

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 Date of issue: 01/09/2011 Revision date: 26/11/2021 Supersedes: 24/01/2020 Version: 3.0

SECTION 1: Identification of the substar	nce/mixture and of the	company/undertaking	
1.1. Product identifier			
Product form	: Mixture		
Trade name	: Diesel		
Product code	: 400000156		
Type of product	: Fuel		
Synonyms	: Sulphur Free Diesel [SFD] / Ultra Low Sulphur Diesel [ULSD] / BF AGO 10ppmS B7 Udy Umk United Kingdom		
Product group	: Trade product		
Other means of identification	: BS EN 590 : 2013 + A1: 20	017	
1.2. Relevant identified uses of the substanc	e or mixture and uses a	dvised against	
1.2.1. Relevant identified uses			
Intended for general public			
Industrial/Professional use spec	: Industrial Used in closed systems		
Use of the substance/mixture	: Fuel See the list of identified use	es and exposure scenarios in the annex of the safety data sheet.	
Function or use category	: Fuels		
Title	Life cycle stage	Use descriptors	
Manufacture of substance	Industrial, Manufacture	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, PROC28, ERC1, ESVOC SPERC 1.1.v1	
Formulation & (re)packing of substances and mixtures	Industrial, Formulation	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, PROC28, ERC2, ESVOC SPERC 2.2.v1	
Use of substance as intermediate	Industrial	SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, PROC28, ERC6a, ESVOC SPERC 6.1a.v1	
Use in Oil and Gas field drilling and production operations	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC28, ERC4	
Use as a fuel: Industrial	Industrial	PROC1, PROC2, PROC8a, PROC8b, PROC16, PROC28, ERC7, ESVOC SPERC 7.12a.v1	
Use as a functional fluids: Industrial	Industrial	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC9, PROC28, ERC7, ESVOC SPERC 7.13a.v1	
Use as a fuel: Professional	Professional	PROC1, PROC2, PROC8a, PROC8b, PROC16, PROC28, ERC9a, ERC9b, ESVOC SPERC 9.12b.v1	
	Consumer	PC13, ERC9a, ERC9b, ESVOC SPERC 9.12c.v1	

Full text of use descriptors: see section 16

#### 1.2.2. Uses advised against

No additional information available

### **1.3. Details of the supplier of the safety data sheet**

Manufacturer

ESSAR OIL (UK) LTD Stanlow Manufacturing Complex, P.O. Box 3, Ellesmere Port CH65 4HB - UK T +44 (0)151 350 4003 sds@essaroil.co.uk

1.4. Emergency telephone number

Emergency number

: Essar Oil (UK) Ltd: +44 (0)151 350 4545 NCEC Carechem 24: +44(0)870 190 6777

#### SECTION 2: Hazards identification 2.1. Classification of the substance or mixture

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 3	H226
Acute Tox. 4 (Inhalation:vapour)	H332
Skin Irrit. 2	H315

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804
11
3

Full text of hazard classes and H-statements : see section 16

#### Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. Harmful if inhaled. Causes skin irritation. Suspected of causing cancer (Dermal). May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure (Dermal, inhalation). May be fatal if swallowed and enters airways. Toxic to aquatic life with long lasting effects.

#### 2.2. Label elements Labelling according to Regulation (EC) No. 1272/2008 [CLP] Hazard pictograms (CLP) GHS07 GHS08 GHS09 GHS02 Signal word (CLP) : Danger Hazardous ingredients : GTL; Fuels, Diesel Hazard statements (CLP) : H226 - Flammable liquid and vapour. H304 - May be fatal if swallowed and enters airways. H315 - Causes skin irritation. H332 - Harmful if inhaled. H351 - Suspected of causing cancer. H373 - May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure (in contact with skin, if inhaled). H411 - Toxic to aquatic life with long lasting effects. Precautionary statements (CLP) : P102 - Keep out of reach of children. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P260 - Do not breathe vapours, mist, spray, gas. P273 - Avoid release to the environment. P280 - Wear protective clothing, protective gloves, eye protection. P301+P310 - IF SWALLOWED: Immediately call a doctor. P331 - Do NOT induce vomiting. P403+P235 - Store in a well-ventilated place. Keep cool. 2.3. Other hazards Other hazards not contributing to the classification : Electrostatic charges may be generated during handling.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### **SECTION 3: Composition/information on ingredients**

### 3.1. Substances

### Not applicable

#### 3.2. Mixtures Comments

: Hazard classification of this material is based on the worst possible case	
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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Fuels, Diesel (Component)	(CAS-No.) 68334-30-5 (EC-No.) 269-822-7 (EC Index-No.) 649-224-00-6 (REACH-no) 01-2119484664-27- 0089, UK-01-8130493590-1-0002	<= 100	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:vapour), H332 Skin Irrit. 2, H315 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
GTL (Component)	(CAS-No.) 848301-67-7 (EC-No.) 481-740-5 (REACH-no) 01-0000020118-77, 01- 0000020119-75	<= 50.0	Asp. Tox. 1, H304

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FAME [Fatty acids, C16-18 and C18-unsatd., Me esters] (Component)	(CAS-No.) 67762-38-3 (EC-No.) 267-015-4 (REACH-no) 01-2119471664-32	<= 7.0	Not classified
FAME [Fatty acids, C14-18 and C16-18-unsatd., Me esters] (Component)	(CAS-No.) 67762-26-9 (EC-No.) 267-007-0 (REACH-no) 01-2119471662-36	<= 7.0	Not classified
FAME [Fatty acids, C10-18 and C12-22-unsatd., C14- 18 and C16-18-unsatd. alkyl esters] (Component)	(CAS-No.) 85049-31-6 (EC-No.) 285-200-8 (REACH-no) 01-2119675342-38	<= 7.0	Not classified

Comments

: The full UVCB ingredient list is not known

May contain dyes and markers at < 0.20 % v/v for tax purposes and to prevent fraud. May contain fuel additives in order to meet the identified supply release specification

Full text of H-statements: see section 16

SECTION 4: First aid measures		
4.1. Description of first aid measures		
First-aid measures general	: Caution. First aider: Pay attention to self-protection!. IF exposed or concerned: Get medical advice/attention.	
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice/attention. If experiencing respiratory symptoms: Give oxygen or artificial respiration if necessary. Unconscious: maintain adequate airway and respiration.	
First-aid measures after skin contact	: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Soap may be used. If skin irritation or rash occurs: Get medical advice/attention.	
First-aid measures after eye contact	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). If eye irritation persists: Get medical advice/attention.	
First-aid measures after ingestion	: Do not induce vomiting. Get immediate medical advice/attention. Rinse mouth out with water. Aspiration of this material may cause chemical pneumonia. If vomiting occurs, keep head low so that stomach content does not enter the lungs.	
4.2. Most important symptoms and effec	ts, both acute and delayed	
Symptoms/effects	: Symptoms may be delayed.	
Symptoms/effects after inhalation	: Inhalation may cause irritation (cough, short breathing, difficulty in breathing). May cause shortness of breath, tightness of the chest, a sore throat and cough. May cause respiratory irritation.	
Symptoms/effects after skin contact	: Irritation.	
Symptoms/effects after eye contact	: May cause eye irritation.	
Symptoms/effects after ingestion	<ul> <li>Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. Risk of lung oedema.</li> </ul>	
Chronic symptoms	: Suspected carcinogen. Irritation of the respiratory tract. May cause damage to organs: liver. thymus. bone marrow. Prolonged or repeated contact may cause skin to become dry or cracked.	
4.3 Indication of any immediate medical attention and special treatment needed		

**4.3. Indication of any immediate medical attention and special treatment needed** Treat symptomatically.

SECTION 5: Firefighting measures	
5.1. Extinguishing media	
Suitable extinguishing media	: Water spray. Alcohol resistant foam. Dry powder. Sand. Carbon dioxide.
Unsuitable extinguishing media	: Do not use a heavy water stream.
5.2. Special hazards arising from the substa	nce or mixture
Fire hazard	: Flammable liquid and vapour. Heavier than air, vapours may travel long distances along ground, ignite and flash back to source. Floats on water.
Reactivity in case of fire	: Do not scatter spilled material with high-pressure water streams. Reacts violently with water.
Hazardous decomposition products in case of fire	: Combustion generates: Carbon oxides (CO, CO2). Sulphur oxides. Toxic fumes may be released.
5.3. Advice for firefighters	
Precautionary measures fire	: Keep upwind. Exposure to fire/heat: seal off low-lying areas. Heavy vapours. Shut off low- level openings in the vicinity (ventilation shafts, drains). Consider evacuation. Stop leak if safe to do so. Fight fire from safe distance and protected location. or. Fight fire from a safe distance or use hoses with support or cannon engine. Close doors and windows of adjacent premises.

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Firefighting instructions	: Keep public away from danger area. If no hazard for/from the surroundings: controlled burning. Shut off source of fuel if possible, and allow fire to burn out. or. Fight fire with normal precautions from a reasonable distance. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Eliminate all ignition sources if safe to do so. Dilute combustible/toxic gases/vapours with water spray. Contain the extinguishing fluids by bunding. Use water spray or fog for cooling exposed containers. Risk of explosion if heated under confinement. Physical explosion risk: extinguish/cool from behind cover.
Protection during firefighting	Do not attempt to take action without suitable protective equipment. Do not enter fire area without proper protective equipment, including respiratory protection. Self-contained breathing apparatus. Complete protective clothing.
Other information	: Prevent fire fighting water from entering the environment.
SECTION 6: Accidental release n	neasures
	e equipment and emergency procedures
General measures	: Contact with walking surface may result in formation of slippery film/falling hazard. Ventilate area. Eliminate every possible source of ignition. Use special care to avoid static electric charges.
6.1.1. For non-emergency personnel	
Emergency procedures	: Only qualified personnel equipped with suitable protective equipment may intervene. No open flames, no sparks, and no smoking. Avoid breathing vapours, mist, spray, gas. Avoid contact with skin, eyes and clothing. Keep upwind.
6.1.2. For emergency responders	
Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Mark out the contaminated area with signs and prevent access to unauthorized personnel. Monitor the atmosphere at regular intervals. All equipment used when handling the product must be grounded. Stop leak if safe to do so.
6.2. Environmental precautions	
	low to enter drains or water courses. Prevent from entering sewers, basements and workpits, or any rous. Notify authorities if product enters sewers or public waters. Floats on water.
6.3. Methods and material for contai	nment and cleaning up
For containment	: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Cover liquid spill with foam or sand/earth. Cover with: Dry powder. Dilute/disperse combustible gas/vapour with water curtain. Floats on water. On water, recover/skim from surface and pour out in disposal container.
Methods for cleaning up	: Ground and bond container and receiving equipment. Use explosion-proof equipment. Use non-sparking tools. Take precautionary measures against static discharge. Contain large spillage with sand or earth. Cover spill with non combustible material, e.g.: sand, earth, vermiculite. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Clean contaminated surfaces with an excess of water. Contaminated product, soil or water intended for disposal have to be considered as dangerous. Assumes no free product in wastewater stream; oil-water separation (e.g. via oil water separators, oil skimmers, dissolved air floatation) may be required under some circumstances. Wash clothing and equipment after handling.
Other information	: Dispose of materials or solid residues at an authorized site. This chemical is subject to the International Convention for the Prevention of Pollution from Ships (MARPOL). Maritime spillages should be dealt with using Shipboard Oil Pollution Emergency Plan (SOPEP) as required by MARPOL Annex I Regulation 37. Maritime spillages should be dealt with as per MARPOL Annex II Regulation 17. In the case of ships to which MARPOL Annex I Regulation 37 also applies, such a plan may be combined with the Shipboard Oil Pollution Emergency Plan (SOPEP).
6.4. Reference to other sections	

**6.4. Reference to other sections** For further information see section 4. First aid measures. For further information refer to section 8: "Exposure controls/personal protection". For further information, refer to section 10 : "Stability and Reactivity". For further information refer to section 13. Disposal considerations.

SECTION 7: Handling and storage	
7.1. Precautions for safe handling	
Additional hazards when processed	: In use, may form flammable vapour-air mixture. As a result of flow, agitation, etc, electrostatic charges can be generated.

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Precautions for safe handling	Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. or. Provide good ventilation in process area to prevent formation of vapour. Flammable vapours may accumulate in the container. Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level. Use explosion-proof equipment. Wear personal protective equipment. Avoid breathing vapours, mist, spray, gas. Avoid contact with skin and eyes. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Have emergency equipment (for fires, spills, leaks, etc.) readily available.
Handling temperature	: Assumes product is handled at ambient temperatures unless stated otherwise. For elevated temperature operations as defined by the "Formulation and (re)packaging of substances and mixtures" and "Use in oil and gas field drilling and production operations - Industrial" exposure scenarios (see annex to this document), handling temperatures should not exceed 60.0 °C. For elevated temperature operations as defined in the "Use as functional fluids - Industrial" exposure scenario (see annex to this document), handling temperatures should not exceed 80.0 °C.
Hygiene measures	: Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.
7.2. Conditions for safe storage, inc	luding any incompatibilities
Technical measures	<ul> <li>Ground/bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed. Use only non-sparking tools. Take precautionary measures against static discharge.</li> </ul>
Storage conditions	: Store in a well-ventilated place. Keep cool. Store locked up. Flammable vapours can accumulate in head space of closed systems. Bund storage facilities to prevent soil and water pollution in the event of spillage. Storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations 2001. Additional guidance may be obtained from the Environment Agency.
Incompatible products	: Oxidizing agent. Strong acids. Strong bases.
Heat and ignition sources	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Information on mixed storage	: Store away from strong oxidizers, strong bases, strong acids.
Storage area	: May be stored under inert gas. Dike and vent equipped storage tanks. Provide proper grounding. Storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations 2001. Additional guidance may be obtained from the Environment Agency.

**7.3. Specific end use(s)** Do not ingest. Use as a fuel. Section. 1.2. Relevant identified uses of the substance or mixture and uses advised against.

SECTION 8: Exposure controls/personal protection			
8.1. Control parameters Diesel			
EU - Occupational Exposure Limits			
IOELV TWA (mg/m <sup>3</sup> )		0.05 mg/m <sup>3</sup> (The limit value shall apply from 21 February 2023. For underground mining and tunnel construction the limit value shall apply from 21 February 2026)	
Monitoring methods			
Monitoring methods	Determination of aromatic hydrocarbons in the air of workplace, Personal monitoring, Monitor the atmosphere at regular intervals, Workplace exposure - General requirements for the performance of procedures for the measurement of chemical agents		
Biological monitoring methods	A specific exposure sampling method is not available		
Diesel			
DNEL/DMEL (Workers)			
Acute - systemic effects, dermal	No hazard identified		
Acute - systemic effects, inhalation	4288 mg/m <sup>3</sup>		
Acute - local effects, dermal	Low hazard (no threshold derived)		
Acute - local effects, inhalation	No hazard identified		
Long-term - systemic effects, dermal	2.91 mg/kg bodyweight/day		
Long-term - local effects, dermal	High hazard (no threshold derived)		

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Diesel	
Long-term - systemic effects, inhalation	68.34 mg/m³
Long-term - local effects, inhalation	No hazard identified
DNEL/DMEL (General population)	•
Acute - systemic effects, dermal	No hazard identified
Acute - systemic effects, inhalation	2572.8 mg/m <sup>3</sup>
Acute - systemic effects, oral	No hazard identified
Acute - local effects, dermal	Low hazard (no threshold identified)
Acute - local effects, inhalation	No hazard identified
Long-term - systemic effects,oral	1.25 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	20.22 mg/m³
Long-term - systemic effects, dermal	1.25 mg/kg bodyweight/day
Long-term - local effects, dermal	High hazard (no threshold erived)
Long-term - local effects, inhalation	No hazard identified
DNEL/DMEL (additional information)	
Additional information	Data from Chemical Safety Report [CONCAWE] for main constituent.
PNEC (Water)	
PNEC aqua (freshwater)	Substance is a UVCB - testing technically not feasible
PNEC aqua (marine water)	Substance is a UVCB - testing technically not feasible
PNEC aqua (intermittent, freshwater)	Substance is a UVCB - testing technically not feasible
PNEC aqua (intermittent, marine water)	Substance is a UVCB - testing technically not feasible
PNEC (Sediment)	
PNEC sediment (freshwater)	Substance is a UVCB - testing technically not feasible
PNEC sediment (marine water)	Substance is a UVCB - testing technically not feasible
PNEC (Soil)	
PNEC soil	Substance is a UVCB - testing technically not feasible
PNEC (Oral)	
PNEC oral (secondary poisoning)	≈ 8.77 mg/kg wet weight [Whole body, total hydrocarbon]
PNEC (STP)	
PNEC sewage treatment plant	Substance is a UVCB - testing technically not feasible
PNEC (additional information)	
Additional information	Product is a UVCB and conventional methods of deriving a PNEC are not appropriate
8.2. Exposure controls	

#### Appropriate engineering controls:

Industrial and professional. Perform risk assessment prior to use. A specific assessment of inhalation risks from the presence of flammable or toxic gases in tank headspaces, confined spaces, product residue, tank waste water, waste water and unintentional releases should be made to help determine controls appropriate to local circumstances. Ensure adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide local exhaust or general room ventilation to minimize mist and/or vapour concentrations. Use only explosion-proof equipment.

#### Personal protective equipment:

Avoid all unnecessary exposure. Use personal protective equipment as required. A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered: Full protective flameproof clothing. Safety glasses. Gloves. Head/neck protection.

#### Materials for protective clothing:

Flame retardant antistatic protective clothing. EN ISO 14116

#### Hand protection:

Chemical resistant gloves (according to European standard NF EN 374 or equivalent). Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Please follow the instructions related to the permeability and the penetration time provided by the manufacturer

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Туре	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves, Disposable gloves	Nitrile rubber	5 (> 240 minutes)			EN ISO 374
Reusable gloves, Disposable gloves	Neoprene rubber (HNBR)	3 (> 60 minutes)			EN ISO 374
Reusable gloves, Disposable gloves	Polyvinylchloride (PVC)	3 (> 60 minutes)			EN ISO 374

#### Eye protection:

Chemical goggles or safety glasses. EN 166. Non-vented

### Skin and body protection:

Safety boots. EN ISO 20345. Head protection

### Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Full face mask. EN 136. or. Half-mask. EN 405. Filter. Type A - High-boiling (>65 °C) organic compounds

### Personal protective equipment symbol(s):



#### Environmental exposure controls:

Avoid release to the environment. Do not exceed the occupational exposure limits (OEL).

#### Consumer exposure controls:

Do not ingest. If swallowed then seek immediate medical assistance.

#### Other information:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

SECTION 9: Physical and chemical properties		
9.1. Information on basic physical and che	emical properties	
Physical state	: Liquid	
Appearance	: Clear.	
Colour	: Colourless. to. straw yellow.	
Odour	: Aromatic odour.	
Odour threshold	: No data available	
рН	: No data available	
Relative evaporation rate (butylacetate=1)	: No data available	
Melting point	: < 0 °C (Data from CONCAWE Dossier)	
Freezing point	: No data available	
Boiling point	: > 150 °C (Boiling point range is typically 150 °C to 380 °C - from analytical data)	
Flash point	: ≈ 58 °C (Value from analytical data)	
Auto-ignition temperature	: >= 225 °C (Data from CONCAWE Dossier)	
Decomposition temperature	: No data available	
Flammability (solid, gas)	: Not applicable	
Vapour pressure	: ≈ 0.4 kPa (at 40 °C - Data from CONCAWE Dossier)	
Relative vapour density at 20 °C	: No data available	
Relative density	: 0.8 - 0.91 g/cm3 (Data from CONCAWE dossier and sample analysis)	
Density	: 820 - 845 kg/m³	
Solubility	: Substance floats in water.	
	Water: (Not determined)	
	Ethanol: (Not determined)	
	Ether: (Not determined)	
	Acetone: (Not determined)	
	Organic solvent:(Not determined)	

Log Pow	: (Not determined)
Log Kow	: > 3
Viscosity, kinematic	: ≈ 2 (2 - 4.5) mm²/s at 40 °C
Viscosity, dynamic	: (Not determined)
Explosive properties	: Not classified as explosive according to EC criteria, but may present risks in the event of a fire. Risk of explosion if heated under confinement.
Oxidising properties	: Not applicable. Non oxidizing material according to EC criteria.
Lower explosive limit (LEL)	: 1 (estimated value)
Upper explosive limit (UEL)	: 6 (estimated value)
9.2. Other information	
Other properties	: Electrostatic charges may be generated during handling.
Additional information	: Data given is from product knowledge or from similar components.

SECTION 10: Stability and reactivity
10.1. Reactivity
Flammable liquid and vapour. The product is non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability
Stable under normal conditions.
10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.
10.4. Conditions to avoid
Avoid contact with hot surfaces. No flames, no sparks. Eliminate all sources of ignition.
10.5. Incompatible materials
Oxidizing agent. Strong acids. Strong bases.
10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

<b>SECTION 11: Toxicological information</b>	
11.1. Information on toxicological effects	
Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Harmful if inhaled.
Diesel	
ATE CLP (oral)	5000 mg/kg bodyweight
ATE CLP (dermal)	2597.4 mg/kg bodyweight
ATE CLP (vapours)	4.1 mg/l/4h

Fuels, Diesel (68334-30-5)	
LD50 oral rat	> 5000 mg/kg bodyweight : equivalent or similar to OECD Guideline 401
LD50 dermal rabbit	> 4300 mg/kg bodyweight : equivalent or similar to OECD Guideline 402
LC50 inhalation rat (Vapours - mg/l/4h)	≈ 4.1 mg/l/4h [aerosol] : equivalent or similar to OECD Guideline 403

GTL (848301-67-7)	
LD50 oral rat	> 5000 mg/kg (OECD 420: Acute Oral toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral)
LD50 dermal rat	> 2000 mg/kg (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Read-across, Dermal)

FAME [Fatty acids, C10-18 and C12-22-unsatd., C14-18 and C16-18-unsatd. alkyl esters] (85049-31-6)	
	> 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral)
LD50 dermal rabbit	> 2000 mg/kg bodyweight (EPA OPPTS 870.1200: Acute Dermal Toxicity, Rabbit, Read- across, Dermal)

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FAME [Fatty acids, C14-18 and C16-18-unsatd., Me esters] (67762-26-9)	
LD50 oral rat	> 5000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 2000 mg/kg bodyweight (EPA OPPTS 870.1200: Acute Dermal Toxicity, Rabbit, Read- across, Dermal)

FAME [Fatty acids, C16-18 and C18-unsatd., Me esters] (67762-38-3)		
LD50 oral rat	> 5000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))	
LD50 dermal rabbit	> 2000 mg/kg bodyweight (EPA OPPTS 870.1200: Acute Dermal Toxicity, Rabbit, Read- across, Dermal)	
Skin corrosion/irritation	: Causes skin irritation.	
Serious eye damage/irritation	: Not classified (Based on available data, the classification criteria are not met)	
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met. Not expected to be a sensitiser)	
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)	
Carcinogenicity	: Suspected of causing cancer.	
Diesel		
IARC group	2B - Possibly carcinogenic to humans	

Fuels, Diesel (68334-30-5)	
LOAEL, mammalian, Chronic, Dermal, male, mouse	= 25 mg/kg bw/day (long term 3 times per week for life, no guideline followed)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	: May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure (in contact with skin, if inhaled).
Fuels, Diesel (68334-30-5)	
NOAEL (dermal, rat/rabbit, 90 days)	≈ 30 mg/kg bodyweight/day [rat, sub-chronic, systemic effects] : equivalent or similar to OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)
NOAEC (inhalation, rat, vapour, 90 days)	> 1.71 mg/l [sub-chronic, systemic effects] : equivalent or similar to OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
Aspiration hazard	: May be fatal if swallowed and enters airways.
Diesel	
Viscosity, kinematic	≈ 2 (2 - 4.5) mm²/s at 40 °C
Hydrocarbon	Yes
Potential adverse human health effects and symptoms	. Harmful if inhaled. May be fatal if swallowed and enters airways. Causes skin irritation. Suspected of causing cancer. May cause damage to liver, spleen and bone marrow through prolonged or repeated exposure.

Other information

: Information given is based on product data, kn	nowledge of the components and the
toxicology of similar products. Likely routes of	exposure: inhalation, skin and eye.

SECTION 12: Ecological information	
12.1. Toxicity	
Ecology - general	<ul> <li>Information given is based on knowledge of the components and the ecotoxicology of similar products.</li> </ul>
Ecology - air	: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). None of the known components is included in the list of substances which may contribute to the greenhouse effect (IPCC).
Ecology - water	: Toxic to aquatic life with long lasting effects.
Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Toxic to aquatic life with long lasting effects.

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Diesel		
250 fish 1 21 mg/l [LL50 value (based on mortality) : according to OECD Guideline 203 (Fish, Toxicity Test)]		
EC50 Daphnia 1	68 mg/I [EL50 value (based on mobility) : according to OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)]	
ErC50 (algae)	22 mg/l [ErL50 value (based on growth rate) : according to OECD Guideline 201 (Alga, Growth Inhibition Test - before 23 March 2006]	
NOEC chronic fish	0.083 mg/l [estimated No Observed Effect Level based on mortality]	
NOEC chronic crustacea	0.2 mg/l [estimated No Observed Effect Level based on mortality]	
NOEC chronic algae	3.217 mg/l [estimated No Observed Effect Level based on mortality]	
12.2. Persistence and degradability		
Diesel		
Persistence and degradability	Readily biodegradable. Biodegradable in water. No significant hydrolysis. Does not have the potential to undergo photolysis in water and soil.	
12.3. Bioaccumulative potential		
Diesel		
Log Pow	(Not determined)	
Log Kow	> 3	
Bioaccumulative potential	Substance is a UVCB and may contain components with the potential to bioaccumulate.	
12.4. Mobility in soil		
Diesel		
Ecology - soil	If product enters soil, one or more constituents may be mobile and will contaminate groundwater.	
12.5. Results of PBT and vPvB assessment		
Diesel		
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII		
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII		
12.6. Other adverse effects		
Additional information	: Avoid release to the environment.	

<b>SECTION 13: Disposal considerations</b>	
13.1. Waste treatment methods	
Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Assure that emissions are compliant with all applicable air pollution control regulations.
Sewage disposal recommendations	: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Use appropriate containment to avoid environmental contamination.
Additional information	: Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials	: Hazardous waste due to toxicity. Avoid release to the environment.

# **SECTION 14: Transport information**

ADR	IMDG	ADN		
14.1. UN number				
UN 1202	UN 1202	UN 1202		
14.2. UN proper shipping name				
DIESEL FUEL	DIESEL FUEL	DIESEL FUEL		
Transport document description				
UN 1202 DIESEL FUEL, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS HAZARDOUS UN 1202 DIESEL FUEL, 3, III, MARINE ENVIRONMENTALLY HAZARDOUS UN 1202 DIESEL FUEL, 3, III, ENVIRONMENTALLY HAZARDOUS				

14.3. Transport hazard class(es)			
3	3	3	
14.4. Packing group			
III	III	III	
14.5. Environmental hazards			
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	
No supplementary information available			
14.6. Special precautions for user			
Special transport precautions	: Refer to protective measures listed in Sec	tions 7 and 8	
Overland transport			
Classification code (ADR)	: F1		
Special provisions (ADR)	: 640K, 363, 664		
Limited quantities (ADR)	: 51		
Excepted quantities (ADR)	: E1		
Packing instructions (ADR)	: P001, IBC03, LP01, R001		
Mixed packing provisions (ADR)	: MP19		
Portable tank and bulk container instructions (ADR)	: T2		
Portable tank and bulk container special provisions (ADR)	: TP1		
Tank code (ADR)	: LGBF		
Vehicle for tank carriage	: FL		
Transport category (ADR)	: 3		
Special provisions for carriage - Packages (ADR)	: V12		
Special provisions for carriage - Operation (ADR)	: \$2		
Hazard identification number (Kemler No.) Orange plates	30 30 1202		
Tunnel restriction code (ADR)	: D/E		
EAC code	: 3Y		
Transport by sea			
Transport regulations (IMDG)	: MARPOL Annex I rules apply for bulk ship	oments by sea.	
Special provisions (IMDG)	: 363		
Limited quantities (IMDG)	: 5 L		
Excepted quantities (IMDG)	: E1		
Packing instructions (IMDG)	: P001, LP01		
IBC packing instructions (IMDG)	: IBC03		
Tank instructions (IMDG)	: T2		
Tank special provisions (IMDG)	: TP1		
EmS-No. (Fire)	: F-E		
EmS-No. (Spillage)	: S-E		
Stowage category (IMDG) Properties and observations (IMDG)	: A : Immiscible with water.		
Properties and observations (IMDG)			
Inland waterway transport	. 51		
Classification code (ADN)	: F1		
Special provisions (ADN) Limited quantities (ADN)	: 363, 640K : 5 L		
Excepted quantities (ADN)	: 5 L : E1		
LAUPIEU quantites (ADIN)			

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Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 0
14.7. Transport in bulk according to Annex II of Marpol and the IBC Code	

IBC code

: Not applicable.

#### SECTION 15: Regulatory information 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:			
Reference code	ode Applicable on Entry title or description		
3(a)	Diesel ; Fuels, Diesel	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F	
3(b)	Diesel ; GTL ; Fuels, Diesel	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	
3(c)	Diesel ; Fuels, Diesel	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1	
28. Diesel ; Fuels, Diesel Substances which are classified as carcinogen category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 1 or Appendix 2, respectively.			
40. Diesel ; Fuels, Diesel Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtur which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophiquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.			

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

### Directive 2012/18/EU (SEVESO III)

Seveso Additional information	: 34. Petroleum products and alternative fuels (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)
15.1.2. National regulations	
United Kingdom	
British National Regulations	: Storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations 2001. Additional guidance may be obtained from the Environment Agency.
	Control of Substances Hazardous to Health Regulations 2002 (as amended).
	EH40/2005 Workplace exposure limits.
	Health and Safety at Work Act.
	The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG Regs).
	The Dangerous Substances and Explosive Atmospheres Regulations 2002.
	The Personal Protective Equipment at Work Regulations 1992 [SI 1992 No. 2966].
15.2. Chemical safety assessment	
A chemical safety assessment has been carried out	

For the following substances of this mixture a chemical safety assessment has been carried out		
Fuels, Diesel		

	according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 SECTION 16: Other information		
Indication of changes:			
Section	Changed item	Change	Comments
1.2	Use of the substance/mixture	Modified	
2.2	Precautionary statements (CLP)	Modified	
4.1	First-aid measures after ingestion	Modified	
4.2	Symptoms/effects after inhalation	Modified	
4.2	Chronic symptoms	Modified	
5.1	Suitable extinguishing media	Modified	
5.2	Reactivity in case of fire	Modified	
5.3	Precautionary measures fire	Modified	
5.3	Firefighting instructions	Modified	
5.3	Protection during firefighting	Modified	
6.1	General measures	Modified	
6.1	Emergency procedures	Modified	
6.1	Emergency procedures	Modified	
6.2	Environmental precautions	Modified	
6.3	For containment	Modified	
6.4	Reference to other sections (8, 13)	Modified	
7.1	Precautions for safe handling	Modified	
7.1	Hygiene measures	Modified	
7.1	Handling temperature	Added	
7.2	Technical measures	Modified	
7.2	Storage conditions	Modified	
7.2	Incompatible products	Modified	
7.2	Heat and ignition sources	Modified	
7.2	Prohibitions on mixed storage	Modified	
7.2	Storage area	Modified	
7.3	Specific end uses	Modified	
8	Monitoring methods	Modified	
8.1	Acute - local effects, dermal	Modified	
8.1	Acute - local effects, inhalation	Modified	
8.1	Acute - systemic effects, dermal	Modified	
8.1	Acute - systemic effects, inhalation	Modified	
8.1	Acute - systemic effects, oral	Modified	
8.1	Long-term - local effects, dermal	Modified	
8.1	Long-term - local effects, inhalation	Modified	
8.1	Long-term - systemic effects, dermal	Modified	
8.1	Long-term - systemic effects, inhalation	Modified	
8.1	Long-term - systemic effects,oral	Modified	
8.1	Acute - local effects, dermal	Modified	
8.1	Acute - local effects, inhalation	Modified	

8.1     Acute -systemic affacts, inclusion     Modified       8.1     Long-term - local effects, inclusion     Modified       8.1     Long-term - systemic effects, domain     Modified       8.1     Long-term - systemic effects, domain     Modified       8.1     Long-term - systemic effects, domain     Modified       8.1     PREC aqua (frashwatar)     Added       8.1     PREC soll (new minuton)     Added       8.1     PREC soll (secondary poisoning)     Added       8.1     PREC soll (secondary poisoning)     Added       8.2     Personal protective equipment     Modified       8.2     Appropriotite engineening control     Modified       8.2     Other information     Modified       8.2     Other information     Modified       8.2     Other information     Modified       8.2     Sin and boty protection     Modified		IO. 1907/2006 (REACH) with its amendme		
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8.1     Long-turn - local effects, inhalation     Modified       8.1     Long-turn - systemic effects, inhalation     Modified       8.1     Long-turn - systemic effects, inhalation     Modified       8.1     PNEC aqua (treatwater)     Added       8.1     PNEC seque (treatwater)     Added       8.1     PNEC seque (treatwater)     Added       8.1     PNEC casi (secondary poisoning)     Added       8.2     Personal protective controls     Modified       8.2     Personal protective controls     Modified       8.2     Personal protective controls     Modified       8.2     Sin and body protection     Modified       8.2     Sin and body protection     Modified       8.2     Consume exposure controls     Added       8.2     Consume exposure controls     Added	8.1		Modified	
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8.1     PNEC aqua (intermittent, freshwater)     Added       8.1     PNEC aqua (intermittent, water)     Added       8.1     PNEC sediment (freshwater)     Added       8.1     PNEC sediment (freshwater)     Added       8.1     PNEC sediment (maine water)     Added       8.1     PNEC sediment (maine water)     Added       8.1     PNEC seliment (maine water)     Added       8.1     PNEC seliment (maine water)     Added       8.1     PNEC seliment (maine water)     Modified       8.1     PNEC seliment (maine water)     Modified       8.2     Appropriate engineering controls     Modified       8.2     Personal protective equipment     Modified       8.2     Environmental exposure controls     Modified       8.2     Materials for protective clothing     Modified       8.2     Skin and body protection     Modified       8.2     Respiratory protection     Modified       8.2     Respiratory protection     Modified       8.2     Respiratory protection     Modified       8.2     Respiratory protection     Modified       8.1     Meling point     Added       9.1     Oxiding properties     Added       9.1     Meling point     Added       9.1 <td>8.1</td> <td>PNEC aqua (freshwater)</td> <td>Added</td> <td></td>	8.1	PNEC aqua (freshwater)	Added	
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8.2     Appropriate engineering controls     Modified       8.2     Personal protective equipment     Modified       8.2     Environmental exposure controls     Modified       8.2     Other information     Modified       8.2     Other information     Modified       8.2     Materials for protective clothing     Modified       8.2     Eye protection     Modified       8.2     Eye protection     Modified       8.2     Skin and body protection     Modified       8.2     Hand protection     Modified       8.2     Respiratory protection     Modified       8.2     Consume exposure controls     Added       9.1     Melting point     Added       9.1     Melting point     Added       9.1     Viscosity, kinematic     Modified       9.1     Viscosity, kinematic     Modified       9.1     Relative density     Added       9.1     Relative density     Added       9.1     Vapour pressure     Modified       9.1     Vapour pressure     Modified       9.1     Auto-ignition temperature     Modified       9.1     Density     Modified       9.1     Density     Modified       9.1     Density     Mo	8.1	PNEC oral (secondary poisoning)	Added	
8.2       Personal protective equipment       Modified         8.2       Environmental exposure controls       Modified         8.2       Other information       Modified         8.2       Other information       Modified         8.2       Materials for protective clothing       Modified         8.2       Materials for protective clothing       Modified         8.2       Eye protection       Modified         8.2       Skin and body protection       Modified         8.2       Hand protection       Modified         8.2       Respiratory protection       Modified         8.2       Respiratory protection       Modified         8.2       Consumer exposure controls       Added         9.1       Melting point       Added         9.1       Oxidising properties       Added         9.1       Viscosity, kinematic       Modified         9.1       Relative density       Added         9.1       Vapour pressure       Modified         9.1       Vapour pressure       Modified         9.1       Vapour properties       Added         9.1       Density       Modified         9.2       Other properties       Added	8.1	PNEC sewage treatment plant	Added	
8.2       Environmental exposure controls       Modified         8.2       Other information       Modified         8.2       Materials for protective clothing       Modified         8.2       Eye protection       Modified         8.2       Eye protection       Modified         8.2       Skin and body protection       Modified         8.2       Hand protection       Modified         8.2       Hand protection       Modified         8.2       Respiratory protection       Modified         8.2       Respiratory protection       Modified         8.2       Consumer exposure controls       Added         9.1       Melting point       Added         9.1       Melting point       Added         9.1       Viscosity, kinematic       Modified         9.1       Viscosity, kinematic       Modified         9.1       Relative density       Added         9.1       Vapour pressure       Modified         9.1       Vapour pressure       Modified         9.1       Auto-ignition temperature       Modified         9.1       Density       Modified         9.2       Other properties       Added <td< td=""><td>8.2</td><td>Appropriate engineering controls</td><td>Modified</td><td></td></td<>	8.2	Appropriate engineering controls	Modified	
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11.1 Potential adverse human health Added		. ,		
I affecte and exceptions	11.1		Added	

according to Regulation (EC)	No. 1907/2006	(REACH) with its amendm	ent Regulation (EU) 2015/830		
11.1	ATE CLP (	dermal)	Added		
12.1	Ecology - air		Modified		
12.1	Ecology - general		Modified		
12.1	Ecology - v	vater	Added		
12.1	LC50 fish 1	l	Modified		
12.1			Modified		
12.1	ErC50 (alg	ae)	Modified		
12.1	NOEC chro	onic fish	Modified		
12.1	NOEC chro	onic crustacea	Modified		
12.1	NOEC chro	onic algae	Modified		
13.1	Waste trea	tment methods	Added		
13.1	Sewage dis recommen		Added		
13.1	Product/Pa recommen	ckaging disposal dations	Added		
13.1	Ecology - v	vaste materials	Added		
14.6	Special tra	nsport precautions	Modified		
15.1	British Nati	onal Regulations	Modified		
15.1	Seveso Ad	ditional information	Added		
16	Data sourc	es	Modified		
16	Abbreviatio	ons and acronyms	Modified		
16	Training ac	lvice	Modified		
Abbreviations and acro	nyms:		•		
ADN		European Agreement	concerning the International Carriage	e of Dangerous Goods by Inland Waterways	
ADR		European Agreement concerning the International Carriage of Dangerous Goods by Road			
CLP			p Packaging Regulation; Regulation		
DNEL		Derived-No Effect Leve			
DMEL		Derived Minimal Effect			
EC50		Median effective conce	entration		
ECETOC TRA		European Centre for Ecotoxicology and Toxicology of Chemicals (ECETOC) Targeted Risk Assessment (TRA)			
EN		European Norm			
EU		European Union			
IARC		International Agency for Research on Cancer			
IBC		Intermediate bulk container			
		International Maritime Dangerous Goods			
		International Standards			
		Median lethal concentration			
		Median lethal dose			
LOAEL		Lowest Observed Adverse Effect Level			
LTD Limite		Limited	imited		
			vention of Pollution from Ships, 1973 as		
NF National Foreword					
NOAEC		No-Observed Adverse	Effect Concentration		
		No-Observed Adverse	Effect Level		
NOEC		No-Observed Effect C	oncentration		
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according to Regulation (EC) No. 1907/20	06 (REACH) with its amendment Regulation (EU) 2015/830	
PBT	Persistent Bioaccumulative Toxic	
PNEC	Predicted No-Effect Concentration	
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006	
RMM	Risk management measures	
SDS	Safety Data Sheet	
SOPEP	Ship Oil Pollution Emergency Plan	
SOLAS	[The International Convention for the] Safety of Life at Sea	
STP	Sewage treatment plant	
UVCB	(Substance of) Unknown or Variable composition	
vPvB	Very Persistent and Very Bioaccumulative	
Data sources	: Source: European Chemicals Agency, http://echa.europa.eu/. REGULATION (EC) No 1272/2008 OF THE	
	EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. Hazard classification and labelling of petroleum substances in the European Economic Area (CONCAWE). Manufacturer Information.	
Training advice	: The hazard of asphyxiation is often overlooked and must be stressed during operator training. Training sta on good practice. Use only by trained employees according to users risk assessment at workplace.	
Full text of H- and EUH-statement	s:	
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4	
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2	
Asp. Tox. 1	Aspiration hazard, Category 1	
Carc. 2	Carcinogenicity, Category 2	
Flam. Liq. 3	Flammable liquids, Category 3	
Skin Irrit. 2	Skin corrosion/irritation, Category 2	
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2	
H226	Flammable liquid and vapour.	
H304	May be fatal if swallowed and enters airways.	
H315	Causes skin irritation.	
H332	Harmful if inhaled.	
H351	Suspected of causing cancer.	
H373	May cause damage to organs through prolonged or repeated exposure.	
H411	Toxic to aquatic life with long lasting effects.	
Full text of use descriptors		
ERC1	Manufacture of substances	
ERC2	Formulation of preparations	
ERC4	Industrial use of processing aids in processes and products, not becoming part of articles	
ERC5	Industrial use resulting in inclusion into or onto a matrix	
ERC6a	Industrial use resulting in manufacture of another substance (use of intermediates)	
ERC6b	Industrial use of reactive processing aids	
ERC6c		
	Industrial use of monomers for manufacture of thermo-plastics	
ERC6d	Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	
ERC7	Industrial use of substances in closed systems	
ERC9a	Wide dispersive indoor use of substances in closed systems	
ERC9b	Wide dispersive outdoor use of substances in closed systems	
ESVOC SPERC 1.1.v1	Manufacture of substances: Industrial (SU8, SU9)	
ESVOC SPERC 1.1b.v1	Distribution: Industrial (SU3)	

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ESVOC SPERC 6.1a.v1	Manufacture of substances: Industrial (SU8, SU9)		
ESVOC SPERC 7.12a.v1	Use as a fuel: Industrial (SU3)		
ESVOC SPERC 7.13a.v1	Functional Fluids: Industrial (SU3)		
ESVOC SPERC 9.12b.v1	Use as a fuel: Professional (SU22)		
ESVOC SPERC 9.12c.v1	Use as a fuel: Consumer (SU21)		
PC13	Fuels		
PROC1	Use in closed process, no likelihood of exposure		
PROC14	Production of preparations or articles by tabletting, compression, extrusion, pelletisation		
PROC15	Use as laboratory reagent		
PROC16	Using material as fuel sources, limited exposure to unburned product to be expected		
PROC2	Use in closed, continuous process with occasional controlled exposure		
PROC28	Manual maintenance (cleaning and repair) of machinery		
PROC3	Use in closed batch process (synthesis or formulation)		
PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises		
PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)		
PROC8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities		
PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities		
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)		
SU8	Manufacture of bulk, large scale chemicals (including petroleum products)		
SU9	Manufacture of fine chemicals		

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

## Annex to the safety data sheet

Product exposure scenario(s)		
ES Type	ES title	
Worker	Manufacture of substance	
Worker	Formulation & (re)packing of substances and mixtures - Industrial	
Worker	Use of substance as intermediate	
Worker	Use in Oil and Gas field drilling and production operations: Industrial	
Worker	Use as a fuel: Industrial	
Worker Use as a functional fluids: Industrial		
Worker	Use as a fuel: Professional	
Consumer	Use as a fuel: Consumer	

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## 1. Exposure scenario

Manufacture of sub	stance	ES Type: Worker Association ref code: CONC	).1.LU.1	
ERC1		C1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, PROC28		
Processes, tasks, activities covered Manuf recycli		facture of the substance or use as a process chemical or extraction agent. Include: ing/ recovery, material transfers, storage, maintenance and loading (including mar l/barge, road/rail car and bulk container), sampling and associated laboratory activ	ine	
		trial use facture		
2. Operational conditio	ons and risk manager	nent measures		
		oosure (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC1	5,	
PROC1	Use in closed process, no	likelihood of exposure		
PROC2	Use in closed, continuous	process with occasional controlled exposure		
PROC3	Use in closed batch proces	ss (synthesis or formulation)		
PROC4	Use in batch and other pro	cess (synthesis) where opportunity for exposure arises		
PROC8a	Transfer of substance or p facilities	reparation (charging/discharging) from/to vessels/large containers at non dedicate	d	
PROC8b	Transfer of substance or p	reparation (charging/discharging) from/to vessels/large containers at dedicated fac	cilities	
PROC9	Transfer of substance or m	nixture into small containers (dedicated filling line, including weighing)		
PROC15	Use as laboratory reagent			
PROC28	Manual maintenance (clea	ning and repair) of machinery		
Product characteristics				
Physical form of product		Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure, Liquid potential for aerosol generation	d with	
Concentration of substance in	n product	Covers percentage substance in the product up to 100 %, unless stated different	ily	
Operational conditions				
Frequency and duration of us	6e	Covers daily exposures up to 8 hours, unless stated differently		
Other given operational cond exposure	itions affecting workers	Assumes a good basic standard of occupational hygiene is implemented,Covers use at ambient temperatures,unless stated differently		
Risk Management Measure	s	temperatures, unless stated unterentry		
Other risk management measure				
General measures (skin irritants)		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. For further specification, refer to section 8 of the SDS.		
General measures,Flammability		For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.		
General measures, Aspiration hazard		Do not ingest. If swallowed then seek immediate medical assistance		
General measures applicable	e to all activities	Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection		

according to Regulation (EC) No. 1907/2006 (REACH) with its ar	
	point. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.
General exposures (closed systems)	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Assumes activities are above room temperature
General exposures (closed systems),With occasional	Handle substance within a closed system. Sample
controlled exposure	via a closed loop or other system to avoid exposure.
	Ensure operation is undertaken outdoors. Assumes
Concerned ourse (allocation starse) Datab	activities are above room temperature
General exposures (closed systems),Batch process,With occasional controlled exposure	Provide extract ventilation to points where emissions occur. Handle substance within a closed system.
	Sample via a closed loop or other system to avoid
	exposure. Assumes activities are above room
	temperature
General exposures (open systems)	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of
	the body, then these body parts should also be
	protected with impervious garments in a manner
	equivalent to those described for the hands. For
Process sampling	further specification, refer to section 8 of the SDS. Wear suitable gloves tested to EN374. If skin
	contamination is expected to extend to other parts of
	the body, then these body parts should also be
	protected with impervious garments in a manner
	equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Laboratory activities	No other specific measures identified. Additional
	good practice advice. Obligations according to
	Article 37(4) of REACH do not apply. Put lids on
Bulk transfers, Closed systems	containers immediately after use Handle substance within a closed system. Wear
Buik transfers, closed systems	chemically resistant gloves (tested to EN374) in
	combination with 'basic' employee training. If skin
	contamination is expected to extend to other parts of
	the body, then these body parts should also be protected with impervious garments in a manner
	equivalent to those described for the hands. For
	further specification, refer to section 8 of the SDS.
Bulk transfers, Open systems	Wear chemically resistant gloves (tested to EN374)
	in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of
	the body, then these body parts should also be
	protected with impervious garments in a manner
	equivalent to those described for the hands. For
	further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations
	according to Article 37(4) of REACH do not apply.
	Ensure no splashing occurs during transfer.
Equipment cleaning and maintenance	Drain down and flush system prior to equipment
	break-in or maintenance. Wear chemically resistant
	gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected
	to extend to other parts of the body, then these body
	parts should also be protected with impervious
	garments in a manner equivalent to those described
	for the hands. For further specification, refer to section 8 of the SDS. Additional good practice
	advice. Obligations according to Article 37(4) of
	REACH do not apply. Wear suitable coveralls to
	prevent exposure to the skin. Clear spills immediately
Storage, With occasional controlled exposure	Store substance within a closed system
<b>5</b>	ental exposure (ERC1, ESVOC SPERC 1.1.v1)
ERC1 Manufacture of substance	
ESVOC SPERC 1.1.v1 Manufacture of substance	
Product characteristics	
Physical form of product	Liquid
Vapour pressure	≈ 0.4 kPa
Other product characteristics	Substance is complex UVCB, Predominantly hydrophobic
•	
Operational conditions	Enotion of Eliteration upodic system
Amounts used	Fraction of EU tonnage used in region: 0.1
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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

	Regional use tonnage	26000000 t/yr
	Fraction of Regional tonnage used locally:	0.75
	Annual site tonnage	19000000 t/yr
	Maximum daily site tonnage	64000000 kg/day
Frequency and duration of use	Continuous release, Emission days	300
Environmental factors not influenced by risk	Local freshwater dilution factor:	10
management	Local marine water dilution factor:	100
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM):	0.0099
	Release fraction to wastewater from process (initial release prior to RMM):	0.0000004
	Release fraction to soil from process (initial release prior to RMM):	0.0001
Risk Management Measures		
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used	
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. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required.	
	Treat air emission to provide a typical removal efficiency of	90 %
	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of	94.3 %
	If discharging to municipal sewage treatment plant, provide the required onsite wastewater removal efficiency of	0 %
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed	
Conditions and measures related to sewage treatment	Not applicable as there is no release to wastewater	
plant	Estimated substance removal from wastewater via municipal sewage treatment	94.6 %
	Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs	94.6 %
	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal	68000000 kg/day
-	Assumed domestic sewage treatment plant flow	10000 m³/d
Conditions and measures related to external treatment of waste for disposal	During manufacturing no waste of the substance is generated	
Conditions and measures related to external recovery	During manufacturing no waste of the substance is generated	

## 3.1. Health

Inform	Information for contributing exposure scenario				
inform	nation for contributing	j exposure scenano			
2.1	2.1 The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated				
3.2.	3.2. Environment				
Inform	Information for contributing exposure scenario				
2.2	2.2 Hydrocarbon Block Method (Petrorisk)				

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Guidance - 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. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not enable the derivation of a DNEL for spiration effects. Risk Management Measures are based on qualitative risk characterisation
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4.2. LINIONNEIL		
Guidance - 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. Required	
		01/15

removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
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Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

#### 1. Exposure scenario ES Type: Worker Association ref code: CONC.2.FU.1A Formulation & (re)packing of substances and mixtures - Industrial Use descriptors PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, PROC28 ERC2 ESVOC SPERC 2.2.v1 Formulation, packing and re-packing of the substance and its mixtures in batch or continuous Processes, tasks, activities covered operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities Industrial use Formulation 2. Operational conditions and risk management measures Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15) PROC1 Use in closed process, no likelihood of exposure PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation) PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15 Use as laboratory reagent **Product characteristics** Physical form of product Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure, Liquid with potential for aerosol generation Concentration of substance in product Covers percentage substance in the product up to 100 %, unless stated differently **Operational conditions** Frequency and duration of use Covers daily exposures up to 8 hours, unless stated differently Other given operational conditions affecting workers Assumes a good basic standard of occupational hygiene is implemented, Covers use at ambient exposure temperatures, unless stated differently **Risk Management Measures** Other risk management measures: General measures (skin irritants) 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. For further specification, refer to section 8 of the SDS. General measures, Flammability For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8. General measures, Aspiration hazard Do not ingest. If swallowed then seek immediate medical assistance General measures applicable to all activities Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable

general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions

In minime exposure. Wera suitable gives tested to EX37.4. Wear expiratory protection when to EX37.4. Wear expiratory protection when to EX37.4. Wear expiratory protection when the container at hzaradous or special waste collection point. Ensure control measures are regularly inspected and maintained. Consider the need for its based heath substance within a closest system. Sample process With occasional controlled exposure           General exposures (obset systems), Decess with occasional controlled exposure exploration containers and a substance within a closest system.         Item of the top inspected and maintained. Consider the need for its based heath substance within a closest system.           General exposures (open systems).         Wear analysis and the body, then the bases. For process with occasional controlled exposure exploration is a manner exploration is a manner exploration in a manner exploration to protein a system and the body. Then the hards. For protected with impervious garments in a manner exploration to specific to explore the hards. For protected with impervious garments in a manner exploration to protein the 20°C above ambient emperature.           Process sampling         Wear suitable gloves tested to EN37.4 If takin containing the sequence of the bands. For further specification, refer to section 8 of the SDS.           Burk transfers, Dedicated facility         Wear suitable gloves tested to EN37.4 If takin containing the sequence of the bands. For further specification, refer to section 8 of the SDS.           Prodes status explores and the sequence of the bands. For further specification, refer to section 8 of the SDS.           Provide status explores and the sequence of the bands. For further specification, refer to section 8 of the SDS.		ndment Regulation (EU) 2015/830	
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contained systems         ccur. Handle substance within a closed system. Assumes use at not more than 20°C above ambient temperature.           Process sampling         Wear suitable gloves tested to EN74. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specific measures identified. Additional good practice advice. Obligations according to Arricle 37(4) of REACH do not apply. Put lids on containers immediately after use           Bulk transfers.Dedicated facility         Handle substance within a closed system. Wear chemically resistant gloves (tested to EN374) in combinaton with basic renipoyee training. If skin contaminaton is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specific meachine to index excited to the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           Mixing operations (open systems)         Provide extract ventiliton to points where emissions occur. Wear chemically resistant gloves (tested to EN374) in combination with basic employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described of the hands. For further specification, refer to section 8 of the body, then these body parts should also ther parts of the body, then these body parts should also ther parts of the body, then these body parts should also ther parts of the body. Attent specitat gloves (tend to EN374) in combin		further specification, refer to section 8 of the SDS.	
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further specification, refer to section 8 of the SDS.			

according to Regulation (EC) No. 1907/2006 (REACH) with its am	endment Regulation (EU) 2015/830	
Drum and small package filling	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.	
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin. Clear spills immediately	
Storage,With occasional controlled exposure	Store substance within a closed system	
2.2 Contributing scenario controlling environme	ental exposure (ERC2, ESVOC SPERC 2.2.v1)	
ERC2 Formulation of preparation	ns	
ESVOC SPERC 2.2.v1 Formulation & packing of	preparations and mixtures: Industrial (SU10)	
Product characteristics		
Physical form of product	Liquid	
Vapour pressure	≈ 0.4 kPa	
Other product characteristics	Substance is complex UVCB, Predominantly hydropho	obic
Operational conditions	I	
Amounts used	Fraction of EU tonnage used in region:	0.1
	Regional use tonnage	3000000 t/yr
	Fraction of Regional tonnage used locally:	0.001
	Annual site tonnage Maximum daily site tonnage	30000 t/yr 100000 kg/day
Frequency and duration of use	Continuous release,Emission days	300
Environmental factors not influenced by risk	Local freshwater dilution factor:	10
management	Local marine water dilution factor:	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):	0.01
	Release fraction to wastewater from process (initial release prior to RMM):	0.00005
	Release fraction to soil from process (initial release prior to RMM):	0.0001
Risk Management Measures		
Technical conditions and measures at process level	Common practices vary across sites thus	
(source) to prevent release	conservative process release estimates used	
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. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required. Treat air emission to provide a typical removal	0
	efficiency of	%
	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of	94.1 %
	If discharging to municipal sewage treatment plant, provide the required onsite wastewater removal efficiency of	0 %
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed	
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater Estimated substance removal from wastewater via	94.6 %
	municipal sewage treatment Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs	94.6 %
	Maximum allowable site tonnage (MSafe) based on	110000 kg/day

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	release following total wastewater treatment removal		
	Assumed domestic sewage treatment plant flow	2000 m³/d	
Conditions and measures related to external treatment	External treatment and disposal of waste should		
of waste for disposal	comply with applicable local and/or national		
	regulations		
Conditions and measures related to external recovery	External recovery and recycling of waste should		
of waste	comply with applicable local and/or national		
	regulations		
3. Exposure estimation and reference to its source			

#### 3.1. Health

Inform	nation for contributing	exposure scenario	
2.1	2.1 The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated		
3.2. Environment			
Inform	Information for contributing exposure scenario		
2.2 Hydrocarbon Block Method (Petrorisk)		1	

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health	
Guidance - 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. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not enable the derivation of a DNEL for other health effects. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk Management Measures are based on qualitative risk characterisation
4.2. Environment	
Guidance - 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. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)

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## 1. Exposure scenario

Use of substance as intermed	ES Type: Worker         Association ref code: CONC.3.FU.1B	
Use descriptors	SU8, SU9 PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, PROC28 ERC6a ESVOC SPERC 6.1a.v1	
Processes, tasks, activities covered	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Include: recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container) Industrial use	

2. Operational conditions and risk management measures			
2.1 Contributing scena PROC28)	ario controlling worker ex	posure (PROC1, PROC2, PROC3, PROC4, PROC8a, P	ROC8b, PROC9, PROC15,
PROC1	Use in closed process, no	likelihood of exposure	
PROC2	Use in closed, continuous	process with occasional controlled exposure	
PROC3	Use in closed batch proce	ess (synthesis or formulation)	
PROC4		ocess (synthesis) where opportunity for exposure arises	
PROC8a	Transfer of substance or facilities	preparation (charging/discharging) from/to vessels/large c	containers at non dedicated
PROC8b	Transfer of substance or	preparation (charging/discharging) from/to vessels/large c	containers at dedicated facilities
PROC9	Transfer of substance or	mixture into small containers (dedicated filling line, includi	ng weighing)
PROC15	Use as laboratory reagen	t	
PROC28	Manual maintenance (cle	aning and repair) of machinery	
Product characteristics	•		
Physical form of product		Liquid, vapour pressure < 0.5 kPa at Standard Temper potential for aerosol generation	ature and Pressure, Liquid with
Concentration of substance i	in product	Covers percentage substance in the product up to 100	%, unless stated differently
Operational conditions		•	
Frequency and duration of us	se	Covers daily exposures up to 8 hours, unless stated differently	
Other given operational concepts of exposure	ditions affecting workers	Assumes a good basic standard of occupational hygiene is implemented,Covers use at ambient temperatures,unless stated differently	
Risk Management Measure	es		
Other risk management mea			
General measures (skin irritants)		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	
General measures,Flammability		For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.	
General measures, Aspiration hazard		Do not ingest. If swallowed then seek immediate medical assistance	
General measures applicable to all activities		Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection point. Ensure control measures are regularly	

		amendment Regulation (EU) 2015/830 inspected and maintained. Consider the need for risk	
		based health surveillance.	
General exposures (closed systems),Batch process,With occasional controlled exposure		Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure	
General exposures (open systems)		Wear suitable gloves tested to EN374. If skin	
		contamination is expected to extend to other parts of the body, then these body parts should also be	
		protected with impervious garments in a manner	
		equivalent to those described for the hands. For	
		further specification, refer to section 8 of the SDS.	
Process sampling		Wear suitable gloves tested to EN374. If skin	
		contamination is expected to extend to other parts of	
		the body, then these body parts should also be	
		protected with impervious garments in a manner equivalent to those described for the hands. For	
		further specification, refer to section 8 of the SDS.	
Laboratory activities		No other specific measures identified. Additional	
-		good practice advice. Obligations according to	
		Article 37(4) of REACH do not apply. Put lids on	
		containers immediately after use	
Bulk transfers, Closed system	ms	Handle substance within a closed system. Wear	
		chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin	
		contamination is expected to extend to other parts of	
		the body, then these body parts should also be	
		protected with impervious garments in a manner	
		equivalent to those described for the hands. For	
Dulle transform On an and	•	further specification, refer to section 8 of the SDS.	
Bulk transfers, Open system	S	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin	
		contamination with basic employee training. If skin	
		the body, then these body parts should also be	
		protected with impervious garments in a manner	
		equivalent to those described for the hands. For	
		further specification, refer to section 8 of the SDS.	
		Additional good practice advice. Obligations	
		according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
Equipment cleaning and ma	intenance	Drain down and flush system prior to equipment	
		break-in or maintenance. Wear chemically resistant	
		gloves (tested to EN374) in combination with 'basic'	
		employee training. If skin contamination is expected	
		to extend to other parts of the body, then these body	
		parts should also be protected with impervious	
		garments in a manner equivalent to those described	
		for the hands. For further specification, refer to section 8 of the SDS. Additional good practice	
		advice. Obligations according to Article 37(4) of	
		REACH do not apply. Wear suitable coveralls to	
		prevent exposure to the skin. Clear spills	
Storage With appreciated	atrollad avecaute	immediately	
Storage,With occasional con	•	Store substance within a closed system	
ERC6a		in manufacture of another substance (use of intermediates	
	-	•	21
ESVOC SPERC 6.1a.v1	Manufacture of substa	nces: Industrial (SU8, SU9)	
Product characteristics			
Physical form of product		Liquid	
Vapour pressure		≈ 0.4 kPa	
Other product characteristic	s	Substance is complex UVCB, Predominantly hydroph	obic
Operational conditions			
Amounts used		Fraction of EU tonnage used in region:	0.1
		Regional use tonnage	950000 t/yr
		Fraction of Regional tonnage used locally:	0.016
		Annual site tonnage	15000 t/yr
		Maximum daily site tonnage	50000 kg/day
Frequency and duration of use		Continuous release, Emission days	300
Environmental factors not influenced by risk		Local freshwater dilution factor:	10
management		Local marine water dilution factor:	100
Other given operational con	ditions affecting	Release fraction to air from process (initial release	0.001
- ·		prior to RMM):	

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environmental exposure	Release fraction to wastewater from process (initial release prior to RMM):	0.00011
	Release fraction to soil from process (initial release prior to RMM):	0.001
Risk Management Measures		
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used	
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. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required.	
	Treat air emission to provide a typical removal efficiency of	80 %
	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of	94.4 %
	If discharging to municipal sewage treatment plant, provide the required onsite wastewater removal efficiency of	0 %
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed	
Conditions and measures related to sewage treatment	Not applicable as there is no release to wastewater	
plant	Estimated substance removal from wastewater via municipal sewage treatment	94.6 %
	Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs	94.6 %
	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal	54000 kg/day
	Assumed domestic sewage treatment plant flow	2000 m³/d
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	
Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste of the substance is generated	

#### 3. Exposure estimation and reference to its source

#### 3.1. Health

Inform	Information for contributing exposure scenario			
2.1	2.1 The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated			
3.2.	3.2. Environment			
Inform	nation for contributing	exposure scenario		
2.2	2.2 Hydrocarbon Block Method (Petrorisk)			

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.4 Hooléh	
4.1. Health	
Guidance - 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. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk Management Measures are based on qualitative risk characterisation
4.2. Environment	
Guidance - 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. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)

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#### 1. Exposure scenario ES Type: Worker Association ref code: CONC.27.FU.6 Use in Oil and Gas field drilling and production operations: Industrial Use descriptors PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC28 FRC4 Processes, tasks, activities covered Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance Industrial use 2. Operational conditions and risk management measures Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC28) 2.1 PROC1 Use in closed process, no likelihood of exposure PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation) PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC28 Manual maintenance (cleaning and repair) of machinery **Product characteristics** Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure, Liquid with Physical form of product potential for aerosol generation Concentration of substance in product Covers percentage substance in the product up to 100 %, unless stated differently **Operational conditions** Frequency and duration of use Covers daily exposures up to 8 hours, unless stated differently Other given operational conditions affecting workers Assumes a good basic standard of occupational exposure hygiene is implemented, Covers use at ambient temperatures, unless stated differently **Risk Management Measures** Other risk management measures: General measures (skin irritants) 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. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying For measures to control risks from physicochemical General measures, Flammability properties, refer to main body of the SDS, section 7 and/or 8. Do not ingest. If swallowed then seek immediate General measures, Aspiration hazard medical assistance General measures applicable to all activities Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection point. Ensure control measures are regularly

Buik transfers, Dedicated facility         Hande substance within a closed system. Wear combination with basic employee training. If san combination is expected to extend to barry and containing particular to section 8 of the SDS.           Filing of equipment from drums or containing. Dedicated facility         Waar charmination is expected to extend to barry particular containing and maintenance           Diffing mud (re-)formulation.Use in contained batch processes         Hande substance within a closed system.           Diffing mud (re-)formulation.Use in contained batch processes         Waar charmination is expected to extend to SNT 40 containing system.           Diffing mud (re-)formulation.Use in contained batch processes         Hande substance within a closed system.           Diffing mud (re-)formulation.Use in contained batch processes         Waar charmical gives (lested to EN374) in combination with Dassic employee training. If san difficult system.           Operation of solids filtering equipment, Non-dedicated facility         Waar charmical gives (lested to EN374) in combination with Dassic employee training. If san difficult system.           Treatment and disposal of filtered solds. Use in containing gives (lested to Classical difficult solds filtering equipment, Non-dedicated facility         Waar charmical gives (lested to EN374) in combination with Dassic employee training. If s		inspected and maintained. Consider the need for risk based health surveillance.	
equivalent to those described for the hands. For thrther specification, refer to section 8 of the SDS.           Filling of equipment from drums or containers, Dedicated facility         Wear chemically resistant glows (tested to EN374) in combination with back empression and the pro- protected with impervious gamments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Ande 37(4) of REACH do not apply.           Drilling mud (re-formulation, Use in contained batch processes         Instant contained batch processes           Drill floor operations         In according to State and State and State processes           Drill floor operations         In according to those described for the hands. For further specification (ref to section 8 of the SDS. Additional good practice of system           Operation of solids filtering equipment, elevated tacle in the sole of the sole of the sole of the sole of the sole and there specification, refer to section 8 of the SDS.           Constrained of solids filtering equipment, elevated taclity         Wear chemically resistant glows (tested to EN374) in combination with basic' employee training, if skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervicus gamments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           Cleaning of solids filtering equipment.Non-dedicated facility         Wear chemically resistant glows (tested to EN374) in combination with basic' employee training, if skin contamination is expected to extend to other parts of the body, then thes	Bulk transfers,Dedicated facility	Handle substance within a closed system. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be	
containers, Dedicated facility       in combination with basic "employee training. If skin containation is expected to extend to other parts of the body, then these body parts should also be protected with impervious gammers in a manner further specification, refer to section 8 of the SDS. Additional good practice advice, Colligations according to Arride 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.         Drilling mud (te-)formulation, Use in contained batch processes       Handle substance within a closed system         Drill floor operations       Wear chemically resistant glows (tested to EN374) in combination with basic employee training. If skin containstiton is expected to extend to other parts of the body them tases body parts should also be equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.         Operation of solids filtering equipment.elevated facility       Provide the operation with a property sited receiving hood. Assume use al not more than 20°C above ambient temperature equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.         Clearing of solids filtering equipment.Non-dedicated       Wear chemically resistant glows (tested to EN374) in combination with basic employee training. If skin containation is expected to extend to tother parts of the body, then these body parts should also be pr		equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.	
processes         Vear chemically resistant gloves (rested to EN374) in combination with basic' employee training. If skin contamination is expected to seted to other parts of the body, then these body parts should also be protected with imperious garments in a manner equivalent to those described for the hands. For further specification, refer to saccina 8 of the SDS.           Operation of solids filtering equipment.elevated targets         Provide the operation with a properly sited receiving hood. Assumes use at not more than 20°C above ambient temperature.           Cleaning of solids filtering equipment.Non-dedicated facility         Wear chemically resistant gloves (rested to EN374) in combination is expected to extend to other parts of the body, then these body parts should also be protected with imperious garments in a manner equivalent to those described for the hands. For further specification, refer to saccina 6 of the SDS. Additional god practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coverails to prevent exposure to the skin. Clear splits immediately           Treatment and disposal of filtered solids,Use in contained systems         Handle substance within a closed system           Process sampling         Wear chemically resistant gloves (rested to EN374) in combination with basic' employee training. If skin contained systems           General exposures (closed systems),With occasional contained to parts of the body, then these body parts should also be protected with imperious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           General exposures (closed systems),With occasional containation is expected to section 6 of thesp SBS. <t< td=""><td></td><td>in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.</td><td></td></t<>		in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
in combination with basic employee training, if skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           Operation of solids filtering equipment, elevated facility         Provide the operation with a properly sited receiving hood. Assumes use at not more than 20°C above ambient temperature.           Cleaning of solids filtering equipment, Non-dedicated facility         Wear chemically resistant gloves (fested to EN374) in combination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coverals to prevent exposure to the skin. Clear spills immediately           Process sampling         Wear chemically resistant gloves (tested to EN374) in combination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           Process sampling         Wear chemically resistant gloves (tested to EN374) in combination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS, Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure to parts of the body, then these body parts	<b>S</b>	Handle substance within a closed system	
temperature         hood. Assumes use at not more than 20°C above ambient temperature.           Cleaning of solids filtering equipment,Non-dedicated facility         Wear chemically resistant gloves (fested to EN374) in combination with basic: employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin. Clear spills immediately           Treatment and disposal of filtered solids,Use in contained systems         Handle substance within a closed system           Process sampling         Wear chemically resistant gloves (tested to EN374) in combination with basic employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           General exposures (closed systems),With occasion4         Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure           Pouring from small containers,Non-dedicated facility         Wear chemically resistant gloves (tested to EN374) in combination with basic employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice.	Drill floor operations	in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For	
facility       in combination with basic'employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin. Clear spills immediately         Treatment and disposal of filtered solids, Use in contained systems       Handle substance within a closed system         Process sampling       Wear chemically resistant gloves (tested to EN374) in combination with basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.         General exposures (closed systems), With occasional controlled exposure       Handle substance within a closed system. Sample via a closed log or or the system to avoid exposure         Pouring from small containers, Non-dedicated facility       Wear chemically resistant gloves (tested to EN374) in combination with basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious gaments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good or other system to avoid exposure         Pouring from small containers, Non-dedicated facility       Wear chemically resistant gloves (tested to EN374) in combination with basic' employee training. If s		hood. Assumes use at not more than 20°C above	
Treatment and disposal of filtered solids, Use in contained systems         Handle substance within a closed system           Process sampling         Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           General exposures (closed systems),With occasional controlled exposure         Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure           Pouring from small containers,Non-dedicated facility         Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.           General exposures (open systems)         Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.           Equipment cleaning and maintenance         Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested t		in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the	
in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.         General exposures (closed systems),With occasional controlled exposure       Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure         Pouring from small containers,Non-dedicated facility       Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.         General exposures (open systems)       Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.         Equipment cleaning and maintenance       Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic'		Handle substance within a closed system	
General exposures (closed systems),With occasional controlled exposure       Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure         Pouring from small containers,Non-dedicated facility       Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.         General exposures (open systems)       Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.         General exposures (open systems)       Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.         Equipment cleaning and maintenance       Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic'	Process sampling	in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For	
in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.General exposures (open systems)Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.Equipment cleaning and maintenanceDrain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic'		Handle substance within a closed system. Sample	
in combination with 'basic' employee training. If skin         contamination is expected to extend to other parts of         the body, then these body parts should also be         protected with impervious garments in a manner         equivalent to those described for the hands. For         further specification, refer to section 8 of the SDS.         Equipment cleaning and maintenance         Drain down and flush system prior to equipment         break-in or maintenance. Wear chemically resistant         gloves (tested to EN374) in combination with 'basic'		in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
Equipment cleaning and maintenance Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic'	General exposures (open systems)	in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For	
Lemplovee training. It skin contamination is expected	Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant	

	07/2000 (REACT) with its and	endment Regulation (EU) 2015/830	
		to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin. Clear spills immediately	
Storage,With occasional control	olled exposure	Store substance within a closed system	
.2 Contributing scenar	io controlling environme	ntal exposure (FRC4)	1
	•	g aids in processes and products, not becoming part of	articles
Product characteristics	•		
Physical form of product		Liquid	
, ,		≈ 0.4 kPa	
Vapour pressure			- 1. ' -
Other product characteristics		Substance is complex UVCB, Predominantly hydropho	
Operational conditions			
Amounts used		Fraction of EU tonnage used in region:	1
		Regional use tonnage	20000 t/yr
		Fraction of Regional tonnage used locally:	Not applicable
		Annual site tonnage	Not applicable
Frequency and duration of use		Maximum daily site tonnage Emission days	Not applicable
Frequency and duration of use			Not applicable
Environmental factors not influ management	enced by risk	Local freshwater dilution factor:	Not applicable
-		Local marine water dilution factor:	Not applicable
Other given operational conditions affecting environmental exposure		Release fraction to air from process (initial release prior to RMM):	Not applicable
		Release fraction to wastewater from process (initial release prior to RMM):	Not applicable
<b>Risk Management Measures</b>			
Technical conditions and meas (source) to prevent release	sures at process level	Discharge to aquatic environment is restricted (see Section 4.2)	
Technical onsite conditions an limit discharges, air emissions		Treat air emission to provide a typical removal efficiency of	Not applicable
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of	Not applicable
		If discharging to municipal sewage treatment plant, provide the required onsite wastewater removal efficiency of	Not applicable
Organisation measures to prev site		Prevent environmental discharge consistent with regulatory requirements	
Conditions and measures relation	ted to sewage treatment	Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs	Not applicable
		Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal	Not applicable
		Assumed domestic sewage treatment plant flow	Not applicable
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. Cuttings and process water are disposed according to local and/or national regulations	
Conditions and measures relat of waste	ted to external recovery	External recovery and recycling of waste should comply with applicable local and/or national regulations. Cuttings and process water are re- injected according to local and/or national	

3.1.	Health				
Informa	ation for contributing	g exposure scenario			
2.1	2.1 The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated				
3.2.	Environment				
Information for contributing exposure scenario					
2.2		Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment, Qualitative approach used to conclude safe use			

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health	
Guidance - 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. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk Management Measures are based on qualitative risk characterisation
4.2. Environment	
Guidance - Environment	Offshore industries. Discharge to aquatic environment is restricted by law and industry prohibits release. OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2007, including the assessment of data reported in 2006 and 2007. Onshore drilling: Environmental releases are minimized during onshore drilling operations; waste recycling and disposal is managed according to national and/or local regulations. International Finance Corporation 2007. Environmental, Health, and Safety Guidelines: onshore oil and gas development. Mining Waste Directive (2006/21/EC), European Waste Directive (2008/98/EC) and national transpositions, e.g. Novelle des Kreislaufwirtschaftsgesetzes (KrWG) in Germany.

PROC28

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

### 1. Exposure scenario

Use as a fuel: Ind	ustrial	ES Type: Worker	Association ref code: CONC.24.FU.12
Use descriptors	PROC1, PRO	C2, PROC8a, PROC8b, PROC16, PROC	28
	ERC7		
	ESVOC SPER	C 7.12a.v1	
Processes, tasks, activitie		Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste	
	Industrial use	Industrial use	
2 Operational condi	tions and risk management m	easures	
		PROC1, PROC2, PROC8a, PROC8b, PR	OC16, PROC28)
PROC1	Use in closed process, no likelihoo	d of exposure	
PROC2	Use in closed, continuous process	ntinuous process with occasional controlled exposure	
PROC8a	Transfer of substance or preparation facilities	tance or preparation (charging/discharging) from/to vessels/large containers at non dedicated	
PROC8b	Transfer of substance or preparation	ance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
PROC16	Using material as fuel sources, limi	fuel sources, limited exposure to unburned product to be expected	

Product characteristics				
Physical form of product Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure, Liquid with potential for aerosol generation				
Concentration of substance in product Covers percentage substance in the product up to 100 %, unless stated differently				
Operational conditions				
Frequency and duration of use	Covers daily exposures up to 8 hours, unless stated differently			
Other given operational conditions affecting workers exposure	Assumes a good basic standard of occupational hygiene is implemented,Covers use at ambient temperatures,unless stated differently			

Manual maintenance (cleaning and repair) of machinery

### **Risk Management Measures**

Other risk management measures:				
General measures (skin irritants)	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			
General measures,Flammability	For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.			
General measures, Aspiration hazard	Do not ingest. If swallowed then seek immediate medical assistance			
General measures applicable to all activities	Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection point. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.			
Bulk transfers, Dedicated facility	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner			

according to Regulation (EC) No. 1	1907/2006 (REACH) with its am	endment Regulation (EU) 2015/830	
Drum/batch transfers,Dedicated facility		equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
		Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
General exposures (closed s controlled exposure	ystems),With occasional	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure	
Use as a fuel, Closed system	S	Handle substance within a closed system	
Equipment cleaning and maintenance		Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin. Clear spills immediately	
Storage,With occasional cont	trolled exposure	Store substance within a closed system	
2.2 Contributing scena	ario controllina environme	ntal exposure (ERC7, ESVOC SPERC 7.12a.v1)	I
ERC7	Industrial use of substance		
ESVOC SPERC 7.12a.v1	Use as a fuel: Industrial (S	-	
Product characteristics			
Physical form of product		Liquid	
Vapour pressure		≈ 0.4 kPa	
Other product characteristics		Substance is complex UVCB, Predominantly hydropho	DIC
Operational conditions			
Amounts used		Fraction of EU tonnage used in region: Regional use tonnage Fraction of Regional tonnage used locally: Annual site tonnage Maximum daily site tonnage	0.1 3700000 t/yr 0.0001 1500000 t/yr 5000000 kg/day
Frequency and duration of us	se	Continuous release,Emission days	300 kg/day
Environmental factors not inf		Local freshwater dilution factor:	10
management		Local marine water dilution factor:	100
Other given operational cond environmental exposure	litions affecting	Release fraction to air from process (initial release prior to RMM): Release fraction to wastewater from process (initial	0.005
		release prior to RMM): Release fraction to soil from process (initial release	0
Risk Management Measure		prior to RMM):	
		Common practices vary across sites thus	
Technical conditions and measures at process level (source) to prevent release		conservative process release estimates used	
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. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required.	
		Treat air emission to provide a typical removal efficiency of	95 %
		Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of	94.4 %
		If discharging to municipal sewage treatment plant, provide the required onsite wastewater removal efficiency of	0 %
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Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed	
Conditions and measures related to sewage treatment	Not applicable as there is no release to wastewater	
plant	Estimated substance removal from wastewater via municipal sewage treatment	94.6 %
	Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs	94.6 %
	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal	5200000 kg/day
	Assumed domestic sewage treatment plant flow	2000 m³/d
Conditions and measures related to external treatment of waste for disposal	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations	
Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste of the substance is generated	

3. Exposure estimation and reference to its source

3.1.	Health				
Inform	Information for contributing exposure scenario				
2.1		The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated			
3.2.	Environment				
Information for contributing exposure scenario					
2.2 Hydrocarbon Block Method (Petrorisk)					

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

### 4.1. Health

Guidance - 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. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk Management Measures are based on qualitative risk characterisation
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4.2. Environment	
Guidance - 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. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

### 1. Exposure scenario

Use as a func	tional fluids: Industrial	ES Type: Worker Association ref code: CONC.39.FU.13		
Use descriptors	PR	OC1, PROC2, PROC4, PROC8a, PROC8b, PROC9, PROC28		
	ER	C7		
	ES	VOC SPERC 7.13a.v1		
Processes, tasks, ad	flui	as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic Is in industrial equipment including maintenance and related material transfers		
. Operational c	onditions and risk manag	ustrial use ement measures		
		exposure (PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC9, PROC28)		
PROC1	Use in closed process,	no likelihood of exposure		
PROC2	Use in closed, continuo	Use in closed, continuous process with occasional controlled exposure		
PROC4	Use in batch and other	Use in batch and other process (synthesis) where opportunity for exposure arises		
PROC8a	Transfer of substance of facilities	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities		
PROC8b	Transfer of substance of	r preparation (charging/discharging) from/to vessels/large containers at dedicated facilities		
PROC9	Transfer of substance of	r mixture into small containers (dedicated filling line, including weighing)		
PROC28	Manual maintenance (c	leaning and repair) of machinery		
Product characteri	stics			
Physical form of product		Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure, Liquid with potential for aerosol generation		
Concentration of substance in product		Covers percentage substance in the product up to 100 %, unless stated differently		
Operational condit	ions			
Frequency and duration of use		Covers daily exposures up to 8 hours,unless stated differently		
Other given operational conditions affecting workers exposure		Assumes a good basic standard of occupational hygiene is implemented,Covers use at ambient temperatures,unless stated differently		

### **Risk Management Measures**

Other risk management measures:				
General measures (skin irritants)	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			
General measures,Flammability	For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.			
General measures, Aspiration hazard	Do not ingest. If swallowed then seek immediate medical assistance			
General measures applicable to all activities	Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection point. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.			
Bulk transfers, Closed systems, With occasional controlled exposure	Handle substance within a closed system			
Drum/batch transfers, Dedicated facility	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin			

according to Regulation (EC) No. 1907/2006 (REACH) with its an	endment Regulation (EU) 2015/830	
	contamination is expected to extend to other parts of	
	the body, then these body parts should also be	
	protected with impervious garments in a manner equivalent to those described for the hands. For	
	further specification, refer to section 8 of the SDS.	
	Additional good practice advice. Obligations	
	according to Article 37(4) of REACH do not apply.	
Filling of enticles (equipment Cleared systems	Ensure no splashing occurs during transfer.	
Filling of articles/equipment, Closed systems	Transfer via enclosed lines. Wear suitable gloves tested to EN374. If skin contamination is expected to	
	extend to other parts of the body, then these body	
	parts should also be protected with impervious	
	garments in a manner equivalent to those described	
	for the hands. For further specification, refer to section 8 of the SDS.	
Filling of equipment from drums or containers, Non-	Wear chemically resistant gloves (tested to EN374)	
dedicated facility	in combination with 'basic' employee training. If skin	
	contamination is expected to extend to other parts of	
	the body, then these body parts should also be	
	protected with impervious garments in a manner equivalent to those described for the hands. For	
	further specification, refer to section 8 of the SDS.	
	Additional good practice advice. Obligations	
	according to Article 37(4) of REACH do not apply.	
General exposures (closed systems),With occasional	Ensure no splashing occurs during transfer. Handle substance within a closed system. Sample	
controlled exposure	via a closed loop or other system to avoid exposure	
General exposures (open systems)	Wear suitable gloves tested to EN374. If skin	
	contamination is expected to extend to other parts of	
	the body, then these body parts should also be	
	protected with impervious garments in a manner	
	equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.	
General exposures (open systems), elevated	Minimise exposure by partial enclosure of the	
temperature	operation or equipment and provide extract	
	ventilation at openings. For measures to control risks	
	from physicochemical properties, refer to main body	
Remanufacture of reject articles	of the SDS, section 7 and/or 8. Drain or remove substance from equipment prior to	
	break-in or maintenance. Wear suitable gloves	
	tested to EN374. If skin contamination is expected to	
	extend to other parts of the body, then these body	
	parts should also be protected with impervious garments in a manner equivalent to those described	
	for the hands. For further specification, refer to	
	section 8 of the SDS.	
Equipment cleaning and maintenance	Drain down and flush system prior to equipment	
	break-in or maintenance. Wear chemically resistant	
	gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected	
	to extend to other parts of the body, then these body	
	parts should also be protected with impervious	
	garments in a manner equivalent to those described	
	for the hands. For further specification, refer to	
	section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of	
	REACH do not apply. Wear suitable coveralls to	
	prevent exposure to the skin. Clear spills	
	immediately	
Storage,With occasional controlled exposure	Store substance within a closed system	
	ental exposure (ERC7, ESVOC SPERC 7.13a.v1)	
ERC7 Industrial use of substanc	-	
ESVOC SPERC 7.13a.v1 Functional Fluids: Industri	al (SU3)	
Product characteristics		
Physical form of product	Liquid	
Vapour pressure	≈ 0.4 kPa	
Other product characteristics	Substance is complex UVCB, Predominantly hydrophe	bic
Operational conditions		1
Amounts used	Fraction of EU tonnage used in region:	0.1
	Regional use tonnage Fraction of Regional tonnage used locally:	1400 t/yr 0.0069
	r radion of regional torniage abou locally.	0.0000

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

	Annual site tonnage	10 t/yr
	Maximum daily site tonnage	500 kg/day
Frequency and duration of use	Continuous release, Emission days	20
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100
Other given operational conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM):	0.005
	Release fraction to wastewater from process (initial release prior to RMM):	0.00003
	Release fraction to soil from process (initial release prior to RMM)	0.001

#### Risk Management Measures

Nisk management measures		
Technical conditions and measures at process level	Common practices vary across sites thus	
(source) to prevent release	conservative process release estimates used	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required. Treat air emission to provide a typical removal efficiency of Treat onsite wastewater (prior to receiving water	0 % 29.7
	discharge) to provide the required removal efficiency of If discharging to municipal sewage treatment plant, provide the required onsite wastewater removal efficiency of	% 0 %
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed Not applicable as there is no release to wastewater	
plant	Estimated substance removal from wastewater via municipal sewage treatment	94.6 %
	Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs	94.6 %
	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal	6500 kg/day
Conditions and measures related to external treatment of waste for disposal	Assumed domestic sewage treatment plant flow External treatment and disposal of waste should comply with applicable local and/or national regulations	2000 m³/d
Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations	

3.1.	Health

Information for contributing exposure scenario			
2.1 The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated			
3.2.	Environment		
Information for contributing exposure scenario			
2.2	2.2 Hydrocarbon Block Method (Petrorisk)		

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Guidance - 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. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk
	Management Measures are based on qualitative risk characterisation

2. Environment	
Guidance - 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. Required
	removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in

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

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

### 1. Exposure scenario

Use as a fuel: Professional	ES Type: Worker Association ref code: CONC.24.FU.12
Use descriptors	PROC1, PROC2, PROC8a, PROC8b, PROC16, PROC28
	ERC9a, ERC9b
	ESVOC SPERC 9.12b.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
	Professional use

## 2. Operational conditions and risk management measures

#### 2.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC8a, PROC8b, PROC16, PROC28)

PROC1	Use in closed process, no	Use in closed process, no likelihood of exposure		
PROC2	Use in closed, continuous	Use in closed, continuous process with occasional controlled exposure		
PROC8a	Transfer of substance or facilities	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities		
PROC8b	Transfer of substance or	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities		
PROC16	Using material as fuel so	Using material as fuel sources, limited exposure to unburned product to be expected		
PROC28	Manual maintenance (cle	Manual maintenance (cleaning and repair) of machinery		
Product characteristics				
Physical form of product		Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure, Liquid with potential for aerosol generation		
Concentration of substance in product		Covers percentage substance in the product up to 100 %, unless stated differently		
Operational conditions				
Frequency and duration of use		Covers daily exposures up to 8 hours, unless stated differently		
Other given operational conditions affecting workers exposure		Assumes a good basic standard of occupational hygiene is implemented,Covers use at ambient temperatures,unless stated differently		
D'als Management Management				

### **Risk Management Measures**

Other risk management measures:			
General measures (skin irritants)	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		
General measures,Flammability	For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.		
General measures, Aspiration hazard	Do not ingest. If swallowed then seek immediate medical assistance		
General measures applicable to all activities	Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection point. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.		
Bulk transfers, Dedicated facility	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner		

	301/2000 (REACT) with its am	endment Regulation (EU) 2015/830	
		equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
Drum/batch transfers,Dedicated facility		Use drum pumps. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
refuelling		Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.	
General exposures (closed sy	stems),With occasional	Handle substance within a closed system. Sample	
controlled exposure Use as a fuel,Closed systems		via a closed loop or other system to avoid exposure Handle substance within a closed system	
Equipment cleaning and maintenance Storage,With occasional controlled exposure Contributing scenario controlling environme		Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin. Clear spills immediately Store substance within a closed system	p.v1)
ERC9a	Wide dispersive indoor us	e of substances in closed systems	
ERC9b		use of substances in closed systems	
ESVOC SPERC 9.12b.v1	Use as a fuel: Professiona	al (SU22)	
Product characteristics			
Physical form of product		Liquid	
Vapour pressure		≈ 0.4 kPa	
Other product characteristics		Substance is complex UVCB, Predominantly hydropho	DIG
Operational conditions			
Amounts used		Fraction of EU tonnage used in region:         Regional use tonnage         Fraction of Regional tonnage used locally:         Annual site tonnage         Maximum daily site tonnage	0.1 6800000 t/yr 0.0005 3400 t/yr 9300 kg/day
Frequency and duration of use		Continuous release,Emission days	365
Environmental factors not influenced by risk management		Local freshwater dilution factor: Local marine water dilution factor:	10 100
Other given operational conditions affecting environmental exposure		Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use: Release fraction to soil from wide dispersive use	0.0001 0.00001 0.00001
Risk Management Measures		(regional only):	
Technical conditions and mea		Common practices vary across sites thus conservative process release estimates used	
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(source) to prevent release		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required.	
	Treat air emission to provide a typical removal efficiency of	Not applicable
	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of	38.8 %
	If discharging to municipal sewage treatment plant, provide the required onsite wastewater removal efficiency of	0 %
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed	
Conditions and measures related to sewage treatment	Not applicable as there is no release to wastewater	
plant	Estimated substance removal from wastewater via municipal sewage treatment	94.6 %
	Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs	94.6 %
	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal	110000 kg/day
	Assumed domestic sewage treatment plant flow	2000 m³/d
Conditions and measures related to external treatment of waste for disposal	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations	
Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste of the substance is generated	

### 3.1. Health

Inform	Information for contributing exposure scenario		
2.1	2.1 The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated		
3.2.	Environment		
Inform	Information for contributing exposure scenario		
2.2		Hydrocarbon Block Method (Petrorisk)	

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health	
Guidance - 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. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not enable the derivation of a DNEL for spiration effects. Risk Management Measures are based on qualitative risk characterisation
4.2. Environment	
Guidance - 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. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

## 1. Exposure scenario

Use as a fuel: Consumer		ES Type: Consumer	Association ref code: CONC.26.FU.12
· · · · ·			
Use descriptors	PC13		
		9a, ERC9b	
		DC SPERC 9.12c.v1	
Processes, tasks, activities co	overed Cove	rs consumer uses in liquid fuels	
	Cons	umer use	
2. Operational conditio	ns and risk manage	ment measures	
2.1 Contributing scena	rio consumer end-use (P	C13)	
PC13	Fuels		
Product characteristics			
Physical form of product		Liquid	
Concentration of substance in	n product	Covers percentage substance in the product up to 10	0 %, unless stated differently
Operational conditions		·	
Amounts used		Annual site tonnage	
Frequency and duration of us	se	Unless otherwise stated:Covers use up to	10 events per day
Other given operational cond exposure	itions affecting consumers	Unless otherwise stated:Covers use at ambient temperatures	
Risk Management Measure	s		
Conditions and measures related to information and		Fuels. Liquid: Automotive Refuelling	
behavioural advice to consum	ners	For each use event, covers use amounts up to :	44000 g
		Covers exposure up to	0.05 hr/event
		Covers outdoor use	
		Assumes that potential dermal contact is limited to hands.	Palm of one hand
		No specific risk management measure identified beyond those operational conditions stated	
		Fuels. Liquid: Home space heater fuel	
			2220 ~
		For each use event, covers use amounts up to : Covers exposure up to	3320 g 0.033
			hr/event
		Assumes that potential dermal contact is limited to hands.	Palm of one hand
		No specific risk management measure identified beyond those operational conditions stated	
		Fuels. Liquid: Garden Equipment - Refuelling	
			750 g
		For each use event, covers use amounts up to : Covers exposure up to	0.033
		Assumes that potential dermal contact is limited to	hr/event
		inside hands / one hand / palm of hands. No specific risk management measure identified	
		beyond those operational conditions stated	
Other risk management meas			-
General measures (skin irritants)		Ensure there is no direct skin contact with product. Wash off any skin contamination immediately.	
General measures,Flammability		For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.	
General measures, Aspiration hazard		Do not ingest. If swallowed then seek immediate medical assistance	
2.2 Contributing scena	rio controlling environme	ental exposure (ERC9a, ERC9b, ESVOC SPERC 9.12d	c.v1)
ERC9a	Wide dispersive indoor us	e of substances in closed systems	
ERC9b	Wide dispersive outdoor u	se of substances in closed systems	
ESVOC SPERC 9.12c.v1	Use as a fuel: Consumer	(SU21)	

## **Product characteristics**

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Liquid	
≈ 0.4 kPa	
Substance is complex UVCB, Predominantly hydropho	obic
Fraction of EU tonnage used in region:	0.1
Regional use tonnage	19000000 t/yr
Fraction of Regional tonnage used locally:	0.0005
Annual site tonnage	9500 t/yr
	26000 kg/day
Continuous release	
Emission days	365
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Release fraction to air from wide dispersive use (regional only):	0.0001
Release fraction to wastewater from wide dispersive use:	0.00001
Release fraction to soil from wide dispersive use (regional only):	0.00001
Not applicable as there is no release to wastewater	
Estimated substance removal from wastewater via municipal sewage treatment	94.6 %
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal	230000 kg/day
Assumed domestic sewage treatment plant flow	2000 m³/d
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations	
This substance is consumed during use and no waste of the substance is generated	
source	
	<ul> <li>≈ 0.4 kPa</li> <li>Substance is complex UVCB, Predominantly hydrophed</li> <li>Fraction of EU tonnage used in region: Regional use tonnage</li> <li>Fraction of Regional tonnage used locally: Annual site tonnage</li> <li>Maximum daily site tonnage</li> <li>Continuous release</li> <li>Emission days</li> <li>Local freshwater dilution factor:</li> <li>Local marine water dilution factor:</li> <li>Release fraction to air from wide dispersive use (regional only):</li> <li>Release fraction to soil from wide dispersive use (regional only):</li> <li>Not applicable as there is no release to wastewater</li> <li>Estimated substance removal from wastewater via municipal sewage treatment</li> <li>Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal Assumed domestic sewage treatment plant flow</li> <li>Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.</li> <li>External treatment and disposal of waste should comply with applicable local and/or national regulations</li> <li>This substance is consumed during use and no waste of the substance is generated</li> </ul>

2.1		ECETOC TRA consumer v3
3.2.	Environment	
Inform	nation for contributing	g exposure scenario
2.2		Hydrocarbon Block Method (Petrorisk)

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health Guidance - 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. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation
4.2. Environment	
Guidance - 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. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)