



Global Marine Products



Safety Data Sheet

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

DISTILLATE MARINE GAS OIL (DMA)

Product Number(s): 32782

Registration Name: Fuels, diesel

Registration Number: 01-2119484664-27-0052

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Uses: Fuel

Formulation & (re)packing of substances and mixtures
Manufacture of substance
Use as an intermediate
Distribution of substance
Use as a fuel

1.3 Details of the supplier of the safety data sheet

Chevron Ltd.
1 Westferry Circus
Canary Wharf
London E14 4HA
United Kingdom
email : eumsds@chevron.com

1.4 Emergency telephone number

Transportation Emergency Response

Europe: 0044/(0)18 65 407333

Health Emergency

Europe: 0044/(0)18 65 407333

Product Information

FAX number: 0044/20 77 19 5171

SECTION 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

DSD/DPD CLASSIFICATION: Carc. Cat. 3; R40 | Xn; R20 | Xn; R65 | Xi; R38 | N; R51/53 |

CLP CLASSIFICATION: Aspiration toxicant: Category 1. Skin irritation: Category 2. Target organ toxicant (repeated exposure): Category 2. Carcinogen: Category 2. Target organ toxicant (central

nervous system): Category 3. Target organ toxicant (respiratory irritant): Category 3. Acute inhalation toxicant: Category 4. Chronic aquatic toxicant: Category 2.

2.2 Label elements

Under the criteria of Regulation (EC) No 1272/2008 (CLP):



Signal Word: Danger

Health Hazards: May be fatal if swallowed and enters airways (H304). Suspected of causing cancer (H351). Causes skin irritation (H315). Harmful if inhaled (H332). May cause drowsiness or dizziness (H336). May cause respiratory irritation (H335). May cause damage to organs through prolonged or repeated exposure (H373).

Environmental Hazards: Toxic to aquatic life with long lasting effects (H411).

PRECAUTIONARY STATEMENTS:

Prevention: Obtain special instructions before use (P201). Do not handle until all safety precautions have been read and understood (P202). Do not breathe dust/fume/gas/mist/vapours/spray (P260). Avoid breathing dust/fume/gas/mist/vapours/spray (P261). Use only outdoors or in a well-ventilated area (P271). Wear protective gloves/protective clothing/eye protection/face protection (P280). Use personal protective equipment as required (P281). Wash thoroughly after handling (P264). Avoid release to the environment (P273).

Response: IF SWALLOWED: (P301) Immediately call a POISON CENTER or doctor/physician (P310). Do NOT induce vomiting (P331). IF ON SKIN: (P302) Wash with plenty of soap and water (P352). Specific treatment (see Notes to Physician on this label) (P321). If skin irritation occurs: (P332) Get medical advice/attention (P313). Take off contaminated clothing and wash before reuse (P362). IF exposed or concerned: (P308) IF INHALED: (P304) Remove victim to fresh air and keep at rest in a position comfortable for breathing (P340). Call a POISON CENTER or doctor/physician if you feel unwell (P312). Get medical advice/attention if you feel unwell (P314). Collect spillage (P391).

Storage: Store in a well-ventilated place (P403). Keep container tightly closed (P233). Store locked up (P405).

Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations (P501).

2.3 Other hazards Not applicable.

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances

This material is a substance.

COMPONENTS	EC NUMBER	SYMBOL / RISK PHRASES	AMOUNT
Fuels, diesel; Gasoil - unspecified	269-822-7	Xn/R20, Xi/R38, Xn/Carc. Cat. 3/R40, Xn/R65, N/R51/53	100 %weight

The full text of all R-phrases is shown in Section 16.

COMPONENTS	CAS NUMBER	EC NUMBER	REGISTRATION NUMBER	CLP CLASSIFICATION	AMOUNT
Fuels, diesel	68334-30-5	269-822-7	01-2119484664-27-0052	Acute Tox. 4/H332; Aquatic Chronic 2/H411; Asp. Tox. 1/H304; Carc. 2/H351; STOT RE 2/H373; STOT SE 3/H335; STOT SE 3/H336; Skin Irrit. 2/H315	100 %weight

The full text of all CLP H-statements is shown in Section 16.

SECTION 4 FIRST AID MEASURES

4.1 Description of first aid measures

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

4.2 Most important symptoms and effects, both acute and delayed

IMMEDIATE SYMPTOMS AND HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin causes irritation. Symptoms may include pain, itching, discoloration, swelling, and blistering.

Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.

Inhalation: May be harmful if inhaled.

DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Prolonged or repeated exposure to this material may cause cancer. Repeated exposure to this material may cause damage to the following organs: blood, thymus, liver.

4.3 Indication of any immediate medical attention and special treatment needed

Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

5.2 Special hazards arising from the substance or mixture

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

5.3 Advice for firefighters

This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Eliminate all sources of ignition in vicinity of spilled material. Refer to Sections 5 and 8 for more information.

6.2 Environmental precautions

Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater.

6.3 Methods and material for containment and cleaning up

Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil and dispose of in a manner consistent with applicable requirements. Place other contaminated materials in disposable containers and dispose of in a manner consistent with applicable requirements. Report spills to local authorities as appropriate or required.

6.4 Reference to other sections

See sections 8 and 13.

SECTION 7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Do not breathe mist. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

7.3 Specific end use(s): Fuel

Formulation & (re)packing of substances and mixtures
 Manufacture of substance
 Use as an intermediate
 Distribution of substance
 Use as a fuel

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

8.1 Control parameters

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Fuels, diesel; Gasoil - unspecified	CVX	--	1000 mg/m ³	--	--

DERIVED NO EFFECT LEVEL (DNEL)/DERIVED MINIMAL EFFECT LEVEL (DMEL)

Worker

Substance Name	Type	Dermal	Inhalation
Fuels, Diesel	DNEL, Acute, Systemic	-	4300 mg aerosol /m ³ /15min
Fuels, Diesel	DNEL, Long-term, Systemic	2.9 mg/kg/8h	68 mg aerosol/m ³ /8h

Consumer

Substance Name	Type	Dermal	Inhalation	Oral
Fuels, Diesel	DNEL, Acute, Systemic	-	2600 mg aerosol/m ³ /15min	-
Fuels, Diesel	DNEL, Long-term, Systemic	1.3 mg/kg/24h	20 mg aerosol/m ³ /24h	-

PREDICTED NO EFFECT CONCENTRATION (PNEC)

This substance is a UVCB (Unknown or Variable composition, Complex reaction product or Biological origin), derivation of a single, representative PNEC value for this substance using conventional methods is not possible.

8.2 Exposure controls

ENGINEERING CONTROLS:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits. If user operations generate airborne material, use process enclosures, local exhaust ventilation, or other engineering controls to control exposure.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: If exposure to harmful levels of airborne material may occur when working with this material, wear an approved respirator that provides protection, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

ENVIRONMENTAL EXPOSURE CONTROLS:

See relevant Community environmental protection legislation or the Annex, as applicable.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

9.1 Information on basic physical and chemical properties

Appearance

Color: Amber

Physical State: Liquid

Odor: Petroleum odor

Odor Threshold: No data available

pH: Not Applicable

Melting Point: Not Applicable

Freezing Point: No data available

Initial Boiling Point: 160°C (320°F) - 400°C (752°F)

Flashpoint: (Pensky-Martens Closed Cup) 62 °C (143 °F) Minimum

Evaporation Rate: No data available

Flammability (solid, gas): No Data Available

Flammability (Explosive) Limits (% by volume in air):

Lower: 1 Upper: 6

Vapor Pressure: 0.04 kPa (Approximate) @ 40 °C (104 °F)

Vapor Density (Air = 1): >1

Relative Density: 810 - 890 kg/m³ @ 15°C (59°F)

Solubility: Insoluble

Partition coefficient: n-octanol/water: No data available

Auto-ignition temperature: 350 °C (662 °F)

Decomposition temperature: No Data Available

Viscosity: 1.5mm²/s @ 40°C (104°F) Minimum

Explosive Properties: No Data Available

Oxidising properties: No Data Available

9.2 Other Information: No Data Available

SECTION 10 STABILITY AND REACTIVITY

10.1 Reactivity: This material is not expected to react.

10.2 Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions: Hazardous polymerization will not occur.

10.4 Conditions to Avoid: Avoid contact with heat, sparks, fire and oxidizing agents

10.5 Incompatible materials to avoid: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

10.6 Hazardous decomposition products: None known (None expected)

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Serious Eye Damage/Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: <10/110.

Skin Corrosion/Irritation: For a 24-hour exposure, the Primary Irritation Score (PIS) in rabbits is: >5 / 8.0.

Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.

Acute Dermal Toxicity: LD50: >5ml/kg (rabbit).

Acute Oral Toxicity: LD50: >5 ml/kg (rat)

Acute Inhalation Toxicity: 4 hour(s) LC50: >5mg/kg (rat).

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

SECTION 12 ECOLOGICAL INFORMATION

12.1 Toxicity

This material is expected to be toxic to aquatic organisms.

48 hour(s) Water Accomodated Fraction: 20-210 mg/l (Daphnia magna)

96 hour(s) Water Accomodated Fraction: 21-210 mg/l (Salmo gairdneri)

72 hour(s) Water Accomodated Fraction: 2.6-25 mg/l (Raphidocellus subcapitata)

12.2 Persistence and degradability

May cause long-term adverse effects in the aquatic environment. The product has not been tested.

The statement has been derived from products of a similar structure and composition.

12.3 Bioaccumulative potential

Bioconcentration Factor: No Data Available

Octanol/Water Partition Coefficient: No data available

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

This product is not, or does not contain, a substance that is a potential PBT or a vPvB.

12.6 Other adverse effects

No other adverse effects identified.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations. In accordance with European Waste Catalogue (E.W.C.) the codification is the following: 13 07 01

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

ADR/RID

14.1 UN number: UN1202

14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3 Transport hazard class(es): 9

14.4 Packing group: III

14.5 Environmental hazards: Yes

14.6 Special precautions for user: Not applicable

ICAO

14.1 UN number: UN3082

14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3 Transport hazard class(es): 9

14.4 Packing group: III

14.5 Environmental hazards: Yes

14.6 Special precautions for user: Not applicable

IMO

14.1 UN number: UN3082

14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3 Transport hazard class(es): 9

14.4 Packing group: III

14.5 Environmental hazards: MARINE POLLUTANT

14.6 Special precautions for user: Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not applicable

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture REGULATORY LISTS SEARCHED:

- 01=EU. Directive 76/769/EEC: Restrictions on the marketing and use of certain dangerous substances.
- 02=EU Directive 90/394/EEC: Carcinogens at work.
- 03=EU Directive 92/85/EEC: Pregnant or breastfeeding workers.
- 04=EU Directive 96/82/EC (Seveso II): Article 9.
- 05=EU Directive 96/82/EC (Seveso II): Articles 6 and 7.
- 06=EU Directive 98/24/EC: Chemical agents at work.
- 07=EU Directive 2004/37/EC: On the protection of workers.
- 08=EU Regulation EC No. 689/2008: Annex 1, Part 1.
- 09=EU Regulation EC No. 689/2008: Annex 1, Part 2.
- 10=EU Regulation EC No. 689/2008: Annex 1, Part 3.
- 11=EU Regulation EC No. 850/2004: Prohibiting and restricting persistent organic pollutants (POPs).
- 12=EU REACH, Annex XVII: Restrictions on manufacture, placing on the market and use of certain dangerous substances, mixture & article.
- 13=EU REACH, Annex XIV: Candidate List of Substances of Very High Concern for Authorization (SVHC).

The following components of this material are found on the regulatory lists indicated.

Fuels, diesel; Gasoil - unspecified 03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

15.2 Chemical safety assessment

Yes.

SECTION 16 OTHER INFORMATION

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1-16.

Revision Date: NOVEMBER 30, 2010

Full text of R-phrases:

R20; Harmful by inhalation.

R38; Irritating to skin.

R40; Limited evidence of a carcinogenic effect.

R51/53; Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R65; Harmful: may cause lung damage if swallowed.

Full text of CLP H-statements:

H304; May be fatal if swallowed and enters airways

H351; Suspected of causing cancer

H411; Toxic to aquatic life with long lasting effects

H315; Causes skin irritation

H373; May cause damage to organs through prolonged or repeated exposure

H336; May cause drowsiness or dizziness

H335; May cause respiratory irritation

H332; Harmful if inhaled

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
CVX - Chevron	CAS - Chemical Abstract Service Number
NQ - Not Quantifiable	

Prepared according to the criteria of EU Regulation 1907/2006 by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

ANNEX

Formulation & (re)packing of substances and mixtures - Industrial

Section 1	
Title	
Formulation & (re)packing of substances and mixtures	
Use Descriptor	
Sector(s) of Use	3, 10
Process Categories	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15
Environmental Release Categories	2
Specific Environmental Release Category	ESVOC SpERC 2.2.v1
Processes, tasks, activities covered	
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid.
Vapour Pressure	Liquid, vapour pressure < 0.5 kPa at STP. [OC3]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently). [G13]
Amount used	Not Applicable
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently). [G2]
Human factors not influenced by risk management	Not Applicable
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. [G15] Assumes a good basic standard of occupational hygiene is implemented. [G1]
Contributing Scenarios Specific Risk Management Measures and Operating Conditions	
General Measures	
Control any potential exposure using measures such as contained or enclosed systems, properly	

designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3]

[CS100] Production or preparation of articles by tableting, compression, extrusion or pelletisation

Wear suitable gloves tested to EN374. [PPE15]

[CS14] Bulk transfers

Handle substance within a closed system. [E47]

Wear suitable gloves tested to EN374. [PPE15]

[CS15] General exposures (closed systems)

Handle substance within a closed system. [E47]

[CS16] General exposures (open systems)

Wear suitable gloves tested to EN374. [PPE15]

[CS2] Process sampling

No other specific measures identified. [E120]

[CS30] Mixing operations (open systems)

Provide extract ventilation to points where emissions occur. [E54]

Wear chemically resistant gloves (tested to EN374) in combination with `basic; employee training.

[PPE16]

[CS36] Laboratory activities

No other specific measures identified. [E120]

[CS39] Equipment cleaning and maintenance

Drain down system prior to equipment break-in or maintenance . [E65]

Wear chemically resistant gloves (tested to EN374) in combination with `basic; employee training.

[PPE16]

[CS67] Storage

Store substance within a closed system. [E84]

[CS8] Drum/batch transfers

Wear suitable gloves tested to EN374. [PPE15]

Use drum pumps or carefully pour from container. [E64]

Wear chemically resistant gloves (tested to EN374) in combination with `basic; employee training.

[PPE16]

Section 2.2 Control of environmental exposure

Product characteristics

Substance is complex UVCB. [PrC3] Predominantly hydrophobic. [PrC4a]

Amounts used
Fraction of EU tonnage used in region [A1]: 0.1 Regional use tonnage (tonnes/year) [A2]: 2.80E+07 Fraction of Regional tonnage used locally [A3]: 0.0011 Annual site tonnage (tonnes/year) [A5]: 30000 Maximum daily site tonnage (kg/day) [A4]: 1.00E+05
Frequency and duration of use
Continuous release. [FD2] Emission Days (days/year) [FD4]: 300
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1]: 10 Local marine water dilution factor [EF2]: 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements):. [OOC11]: 0.01 Release fraction to wastewater from process (initial release prior to RMM) [OOC5]: 0.00002 Release fraction to soil from process (initial release prior to RMM) [OOC6]: 0.0001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used. [TCS1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. [TCR1b] Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14] If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. [TCR9] Treat air emission to provide a typical removal efficiency of (%) [TCR7]: 0 Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%) [TCR8]: 59.9 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%) [TCR10]: 0
Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. [OMS1] Do not apply industrial sludge to natural soils. [OMS2] Sludge should be incinerated, contained or reclaimed. [OMS3]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]: 94.1 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]: 94.1 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) [STP6]: 6.80E+05 Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 2000
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk

model . [EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23] Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects. [G36] Risk Management Measures are based on qualitative risk characterisation. [G37]
4.2. Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. [DSU1] Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. [DSU2] Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. [DSU3] Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). [DSU4]

Manufacture of substance - Industrial

Section 1	
Title	
Manufacture of substance	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Categories	1, 2, 3, 4, 8a, 8b, 15
Environmental Release Categories	1, 4
Specific Environmental Release Category	ESVOC SpERC 1.1.v1
Processes, tasks, activities covered	
Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid.
Vapour Pressure	Liquid, vapour pressure < 0.5 kPa at STP. [OC3]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently). [G13]
Amount used	Not Applicable
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently). [G2]
Human factors not influenced by risk management	Not Applicable
Other Operational Conditions affecting	Operation is carried out at elevated temperature (> 20°C above ambient temperature). [OC7] Assumes a good basic standard of occupational

exposure	hygiene is implemented . [G1]
Contributing Scenarios Specific Risk Management Measures and Operating Conditions	
General Measures	
Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.	
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3]	
[CS15] General exposures (closed systems)	
Handle substance within a closed system. [E47]	
[CS16] General exposures (open systems)	
Wear suitable gloves tested to EN374. [PPE15]	
[CS2] Process sampling	
No other specific measures identified. [E120]	
[CS36] Laboratory activities	
No other specific measures identified. [E120]	
[CS39] Equipment cleaning and maintenance	
Drain down system prior to equipment break-in or maintenance . [E65]	
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training. [PPE16]	
[CS501] Bulk closed loading and unloading	
Handle substance within a closed system. [E47]	
Wear suitable gloves tested to EN374. [PPE15]	
[CS503] Bulk open loading and unloading	
Wear suitable gloves tested to EN374. [PPE15]	
[CS85] Bulk product storage	
Store substance within a closed system. [E84]	
Section 2.2 Control of environmental exposure	
Product characteristics	
Substance is complex UVCB. [PrC3] Predominantly hydrophobic. [PrC4a]	
Amounts used	
Fraction of EU tonnage used in region [A1]: 0.1	
Regional use tonnage (tonnes/year) [A2]: 2.80E+07	
Fraction of Regional tonnage used locally [A3]: 0.021	
Annual site tonnage (tonnes/year) [A5]: 6.00E+05	
Maximum daily site tonnage (kg/day) [A4]: 2.00E+06	
Frequency and duration of use	
Continuous release. [FD2]	

Emission Days (days/year) [FD4]: 300
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1]: 10
Local marine water dilution factor [EF2]: 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM) [OOC4]: 0.01
Release fraction to wastewater from process (initial release prior to RMM) [OOC5]: 0.00003
Release fraction to soil from process (initial release prior to RMM) [OOC6]: 0.0001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used. [TCS1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. [TCR1b]
Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. [TCR9]
Treat air emission to provide a typical removal efficiency of (%) [TCR7]: 90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%) [TCR8]: 90.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%) [TCR10]: 0
Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. [OMS1]
Do not apply industrial sludge to natural soils. [OMS2]
Sludge should be incinerated, contained or reclaimed. [OMS3]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]: 94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]: 94.1
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) [STP6]: 3.30E+06
Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 10000
Conditions and measures related to external treatment of waste for disposal
During manufacturing no waste of the substance is generated. [ETW4]
Conditions and measures related to external recovery of waste
During manufacturing no waste of the substance is generated. [ERW2]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21] The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23] Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects. [G36] Risk Management Measures are based on qualitative risk characterisation. [G37]

4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. [DSU1] Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. [DSU2] Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. [DSU3] Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file ζ ζ Site-Specific Production ζ worksheet. [DSU6] If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. [DSU8] Taking into account the findings of the air monitoring evaluation on benzene included as the Tier 2 analysis in the Low Boiling Point Naphtha category, the default ζ Air Removal Efficiency ζ of 90 % included in the SPERC has been shown to be over-conservative and that 95 % efficiency can safely be claimed in a Tier II analysis. On this basis, the Tier 2 analysis demonstrates that no refineries have RCRs > 1 (see PETRORISK file in IUCLID section 13 ζ 36 Tier 2 Site Specific Production worksheet 36).

Use as an intermediate - Industrial

Section 1	
Title	
Use as an intermediate	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Categories	1, 2, 3, 4, 8a, 8b, 15
Environmental Release Categories	6a
Specific Environmental Release Category	ESVOC SpERC 6.1a.v1
Processes, tasks, activities covered	
Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid.
Vapour Pressure	Liquid, vapour pressure < 0.5 kPa at STP. [OC3]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently). [G13]
Amount used	Not Applicable
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently). [G2]
Human factors not influenced by risk management	Not Applicable
Other Operational Conditions affecting exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature). [OC7] Assumes a good basic standard of occupational hygiene is implemented. [G1]
Contributing Scenarios Specific Risk Management Measures and Operating Conditions	
General Measures	

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3]

[CS15] General exposures (closed systems)

Handle substance within a closed system. [E47]

[CS16] General exposures (open systems)

Wear suitable gloves tested to EN374. [PPE15]

[CS2] Process sampling

No other specific measures identified. [EI20]

[CS36] Laboratory activities

No other specific measures identified. [EI20]

[CS39] Equipment cleaning and maintenance

Drain down system prior to equipment break-in or maintenance . [E65]

Wear chemically resistant gloves (tested to EN374) in combination with basic employee training. [PPE16]

[CS501] Bulk closed loading and unloading

Handle substance within a closed system. [E47]

Wear suitable gloves tested to EN374. [PPE15]

[CS503] Bulk open loading and unloading

Wear suitable gloves tested to EN374. [PPE15]

[CS85] Bulk product storage

Store substance within a closed system. [E84]

Section 2.2 Control of environmental exposure

Product characteristics

Substance is complex UVCB. [PrC3] Predominantly hydrophobic. [PrC4a]

Amounts used

Fraction of EU tonnage used in region [A1]: 0.1
 Regional use tonnage (tonnes/year) [A2]: 3.50E+05
 Fraction of Regional tonnage used locally [A3]: 0.043
 Annual site tonnage (tonnes/year) [A5]: 15000
 Maximum daily site tonnage (kg/day) [A4]: 50000

Frequency and duration of use

Continuous release. [FD2]
 Emission Days (days/year) [FD4]: 300

Environmental factors not influenced by risk management

Local freshwater dilution factor [EF1]: 10

Local marine water dilution factor [EF2]: 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM) [OOC4]: 0.001
Release fraction to wastewater from process (initial release prior to RMM) [OOC5]: 0.00003
Release fraction to soil from process (initial release prior to RMM) [OOC6]: 0.001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used. [TCS1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. [TCR1b]
Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. [TCR9]
Treat air emission to provide a typical removal efficiency of (%) [TCR7]: 80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%) [TCR8]: 51.6
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%) [TCR10]: 0
Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. [OMS1]
Do not apply industrial sludge to natural soils. [OMS2]
Sludge should be incinerated, contained or reclaimed. [OMS3]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]: 94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]: 94.1
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) [STP6]: 4.10E+05
Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 2000
Conditions and measures related to external treatment of waste for disposal
This substance is consumed during use and no waste of the substance is generated. [ETW5]
Conditions and measures related to external recovery of waste
This substance is consumed during use and no waste of the substance is generated. [ERW3]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. [EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23] Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects. [G36] Risk Management Measures are based on qualitative risk characterisation. [G37]
4.2. Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. [DSU1]
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either

alone or in combination. [DSU2] Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. [DSU3] Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>). [DSU4]

Distribution of substance - Industrial

Section 1	
Title	
Distribution of substance	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 8a, 8b, 9, 15
Environmental Release Categories	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7
Specific Environmental Release Category	ESVOC SpERC 1.1b.v1
Processes, tasks, activities covered	
Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid.
Vapour Pressure	Liquid, vapour pressure < 0.5 kPa at STP. [OC3]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently). [G13]
Amount used	Not Applicable
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently). [G2]
Human factors not influenced by risk management	Not Applicable
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. [G15] Assumes a good basic standard of occupational hygiene is implemented. [G1]
Contributing Scenarios Specific Risk Management Measures and Operating Conditions	
General Measures	
Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.	
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3]	

[CS15] General exposures (closed systems)

Handle substance within a closed system. [E47]

[CS16] General exposures (open systems)

Wear suitable gloves tested to EN374. [PPE15]

[CS2] Process sampling

No other specific measures identified. [E120]

[CS36] Laboratory activities

No other specific measures identified. [E120]

[CS39] Equipment cleaning and maintenance

Drain down system prior to equipment break-in or maintenance . [E65]

Wear chemically resistant gloves (tested to EN374) in combination with `basic employee training. [PPE16]

[CS501] Bulk closed loading and unloading

Handle substance within a closed system. [E47]

Wear suitable gloves tested to EN374. [PPE15]

[CS503] Bulk open loading and unloading

Wear suitable gloves tested to EN374. [PPE15]

[CS67] Storage

Store substance within a closed system. [E84]

[CS6] Drum and small package filling

Wear suitable gloves tested to EN374. [PPE15]

Section 2.2 Control of environmental exposure**Product characteristics**

Substance is complex UVCB. [PrC3] Predominantly hydrophobic. [PrC4a]

Amounts used

Fraction of EU tonnage used in region [A1]: 0.1
 Regional use tonnage (tonnes/year) [A2]: 2.80E+07
 Fraction of Regional tonnage used locally [A3]: 0.002
 Annual site tonnage (tonnes/year) [A5]: 56000
 Maximum daily site tonnage (kg/day) [A4]: 1.90E+05

Frequency and duration of use

Continuous release. [FD2]
 Emission Days (days/year) [FD4]: 300

Environmental factors not influenced by risk management

Local freshwater dilution factor [EF1]: 10
 Local marine water dilution factor [EF2]: 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process (initial release prior to RMM) [OOC4]: 0.001
 Release fraction to wastewater from process (initial release prior to RMM) [OOC5]: 1.00E-06
 Release fraction to soil from process (initial release prior to RMM) [OOC6]: 0.00001

Technical conditions and measures at process level (source) to prevent release

Common practices vary across sites thus conservative process release estimates used. [TCS1]

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

<p>Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). [TCR1]]</p> <p>Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]</p> <p>No wastewater treatment required. [TCR6]</p> <p>Treat air emission to provide a typical removal efficiency of (%) [TCR7]: 90</p> <p>Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%) [TCR8]: 0</p> <p>If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%) [TCR10]: 0</p>
<p>Organisation measures to prevent/limit release from site</p> <p>Prevent discharge of undissolved substance to or recover from onsite wastewater. [OMS1]</p> <p>Do not apply industrial sludge to natural soils. [OMS2]</p> <p>Sludge should be incinerated, contained or reclaimed. [OMS3]</p>
<p>Conditions and measures related to municipal sewage treatment plant</p> <p>Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]: 94.1</p> <p>Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]: 94.1</p> <p>Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) [STP6]: 2.90E+06</p> <p>Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 2000</p>
<p>Conditions and measures related to external treatment of waste for disposal</p> <p>External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3]</p>
<p>Conditions and measures related to external recovery of waste</p> <p>External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]</p>
<p>Section 3 Exposure Estimation</p>
<p>3.1. Health</p> <p>The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21]</p>
<p>3.2. Environment</p> <p>The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrork model . [EE2]</p>
<p>Section 4 Guidance to check compliance with the Exposure Scenario</p>
<p>4.1. Health</p> <p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23] Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects. [G36] Risk Management Measures are based on qualitative risk characterisation. [G37]</p>
<p>4.2. Environment</p> <p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. [DSU1] Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. [DSU2] Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. [DSU3] Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). [DSU4]</p>

Use as a fuel - Industrial

Section 1	
Title	
Use as a fuel	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 8a, 8b, 16
Environmental Release Categories	7
Specific Environmental Release Category	ESVOC SpERC 7.12a.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid.
Vapour Pressure	Liquid, vapour pressure < 0.5 kPa at STP. [OC3]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently). [G13]
Amount used	Not Applicable
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently). [G2]
Human factors not influenced by risk management	Not Applicable
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. [G15] Assumes a good basic standard of occupational hygiene is implemented. [G1]
Contributing Scenarios Specific Risk Management Measures and Operating Conditions	
General Measures	
Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.	
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3]	
[CS14] Bulk transfers	
Wear suitable gloves tested to EN374. [PPE15]	
[CS39] Equipment cleaning and maintenance	
Drain down system prior to equipment break-in or maintenance. [E65]	
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.	

[PPE16]
[CS67] Storage Store substance within a closed system. [E84]
[CS8] Drum/batch transfers Wear suitable gloves tested to EN374. [PPE15]
[GEST_12I+CS107] Use as a fuel (closed systems) No other specific measures identified. [EI20]
Section 2.2 Control of environmental exposure
Product characteristics
Substance is complex UVCB. [PrC3] Predominantly hydrophobic. [PrC4a]
Amounts used
Fraction of EU tonnage used in region [A1]: 0.1 Regional use tonnage (tonnes/year) [A2]: 4.50E+06 Fraction of Regional tonnage used locally [A3]: 0.34 Annual site tonnage (tonnes/year) [A5]: 1.50E+06 Maximum daily site tonnage (kg/day) [A4]: 5.00E+06
Frequency and duration of use
Continuous release. [FD2] Emission Days (days/year) [FD4]: 300
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1]: 10 Local marine water dilution factor [EF2]: 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM) [OOC4]: 0.005 Release fraction to wastewater from process (initial release prior to RMM) [OOC5]: 0.00001 Release fraction to soil from process (initial release prior to RMM) [OOC6]: 0
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used. [TCS1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment. [TCR1b] If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. [TCR9] Treat air emission to provide a typical removal efficiency of (%) [TCR7]: 95 Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%) [TCR8]: 97.7 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%) [TCR10]: 60.4
Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from onsite wastewater. [OMS1] Do not apply industrial sludge to natural soils. [OMS2] Sludge should be incinerated, contained or reclaimed. [OMS3]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]: 94.1 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]: 97.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) [STP6]: 5.00E+06 Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 2000
Conditions and measures related to external treatment of waste for disposal

Combustion emissions limited by required exhaust emission controls. [ETW1]
Combustion emissions considered in regional exposure assessment. [ETW2]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model . [EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23] Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects. [G36] Risk Management Measures are based on qualitative risk characterisation. [G37]
4.2. Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. [DSU1] Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. [DSU2] Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. [DSU3] Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). [DSU4]

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.