene cut
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

LOW BOILING POINT NAPHTHAS (GASOLINES)		
EINECS No.	CAS Registry No.	SUBSTANCE
295-447-3	92045-65-3	Naphtha (petroleum), light thermal cracked, sweetened
295-529-9	92062-15-2	Solvent naphtha (petroleum), hydrotreated light naphthenic
295-794-0	92128-94-4	Hydrocarbons, C8-12, catalytic-cracking, chem. neutralized
296-903-4	93165-19-6	Distillates (petroleum), C6-rich
297-401-8	93571-75-6	Aromatic hydrocarbons, C7-12, C8-rich
297-458-9	93572-29-3	Gasoline, C5-11, high-octane stabilized reformed
297-465-7	93572-35-1	Hydrocarbons, C7-12, C>9-arom.-rich, reforming heavy fraction
297-466-2	93572-36-2	Hydrocarbons, C5-11, nonaroms.-rich, reforming light fraction
297-852-0	93763-33-8	Hydrocarbons, C6-11, hydrotreated, dearomatized
297-853-6	93763-34-9	Hydrocarbons, C9-12, hydrotreated, dearomatized
302-639-3	94114-03-1	Gasoline, pyrolysis, hydrogenated
308-261-5	97926-43-7	Extracts (petroleum), heavy naphtha solvent, clay-treated
309-862-5	101316-56-7	Distillates (petroleum), C7-9, C8-rich, hydrodesulfurized dearomatized
309-870-9	101316-66-9	Hydrocarbons, C6-8, hydrogenated sorption-dearomatized, toluene raffination
309-871-4	101316-67-0	Hydrocarbons, C6-rich, hydrotreated light naphtha distillates, solvent-refined
309-879-8	101316-76-1	Naphtha (petroleum), hydrodesulfurized full-range coker
309-945-6	101631-20-3	Naphtha (petroleum), heavy straight run, arom
309-974-4	101794-97-2	Hydrocarbons, C8-12, catalytic cracker distillates
309-976-5	101795-01-1	Naphtha (petroleum), sweetened light
309-987-5	101896-28-0	Hydrocarbons, C8-12, catalytic cracking, chem. neutralized, sweetened

KEROSINES		
EINECS No.	CAS Registry No.	SUBSTANCE
232-366-4	8008-20-6	Kerosine (petroleum)
265-074-0	64741-73-7	Distillates (petroleum), alkylate
265-099-7	64741-98-6	Extracts (petroleum), heavy naphtha solvent
265-132-5	64742-31-0	Distillates (petroleum), chemically neutralized light
265-149-8	64742-47-8	Distillates (petroleum), hydrotreated light
265-184-9	64742-81-0	Kerosine (petroleum), hydrodesulfurized
265-191-7	64742-88-7	Solvent naphtha (petroleum), medium aliph.
265-198-5	64742-94-5	Solvent naphtha (petroleum), heavy arom.
265-200-4	64742-96-7	Solvent naphtha (petroleum), heavy aliph.
269-778-9	68333-23-3	Naphtha (petroleum), heavy coker
285-507-7	85116-55-8	Kerosine (petroleum), hydrodesulfurized thermal cracked
285-508-2	85116-57-0	Naphtha (petroleum), catalytic reformed hydrodesulfurized heavy, arom. fraction
294-799-5	91770-15-9	Kerosine (petroleum), sweetened
295-416-4	92045-36-8	Kerosine (petroleum), solvent-refined sweetened

KEROSINES		
EINECS No.	CAS Registry No.	SUBSTANCE
297-854-1	93763-35-0	Hydrocarbons, C9-16, hydrotreated, dearomatized
307-033-2	97488-94-3	Kerosine (petroleum), solvent-refined hydrodesulfurized
309-864-6	101316-58-9	Distillates (petroleum), hydrodesulfurized full-range middle coker
309-866-7	101316-61-4	Distillates (petroleum), thermal-cracked, alkylarom. hydrocarbon-rich
309-881-9	101316-80-7	Solvent naphtha (petroleum), hydrocracked heavy arom.
309-882-4	101316-81-8	Solvent naphtha (petroleum), hydrodesulfurized heavy arom.
309-884-5	101316-82-9	Solvent naphtha (petroleum), hydrodesulfurized medium
309-938-8	101631-13-4	Distillates (petroleum), catalytic cracked heavy tar light
309-944-0	101631-19-0	Kerosine (petroleum), hydrotreated

MK1 DIESEL FUEL		
EINECS No.	CAS Registry No.	SUBSTANCE
None	none	MK1 diesel fuel

STRAIGHT RUN GAS OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
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
272-818-8	68915-97-9	Gas oils (petroleum), straight-run, high-boiling
294-454-9	91722-55-3	Distillates (petroleum), solvent-dewaxed straight-run middle
295-528-3	92062-14-1	Solvent naphtha (petroleum), heavy
296-468-0	92704-36-4	Gas oils (petroleum), straight-run, clay-treated
309-695-8	100684-24-0	Gas oils (petroleum), straight-run, carbon-treated

CRACKED GAS OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
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
269-781-5	68333-25-5	Distillates (petroleum), hydrodesulfurized light catalytic cracked
272-930-7	68921-07-3	Distillates (petroleum), hydrotreated light catalytic cracked
285-505-6	85116-53-6	Distillates (petroleum), hydrodesulfurized thermal cracked middle

CRACKED GAS OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
295-411-7	92045-29-9	Gas oils (petroleum), thermal-cracked, hydrodesulfurized
295-991-1	92201-60-0	Distillates (petroleum), light catalytic cracked, thermally degraded
308-278-8	97926-59-5	Gas oils (petroleum), light vacuum, thermal-cracked hydrodesulfurized
309-865-1	101316-59-0	Distillates (petroleum), hydrodesulfurized middle coker

VACUUM GAS OILS, HYDROCRACKED GAS OILS AND DISTILLATE FUELS		
EINECS No.	CAS Registry No.	SUBSTANCE
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
265-190-1	64742-87-6	Gas oils (petroleum), hydrodesulfurized light vacuum
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
295-407-5	92045-24-4	Gas oils (petroleum), hydrotreated light vacuum
295-408-0	92045-26-6	Gas oils (petroleum), light vacuum, solvent-dewaxed
295-409-6	92045-27-7	Gas oils (petroleum), solvent-refined light vacuum
307-662-2	97675-88-2	Hydrocarbons, C16-20, solvent-dewaxed hydrocracked paraffinic distn. residue
307-750-0	97722-01-5	Gas oils, light naphthenic vacuum
307-754-2	97722-05-9	Hydrocarbons, C16-20, hydrotreated distillate, vacuum distn. lights
307-756-3	97722-07-1	Hydrocarbons, C11-17, naphthenic middle
309-693-7	100684-22-8	Gas oils (petroleum), light vacuum, carbon-treated
309-694-2	100684-23-9	Gas oils (petroleum), light vacuum, clay-treated

OTHER GAS OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
265-088-7	64741-86-2	Distillates (petroleum), sweetened middle
265-092-9	64741-90-8	Gas oils (petroleum), solvent-refined
265-093-4	64741-91-9	Distillates (petroleum), solvent-refined middle
265-112-6	64742-12-7	Gas oils (petroleum), acid-treated
265-113-1	64742-13-8	Distillates (petroleum), acid-treated middle
265-114-7	64742-14-9	Distillates (petroleum), acid-treated light
265-129-9	64742-29-6	Gas oils (petroleum), chemically neutralized
265-130-4	64742-30-9	Distillates (petroleum), chemically neutralized middle
265-139-3	64742-38-7	Distillates (petroleum), clay-treated middle

OTHER GAS OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
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
270-719-4	68477-29-2	Distillates (petroleum), catalytic reformer fractionator residue, high-boiling
270-721-5	68477-30-5	Distillates (petroleum), catalytic reformer fractionator residue, intermediate-boiling
270-722-0	68477-31-6	Distillates (petroleum), catalytic reformer fractionator residue, low-boiling
292-454-3	90622-53-0	Alkanes, C12-26-branched and linear
292-615-8	90640-93-0	Distillates (petroleum), highly refined middle
295-294-2	91995-34-5	Distillates (petroleum), catalytic reformer, heavy arom. conc.
300-227-8	93924-33-5	Gas oils, paraffinic
307-035-3	97488-96-5	Naphtha (petroleum), solvent-refined hydrodesulfurized heavy
307-659-6	97675-85-9	Hydrocarbons, C16-20, hydrotreated middle distillate, distn. lights
307-660-1	97675-86-0	Hydrocarbons, C12-20, hydrotreated paraffinic, distn. lights
307-757-9	97722-08-2	Hydrocarbons, C11-17, solvent-extd. light naphthenic
308-128-1	97862-78-7	Gas oils, hydrotreated
309-667-5	100683-97-4	Distillates (petroleum), carbon-treated light paraffinic
309-668-0	100683-98-5	Distillates (petroleum), intermediate paraffinic, carbon-treated
309-669-6	100683-99-6	Distillates (petroleum), intermediate paraffinic, clay-treated

HEAVY FUEL OIL COMPONENTS		
EINECS No.	CAS Registry No.	SUBSTANCE
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
269-782-0	68333-26-6	Clarified oils (petroleum), hydrodesulfurized catalytic cracked
269-783-6	68333-27-7	Distillates (petroleum), hydrodesulfurized intermediate catalytic cracked
269-784-1	68333-28-8	Distillates (petroleum), hydrodesulfurized heavy catalytic cracked

HEAVY FUEL OIL COMPONENTS		
EINECS No.	CAS Registry No.	SUBSTANCE
270-674-0	68476-32-4	Fuel oil, residues-straight-run gas oils, high-sulfur
270-675-6	68476-33-5	Fuel oil, residual
270-792-2	68478-13-7	Residues (petroleum), catalytic reformer fractionator residue distn.
270-796-4	68478-17-1	Residues (petroleum), heavy coker gas oil and vacuum gas oil
270-983-0	68512-61-8	Residues (petroleum), heavy coker and light vacuum
270-984-6	68512-62-9	Residues (petroleum), light vacuum
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
272-187-9	68783-13-1	Residues (petroleum), coker scrubber, condensed-ring-arom
273-263-4	68955-27-1	Distillates (petroleum), petroleum residues vacuum
274-683-0	70592-76-6	Distillates (petroleum), intermediate vacuum
274-684-6	70592-77-7	Distillates (petroleum), light vacuum
274-685-1	70592-78-8	Distillates (petroleum), vacuum
285-555-9	85117-03-9	Gas oils (petroleum), hydrodesulfurized coker heavy vacuum
292-658-2	90669-76-4	Residues (petroleum), vacuum, light
295-396-7	92045-14-2	Fuel oil, heavy, high-sulfur
295-511-0	92061-97-7	Residues (petroleum), catalytic cracking
295-990-6	92201-59-7	Distillates (petroleum), intermediate catalytic cracked, thermally degraded
298-754-0	93821-66-0	Residual oils (petroleum)
309-863-0	101316-57-8	Distillates (petroleum), hydrodesulfurized full-range middle

UNREFINED/ACID TREATED OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
265-051-5	64741-50-0	Distillates (petroleum), light paraffinic
265-052-0	64741-51-1	Distillates (petroleum), heavy paraffinic
265-053-6	64741-52-2	Distillates (petroleum), light naphthenic
265-054-1	64741-53-3	Distillates (petroleum), heavy naphthenic
265-117-3	64742-18-3	Distillates (petroleum), acid-treated heavy naphthenic
265-118-9	64742-19-4	Distillates (petroleum), acid-treated light naphthenic
265-119-4	64742-20-7	Distillates (petroleum), acid-treated heavy paraffinic
265-121-5	64742-21-8	Distillates (petroleum), acid-treated light paraffinic
265-127-8	64742-27-4	Distillates (petroleum), chemically neutralized heavy paraffinic
265-128-3	64742-28-5	Distillates (petroleum), chemically neutralized light paraffinic
265-135-1	64742-34-3	Distillates (petroleum), chemically neutralized heavy naphthenic
265-136-7	64742-35-4	Distillates (petroleum), chemically neutralized light naphthenic

HIGHLY REFINED BASEOILS		
EINECS No.	CAS Registry No.	SUBSTANCE
232-455-8	8042-47-5	White mineral oil (petroleum)
295-550-3	92062-35-6	White mineral oil (petroleum), light

OTHER LUBRICANT BASE OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
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
265-098-1	64741-97-5	Distillates (petroleum), solvent-refined light naphthenic
265-101-6	64742-01-4	Residual oils (petroleum), solvent-refined
265-137-2	64742-36-5	Distillates (petroleum), clay-treated heavy paraffinic
265-138-8	64742-37-6	Distillates (petroleum), clay-treated light paraffinic
265-143-5	64742-41-2	Residual oils (petroleum), clay-treated
265-146-1	64742-44-5	Distillates (petroleum), clay-treated heavy naphthenic
265-147-7	64742-45-6	Distillates (petroleum), clay-treated light naphthenic
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
265-167-6	64742-63-8	Distillates (petroleum), solvent-dewaxed heavy naphthenic
265-168-1	64742-64-9	Distillates (petroleum), solvent-dewaxed light naphthenic
265-169-7	64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic
265-172-3	64742-68-3	Naphthenic oils (petroleum), catalytic dewaxed heavy
265-173-9	64742-69-4	Naphthenic oils (petroleum), catalytic dewaxed light
265-174-4	64742-70-7	Paraffin oils (petroleum), catalytic dewaxed heavy
265-176-5	64742-71-8	Paraffin oils (petroleum), catalytic dewaxed light
265-179-1	64742-75-2	Naphthenic oils (petroleum), complex dewaxed heavy
265-180-7	64742-76-3	Naphthenic oils (petroleum), complex dewaxed light
276-735-8	72623-83-7	Lubricating oils (petroleum), C>25, hydrotreated bright stock-based
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

OTHER LUBRICANT BASE OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
292-613-7	90640-91-8	Distillates (petroleum), complex dewaxed heavy paraffinic
292-614-2	90640-92-9	Distillates (petroleum), complex dewaxed light paraffinic
292-616-3	90640-94-1	Distillates (petroleum), solvent dewaxed heavy paraffinic, clay-treated
292-617-9	90640-95-2	Hydrocarbons, C20-50, solvent dewaxed heavy paraffinic, hydrotreated
292-618-4	90640-96-3	Distillates (petroleum), solvent dewaxed light paraffinic, clay-treated
292-620-5	90640-97-4	Distillates (petroleum), solvent dewaxed light paraffinic, hydrotreated
292-656-1	90669-74-2	Residual oils (petroleum), hydrotreated solvent dewaxed
294-843-3	91770-57-9	Residual oils (petroleum), catalytic dewaxed
295-300-3	91995-39-0	Distillates (petroleum), dewaxed heavy paraffinic, hydrotreated
295-301-9	91995-40-3	Distillates (petroleum), dewaxed light paraffinic, hydrotreated
295-306-6	91995-45-8	Distillates (petroleum), hydrocracked solvent-refined, dewaxed
295-316-0	91995-54-9	Distillates (petroleum), solvent-refined light naphthenic, hydrotreated
295-423-2	92045-42-6	Lubricating oils (petroleum), C17-35, solvent-extd., dewaxed, hydrotreated
295-424-8	92045-43-7	Lubricating oils (petroleum), hydrocracked nonarom. solvent-deparaffined
295-425-3	92045-44-8	Lubricating oils (petroleum), hydrotreated bright stock-based
295-426-9	92045-45-9	Lubricating oils (petroleum), hydrotreated solvent-refined bright stock-based
295-499-7	92061-86-4	Residual oils (petroleum), hydrocracked acid-treated solvent-dewaxed
295-810-6	92129-09-4	Paraffin oils (petroleum), solvent-refined dewaxed heavy
297-474-6	93572-43-1	Lubricating oils (petroleum), base oils, paraffinic
297-857-8	93763-38-3	Hydrocarbons, hydrocracked paraffinic distn. residues, solvent-dewaxed
300-257-1	93924-61-9	Hydrocarbons, C20-50, residual oil hydrogenation vacuum distillate
305-588-5	94733-08-1	Distillates (petroleum), solvent-refined hydrotreated heavy, hydrogenated
305-589-0	94733-09-2	Distillates (petroleum), solvent-refined hydrocracked light
305-594-8	94733-15-0	Lubricating oils (petroleum), C18-40, solvent-dewaxed hydrocracked distillate-based
305-595-3	94733-16-1	Lubricating oils (petroleum), C18-40, solvent-dewaxed hydrogenated raffinate-based
305-971-7	95371-04-3	Hydrocarbons, C13-30, arom.-rich, solvent-extd. naphthenic distillate
305-972-2	95371-05-4	Hydrocarbons, C16-32, arom. rich, solvent-extd. naphthenic distillate
305-974-3	95371-07-6	Hydrocarbons, C37-68, dewaxed deasphalted hydrotreated vacuum distn. residues
305-975-9	95371-08-7	Hydrocarbons, C37-65, hydrotreated deasphalted vacuum distn. residues
307-010-7	97488-73-8	Distillates (petroleum), hydrocracked solvent-refined light

OTHER LUBRICANT BASE OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
307-011-2	97488-74-9	Distillates (petroleum), solvent-refined hydrogenated heavy
307-034-8	97488-95-4	Lubricating oils (petroleum), C18-27, hydrocracked solvent-dewaxed
307-661-7	97675-87-1	Hydrocarbons, C17-30, hydrotreated solvent-deasphalted atm. distn. residue, distn. lights
307-755-8	97722-06-0	Hydrocarbons, C17-40, hydrotreated solvent-deasphalted distn. residue, vacuum distn. lights
307-758-4	97722-09-3	Hydrocarbons, C13-27, solvent-extd. light naphthenic
307-760-5	97722-10-6	Hydrocarbons, C14-29, solvent-extd. light naphthenic
308-131-8	97862-81-2	Hydrocarbons, C27-42, dearomatized
308-132-3	97862-82-3	Hydrocarbons, C17-30, hydrotreated distillates, distn. lights
308-133-9	97862-83-4	Hydrocarbons, C27-45, naphthenic vacuum distn.
308-287-7	97926-68-6	Hydrocarbons, C27-45, dearomatized
308-289-8	97926-70-0	Hydrocarbons, C20-58, hydrotreated
308-290-3	97926-71-1	Hydrocarbons, C27-42, naphthenic
309-710-8	100684-37-5	Residual oils (petroleum), carbon-treated solvent-dewaxed
309-711-3	100684-38-6	Residual oils (petroleum), clay-treated solvent-dewaxed
309-874-0	101316-69-2	Lubricating oils (petroleum), C>25, solvent-extd., deasphalted, dewaxed, hydrogenated
309-875-6	101316-70-5	Lubricating oils (petroleum), C17-32, solvent-extd., dewaxed, hydrogenated
309-876-1	101316-71-6	Lubricating oils (petroleum), C20-35, solvent-extd., dewaxed, hydrogenated
309-877-7	101316-72-7	Lubricating oils (petroleum), C24-50, solvent-extd., dewaxed, hydrogenated

UNTREATED DISTILLATE AROMATIC EXTRACTS		
EINECS No.	CAS Registry No.	SUBSTANCE
265-102-1	64742-03-6	Extracts (petroleum), light naphthenic distillate solvent
265-103-7	64742-04-7	Extracts (petroleum), heavy paraffinic distillate solvent
265-104-2	64742-05-8	Extracts (petroleum), light paraffinic distillate solvent
265-111-0	64742-11-6	Extracts (petroleum), heavy naphthenic distillate solvent
295-341-7	91995-78-7	Extracts (petroleum), light vacuum gas oil solvent
307-753-7	97722-04-8	Hydrocarbons, C26-55, arom.-rich

TREATED DISTILLATE AROMATIC EXTRACTS		
EINECS No.	CAS Registry No.	SUBSTANCE
272-175-3	68783-00-6	Extracts (petroleum), heavy naphthenic distillate solvent, arom. conc.
272-180-0	68783-04-0	Extracts (petroleum), solvent-refined heavy paraffinic distillate solvent

TREATED DISTILLATE AROMATIC EXTRACTS		
EINECS No.	CAS Registry No.	SUBSTANCE
272-342-0	68814-89-1	Extracts (petroleum), heavy paraffinic distillates, solvent-deasphalted
292-631-5	90641-07-9	Extracts (petroleum), heavy naphthenic distillate solvent, hydrotreated
292-632-0	90641-08-0	Extracts (petroleum), heavy paraffinic distillate solvent, hydrotreated
292-633-6	90641-09-1	Extracts (petroleum), light paraffinic distillate solvent, hydrotreated
295-335-4	91995-73-2	Extracts (petroleum), hydrotreated light paraffinic distillate solvent
295-338-0	91995-75-4	Extracts (petroleum), light naphthenic distillate solvent, hydrodesulfurized
295-339-6	91995-76-5	Extracts (petroleum), light paraffinic distillate solvent, acid-treated
295-340-1	91995-77-6	Extracts (petroleum), light paraffinic distillate solvent, hydrodesulfurized
295-342-2	91995-79-8	Extracts (petroleum), light vacuum gas oil solvent, hydrotreated
296-437-1	92704-08-0	Extracts (petroleum), heavy paraffinic distillate solvent, clay-treated
297-827-4	93763-10-1	Extracts (petroleum), heavy naphthenic distillate solvent, hydrodesulfurized
297-829-5	93763-11-2	Extracts (petroleum), solvent-dewaxed heavy paraffinic distillate solvent, hydrodesulfurized
309-672-2	100684-02-4	Extracts (petroleum), light paraffinic distillate solvent, carbon-treated
309-673-8	100684-03-5	Extracts (petroleum), light paraffinic distillate solvent, clay-treated
309-674-3	100684-04-6	Extracts (petroleum), light vacuum, gas oil solvent, carbon-treated
309-675-9	100684-05-7	Extracts (petroleum), light vacuum gas oil solvent, clay-treated

RESIDUAL AROMATIC EXTRACTS		
EINECS No.	CAS Registry No.	SUBSTANCE
265-110-5	64742-10-5	Extracts (petroleum), residual oil solvent
295-332-8	91995-70-9	Extracts (petroleum), deasphalted vacuum residue solvent

SLACK WAXES		
EINECS No.	CAS Registry No.	SUBSTANCE
265-165-5	64742-61-6	Slack wax (petroleum)
292-659-8	90669-77-5	Slack wax (petroleum), acid-treated
292-660-3	90669-78-6	Slack wax (petroleum), clay-treated
295-523-6	92062-09-4	Slack wax (petroleum), hydrotreated
295-524-1	92062-10-7	Slack wax (petroleum), low-melting

SLACK WAXES		
EINECS No.	CAS Registry No.	SUBSTANCE
295-525-7	92062-11-8	Slack wax (petroleum), low-melting, hydrotreated
308-155-9	97863-04-2	Slack wax (petroleum), low-melting, carbon-treated
308-156-4	97863-05-3	Slack wax (petroleum), low-melting, clay-treated
308-158-5	97863-06-4	Slack wax (petroleum), low-melting, silicic acid-treated
309-723-9	100684-49-9	Slack wax (petroleum), carbon-treated

PARAFFIN AND HYDROCARBON WAXES		
EINECS No.	CAS Registry No.	SUBSTANCE
232-315-6	8002-74-2	Paraffin waxes and Hydrocarbon waxes
264-038-1	63231-60-7	Paraffin waxes and Hydrocarbon waxes, microcryst.
265-126-2	64742-26-3	Hydrocarbon waxes (petroleum), acid-treated
265-134-6	64742-33-2	Hydrocarbon waxes (petroleum), chemically neutralized
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.
285-095-9	85029-72-7	Hydrocarbon waxes (petroleum), deodorized
292-640-4	90669-47-9	Paraffin waxes (petroleum), acid-treated
295-456-2	92045-74-4	Paraffin waxes (petroleum), low-melting
295-457-8	92045-75-5	Paraffin waxes (petroleum), low-melting, hydrotreated
295-458-3	92045-76-6	Paraffin waxes and Hydrocarbon waxes, microcryst., hydrotreated
307-045-8	97489-05-9	Paraffin waxes and Hydrocarbon waxes, C19-38
308-140-7	97862-89-0	Paraffin waxes (petroleum), carbon-treated
308-141-2	97862-90-3	Paraffin waxes (petroleum), low-melting, carbon-treated
308-142-8	97862-91-4	Paraffin waxes (petroleum), low-melting, clay-treated
308-143-3	97862-92-5	Paraffin waxes (petroleum), low-melting, silicic acid-treated
308-144-9	97862-93-6	Paraffin waxes (petroleum), silicic acid-treated
308-145-4	97862-94-7	Paraffin waxes and Hydrocarbon waxes, microcryst., carbon-treated
308-147-5	97862-95-8	Paraffin waxes and Hydrocarbon waxes, microcryst., clay-treated
308-148-0	97862-96-9	Paraffin waxes and Hydrocarbon waxes, microcryst., silicic acid-treated

FOOTS OILS		
EINECS No.	CAS Registry No.	SUBSTANCE
265-171-8	64742-67-2	Foots oil (petroleum)
295-394-6	92045-12-0	Foots oil (petroleum), hydrotreated
300-225-7	93924-31-3	Foots oil (petroleum), acid-treated
300-226-2	93924-32-4	Foots oil (petroleum), clay-treated
308-126-0	97862-76-5	Foots oil (petroleum), carbon-treated

PARAFFIN AND HYDROCARBON WAXES		
EINECS No.	CAS Registry No.	SUBSTANCE
308-127-6	97862-77-6	Foots oil (petroleum), silicic acid-treated

PETROLATUMS		
EINECS No.	CAS Registry No.	SUBSTANCE
232-373-2	8009-03-8	Petrolatum
265-206-7	64743-01-7	Petrolatum (petroleum), oxidized
285-098-5	85029-74-9	Petrolatum (petroleum), alumina-treated
295-459-9	92045-77-7	Petrolatum (petroleum), hydrotreated
308-149-6	97862-97-0	Petrolatum (petroleum), carbon-treated
308-150-1	97862-98-1	Petrolatum (petroleum), silicic acid-treated
309-706-6	100684-33-1	Petrolatum (petroleum), clay-treated

BITUMEN		
EINECS No.	CAS Registry No.	SUBSTANCE
232-490-9	8052-42-4	Asphalt
265-057-8	64741-56-6	Residues (petroleum), vacuum
265-188-0	64742-85-4	Residues (petroleum), hydrodesulfurized vacuum
295-284-8	91995-23-2	Asphaltenes (petroleum)
295-518-9	92062-05-0	Residues (petroleum), thermal cracked vacuum
302-656-6	94114-22-4	Residues (petroleum), dewaxed heavy paraffinic, vacuum
309-712-9	100684-39-7	Residues (petroleum), distn. residue hydrogenation
309-713-4	100684-40-0	Residues (petroleum), vacuum distn. residue hydrogenation

ASPHALT, OXIDIZED		
EINECS No.	CAS Registry No.	SUBSTANCE
265-196-4	64742-93-4	Asphalt, oxidized

PETROLEUM COKE		
EINECS No.	CAS Registry No.	SUBSTANCE
265-080-3	64741-79-3	Coke (petroleum)
265-209-3	64743-04-0	Coke (petroleum), recovery
265-210-9	64743-05-1	Coke (petroleum), calcined

SULFUR		
EINECS No.	CAS Registry No.	SUBSTANCE
231-722-6	7704-34-9	Sulfur

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