MARINE GAS OIL (bunker use)

Safety Data Sheet

EU SDS format according to COMMISSION REGULATION (EU) 2020/878
Release Date: 2025-05-22 Revision Date: 2025-05-17 Replaces the version of 2021-01-01 Version 2.0

SECTION 1: Identification of the substance/mixture and the company

1.1. Product identifier

Product form : Blend
Trade name : BUNKER GAS OIL, BUNKER use GAS OIL, MARINE GAS OIL, MGO, DMA GAS OIL, DFA GAS OIL; F-75; F-76
Product Type : Fuels
Product group : Commercial Product

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

1.2.1. Relevant identified uses

Main Use Category : Industrial use, Professional use, Consumer use
Specification for professional/industrial use : Non-dispersive use
Use of substance/mixture : Fuels / Fuels, Coating, Metalworking Fluid, Lubricants, Greases & Release, Products Drilling Fluids, Intermediates
Function or use category : Fuels / Fuels, Coating, Lubricants, Greases & Release Products, Hydraulic Fluids & Additives, Drilling & Drilling, Intermediates

Title	Use Descriptors
Distribution of the substance (Ref. SE: 01a)	SU3, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ESVOC SPERC 1.1b.v1
Formulation and (re)packaging of substances and mixtures (Ref. SE: 02)	SU3, SU10, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15, ERC2, ESVOC SPERC 2.2.v1
Use in coatings (Ref. SE: 03a)	SU3, PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15, ERC4, ESVOC SPERC 4.3a.v1
Use in the drilling and production of wells for the extraction of oil and natural gas (Ref. SE: 05a)	SU3, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, ERC4
Lubricants (Ref. SE: 06a)	SU3, PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18, ERC4, ERC7, ESVOC SPERC 4.6a.v1
Metalworking fluids/rolling oils (Ref. SE: 07a)	SU3, PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, ERC4, ESVOC SPERC 4.7a.v1
Use as fuel (Ref. SE: 12a)	SU3, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, ERC7, ESVOC SPERC 7.12a.v1
Use in coatings (Ref. SE: 03b)	SU22, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19, ERC8a, ERC8d, ESVOC SPERC 8.3b.v1
Use in the drilling and production of wells for the extraction of oil and natural gas (Ref. SE: 05a)	SU22, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, ERC8d
Lubricants (Ref. SE: 06b)	SU22, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20, ERC9a, ERC9b
Lubricants (Ref. SE: 06c)	SU22, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20, ERC8a, ERC8d, ESVOC SPERC 8.6c.v1
Use as fuel (Ref. SE: 12b)	SU22, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, ERC9a, ERC9b, ESVOC SPERC 9.12b.v1
Use as fuel (Ref. SE: 12c)	SU21, ERC9a, ERC9b, ESVOC SPERC 9.12c.v1

Full text of the descriptors of use : see section 16

1.2.2. Not recommended uses

Relevant uses are listed above. No other uses shall be recommended unless an assessment has been carried out, prior to the start of such use, demonstrating that the risks associated with such use are controlled.

1.3. Information on the safety data sheet provider

Producer
JEnergy S.p.A.
Via Adolfo Ravà, 49
IT 00142 Roma, ItaliaT +39 06590101, F +39 065414923
reach@jenergyspa.it

1.4. Emergency telephone number

Emergency number : +39 06590101
Bambino Gesù Children's Hospital - Rome - +39 06 6859 3726 - 24h
"University of Foggia Hospital - Foggia - +39 800 18 3459 - 24h
"A. Cardarelli" Hospital - Naples - +39 081 5453 333 - 24h
Umberto I Polyclinic - Rome - +39 06 4997 8000 - 24h
A.Gemelli Polyclinic - Rome - +39 06 3054 343 - 24h
"Careggi Hospital Department of Medical Toxicology - Florence - +39 055 7947 819 - 24h
National Center for Toxicological Information - Pavia - +39 0382 24444 - 24h
"Niguarda Ca' Granda Hospital - Milan - +39 02 6610 1029 - 24h
"Papa Giovanni XXIII Hospital - Bergamo - +39 800 88 3300 - 24h
Verona Integrated Hospital - Verona - +39 800 01 1858 - 24h

SECTION 2: Hazard Identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS / CLP]

Acute toxicity (by inhalation: dust, mist) Category 4	H332
Skin corrosion/irritation, category 2	H315
Carcinogenicity, category 2	H351
Specific Target Organ Toxicity – Repeated Exposure, Category 2	H373
Aspiration hazard, category 1	H304
Hazardous to the aquatic environment – Chronic hazard, category 2	H411

Full text of H and EUH phrases: see section 16

Adverse physicochemical effects on human health and the environment

Flammable liquid and vapors. Repeated and prolonged contact can cause skin redness, irritation and contact dermatitis due to degreasing effect. Harmful by inhalation. It can cause damage to organs with prolonged or repeated exposure. In contact with the skin it is suspected to cause cancer. Aspiration into the lungs can cause chemical pneumonia. Toxic to aquatic organisms, it can cause long-term negative effects for the aquatic environment. For specific information on the toxicological characteristics and classification of the product, please refer to section 11 and/or 12 of the data sheet.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS07 GHS08 GHS09

Warning (CLP) : Danger
Contains : Fuels, diesel - Diesel, not specified

Hazard statements (CLP) : H304 - May be fatal if swallowed and enters the respiratory tract.
H315 - Causes skin irritation.
H332 - Harmful if inhaled.

		H351 - Suspected of causing cancer. H373 - May cause damage to organs (thymus, liver, blood) in case of prolonged or repeated exposure (Dermal). H411 - Toxic to aquatic organisms with long-lasting effects.
Precautionary statements (CLP)	:	P102 - Keep out of reach of children. P210 - Keep away from heat sources, hot surfaces, sparks, open flames, or other sources of ignition. Do not smoke. P260 - Do not breathe fog, fumes, aerosols, vapors, gases. P271 - Use only outdoors or in a well-ventilated place. P273 - Do not disperse in the environment. P280 - Wear: gloves, Face protection, eye protection, Wear protective clothing. P301+P310 - IF SWALLOWED: Contact a POISON CENTER/physician immediately. P308+P313 - IF exposure or possible exposure occurs, seek medical attention. P331 - DO NOT induce vomiting. P391 - Pick up spilled material. P501 - Dispose of the product/container in accordance with the applicable regulations (Legislative Decree 152/2006 and subsequent amendments).

2.3. Other hazards (not relevant to classification)

Other hazards that do not appear in the classification	:	The product can be electrostatically charged: always use the ground connections when transferring it from one container to another. The vapors can form a flammable and explosive mixture with air. The vapours can extend a considerable distance at ground level before igniting and/or backfiring back to the source of the vapour.

This substance/mixture does not meet the PBT criteria of the REACH Regulation, Annex XIII
This substance/mixture does not meet the vPvB criteria of the REACH Regulation, Annex XIII
Does not contain PBT and/or vPvB substances ≥ 0.1% evaluated in accordance with Annex XIII of REACH

The mixture does not contain a substance(s) included in the list established in accordance with Article 59(1) of the REACH Regulation to have endocrine-disrupting properties, or a substance(s) identified as having endocrine-disrupting properties(s) according to the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration of 0.1% or more

SECTION 3: Composition/Ingredient Information

3.2. Mixtures

Notes	:	Composition/Ingredient Information: fuels, diesel; diesel fuel — not specified; [A complex combination of hydrocarbons produced by distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 to C20 and boiling in the range of approximately 163 °C to 357 °C. (325 °F to 675 °F).] Additives

Name	Product identifier	%	Classification according to Regulation (EC) No 1272/2008 [EU-GHS / CLP]
Fuels, diesel - Diesel, not specified	CAS Number: 68334-30-5 EC Number: 269-822-7 EC index number: 649-224-00-6 REACH No.: 01-2119484664-27	≥ 75 < 100	Flam. Liq. 3, H226 Acute Tox. 4 (by inhalation: dust, mist), H332 Skin Irrit. 2, H315 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
hydrogen sulfide (Pollutant)	CAS Number: 7783-06-4 EC Number: 231-977-3 EC index number: 016-001-00-4 no. REACH: N/A	< 0.1	Flam. Gas 1A, H220 Press. Gas Acute Tox. 2 (per inalazione), H330 (ATE=100 ppmv/4h)Aquatic Acute 1, H400

Full text of H and EUH phrases: see section 16

SECTION 4: First Aid Measures

4.1. Description of first aid measures

General first aid measures : If spontaneous or incorrectly provoked vomiting occurs, the person should be rushed to the hospital to see if he or she can be aspirated into the lungs.

First aid measures in case of inhalation : The risk of inhalation is unlikely due to the low vapour pressure at room temperature. Exposure to vapours can, however, occur when the substance is handled at high temperatures under poorly ventilated conditions. Take the person to a well-ventilated area, keep warm and rest. If the injured person is unconscious and not breathing: check for obstacles to breathing and practice artificial respiration by competent personnel. If necessary, perform external cardiac massage and consult a doctor. If the victim is breathing: Keep in a lateral safety position. Administer oxygen if necessary.

First aid measures in the event of skin contact : Remove contaminated footwear and clothing and dispose of them safely. Wash thoroughly with water/.... Seek medical attention immediately in case irritation, swelling, or redness develops and persists. For minor thermal burns, cool the injured part. Hold the burned area under cold running water for at least five minutes, or until the pain disappears. Avoid general hypothermia. Do not apply ice to the burn. Do not apply ointments or anything else, unless medically ordered. When using high-pressure equipment, product injection may occur. Immediately transfer the injured person to the hospital. Do not wait for symptoms to appear.

First aid measures in case of contact with eyes : Remove contact lenses, if present, if the situation allows the operation to be carried out easily. Rinse thoroughly for at least 15 minutes. Keep the eyelids wide open. If you experience irritation, blurred vision, or persistent swelling, consult a medical professional.

First aid measures in case of ingestion : Do not induce vomiting to avoid the risk of aspiration. Do not administer anything by mouth to a person who is unconscious. If swallowed, always assume that aspiration has taken place. Immediately transfer the injured person to the hospital. Do not wait for symptoms to appear. In case of spontaneous vomiting, keep the head down, to avoid the risk of aspiration into the lungs.

4.2. Main symptoms and effects, both acute and delayed

Symptoms/effects : Potential chronic health effects are to be considered.

Symptoms/effects in case of inhalation : Inhalation of the vapors can cause headaches, nausea, vomiting and an altered state of consciousness.

Symptoms/effects in case of skin contact : Repeated and prolonged contact can cause skin redness, irritation and contact dermatitis due to degreasing effect.

Symptoms/effects in case of contact with eyes : Contact with the eyes may cause slight transient irritation.

Symptoms/effects in case of ingestion : Ingestion of the fluid can cause aspiration into the lungs with the risk of chemical pneumonia.

Symptoms/effects after intravenous administration : No information available.

Chronic symptoms : In contact with the skin it is suspected to cause cancer. It can cause damage to organs (thymus, liver, blood) in case of prolonged or repeated exposure.

4.3. Indication of the need for immediate medical advice and special treatment

Seek medical attention if the victim is in an altered state of consciousness, or if symptoms do not disappear. If swallowed, always assume that aspiration has taken place. Immediately transfer the injured person to the hospital. If necessary, perform gastric lavage ONLY under qualified medical supervision.

SECTION 5: Firefighting Measures

5.1. Extinguishing means

Suitable extinguishing means : Small fires: carbon dioxide, dust, foam, sand or soil. Large fires: foam or water spray. These vehicles should only be used by suitably trained personnel. Other extinguishing gases (according to regulations).

Unsuitable extinguishing media : Do not use direct jets of water. These can cause splashing, and extend the fire. Avoid using foam and water on the same surface at the same time as water destroys the foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	Flammable liquid and vapors.
Danger of explosion	:	The vapors can form an explosive mixture with air.
Hazardous combustion products in the event of fire	:	Incomplete combustion generates carbon monoxide, carbon dioxide and other toxic gases. Oxygenated compounds (aldehydes, etc.). Solid particulate matter. The products of combustion include sulphur oxides (SO2 and SO3) and hydrogen sulphide (H2S).

5.3. Recommendations for firefighters

Precautionary measures in the event of a fire	:	Cover any spills that have not caught fire with foam or soil.
Instructions for extinguishing	:	If possible, stop product leaks at the source. Remove containers from the fire zone if it can be done without personal hazard. Use water jets to cool surfaces and containers exposed to flame or heat. If the fire cannot be controlled, evacuate the area.
Protection during firefighting	:	Personal protective equipment for firefighters (see also section 8). In the event of a fire or in confined or poorly ventilated spaces, wear full flame retardant protective clothing and a self-contained respirator equipped with a full mask operating under positive pressure. EN 15090. EN 443. EN 469. EN 659.
Other information	:	In the event of a fire, do not disperse wastewater, residual product and other contaminated materials, but collect separately and treat appropriately.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General measures	:	If safety conditions permit, stop or contain the leak at source. Eliminate all sources of ignition if safety conditions allow it (e.g.: electricity, sparks, fires, torches). Avoid direct contact with the released material. To remain upwind. Use only non-sparking tools. In the event of a large spill, warn the residents of the leeward areas. In cases where the presence of dangerous amounts of H2S in the spilled/spilled product is suspected or ascertained, additional or special actions may be indicated, such as limiting access, using special personal protective equipment, adopting specific procedures and training personnel.

6.1.1. For those who do not intervene directly

Means of protection	:	See section 8.
Emergency procedures	:	Remove uninvolved personnel from the spill area. Alert emergency teams. Except in the case of small payments, the feasibility of the interventions must always be evaluated and approved, if possible, by qualified and competent personnel in charge of managing the emergency.

6.1.2. For those who intervene directly

Means of protection	:	Small spills: Normal anti-static work clothing is generally appropriate. Large spills: Chemically resistant all-protective garment made of antistatic material. Work gloves that provide adequate resistance to chemical agents, especially aromatic hydrocarbons. Gloves made of PVA (polyvinyl alcohol) are not water-resistant and are not suitable for emergency use. If contact with the hot product is possible or foreseeable, the gloves must be heat-resistant and thermally insulated. Antistatic and non-slip safety shoes or boots, resistant to chemical agents. Protective helmet. Safety goggles and/or face protection if splashing or eye contact is possible or foreseeable. Respiratory protection: A half mask or a full mask equipped with an organic vapour filter(s) (A) (or A+B where applicable for H2S), or a stand-alone respirator, depending on the extent of the spill and the foreseeable level of exposure. In the event that the situation cannot be fully assessed or if there is a risk of oxygen deficiency, use a stand-alone respirator exclusively.
Emergency procedures	:	In the event of a large spill, warn the residents of the leeward areas. Notify the competent authorities in accordance with current regulations.

6.2. Environmental precautions

Do not allow the product to accumulate in confined spaces or below ground level. Do not allow the product to flow into sewers or waterways, or in any case to be dispersed into the environment. In the event of contamination of the environmental matrices (soil, subsoil, surface water and groundwater), remove the contaminated soil if possible and in any case treat the contaminated matrices in accordance with Legislative Decree 152/06 and subsequent amendments (and applicable local regulations). The site must be equipped with a plan for intervention in the event of spills, to ensure the existence of adequate safeguard measures to minimize the impact of sporadic releases.

6.3. Methods and materials for containment and remediation

Methods for containment	:	Absorb any spilled product with sand or soil. Large spills can be covered, with caution, with foam, if available, in order to prevent fire hazards. Inside buildings or confined spaces, ensure appropriate ventilation. Absorb spilled product with non-flammable materials. Collect the spilled product by suitable mechanical means. Transfer the product and other contaminated materials collected to appropriate tanks or containers for safe recycling or disposal. If it is necessary to store contaminated material for subsequent safe disposal, use only suitable containers (leak-proof, sealed, waterproof, earthed). If in water: In case of small spills in enclosed waters, contain the product using floating barriers or other devices. Collect the spilled product with specific floating absorbent materials. If possible, contain larger spills into the water by using floating barriers or other appropriate mechanical means. If this is not possible, check the spread level of the spilled product and collect the material using a skimmer or other mechanical means. Collect recovered product and other materials in appropriate tanks or containers, for safe recycling or disposal. Do not use solvents or dispersing agents, unless expressly indicated by an expert and, where required, authorized by the competent local authorities.
Other information	:	The recommended measures are based on the most likely spill scenarios for this product. Local conditions (wind, air temperature, direction and speed of waves and currents) can, however, significantly influence the choice of action to be taken. Local legislation may determine or limit the actions to be taken. Therefore, consult local experts if necessary.

6.4. Reference to other sections

For more information, see section 8: "Exposure control-personal protection". For more information, see section 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure that all provisions regarding handling and storage facilities for flammable products are properly complied with. Do not use electrical appliances (mobile phones, etc.) that are not approved for use, according to the risk characteristics of the area. Do not use compressed air when filling, draining, or handling. Keep away from heat sources/sparks/open flames/hot surfaces. Steam is heavier than air. Pay special attention to accumulation in wells and confined spaces. Do not smoke. Use and store only outside or in a well-ventilated place. During transfer and mixing operations, ensure proper grounding of equipment and avoid the accumulation of electrical charges. Ensure that the container, tanks and equipment for reception and transfer are grounded. Before accessing the storage tanks and starting any type of intervention in a confined space (e.g. tunnels), carry out adequate remediation, check the atmosphere and check the oxygen content, the degree of flammability, and the presence of sulfur compounds. Empty containers may contain combustible product residues. Do not puncture, cut, grind, weld, braze, burn, or incinerate unreclaimed empty containers or drums.
Hygiene measures	:	Make sure that adequate housekeeping measures are taken. Use appropriate personal protective equipment if necessary. Keep away from food and drink. Do not breathe fumes/mists/vapors. Avoid contact with skin. Wash hands thoroughly after handling. Do not swallow. Do not smoke. Contaminated material must not accumulate in the workplace and should never be stored in your pocket. Do not reuse clothing that is still contaminated. Prevent the risk of slipping.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	The electrical equipment and systems must have the appropriate safety features, depending on the specific risk characteristics of the area. Before accessing the storage tanks and starting any type of intervention in a confined space (e.g. tunnels), carry out adequate remediation, check the atmosphere and check the oxygen content and the degree of flammability.
Storage conditions	:	Store in a dry and well-ventilated place. Do not smoke. Store away from open flames, hot surfaces and sources of ignition. The vapours are heavier than air, and can propagate at ground level. Pay special attention to accumulation in wells and confined spaces.
Incompatible products	:	Store away from: strong oxidants.

Storage location	:	The structure of the storage area, the characteristics of the tanks, the equipment and the operating procedures must comply with the relevant legislation at European, national or local level. Storage facilities/areas must be equipped with appropriate systems to prevent soil and water contamination in the event of leaks or spills. The cleaning, inspection and maintenance of the internal structure of the storage tanks must be carried out by qualified and properly equipped personnel, as established by national, local, or company regulations.
Packaging and containers:	:	If the product is supplied in containers: Keep containers carefully closed and correctly labelled. Store only in the original container or in a container suitable for the type of product. Store away from the sun and other heat sources. Light hydrocarbon vapours may accumulate at the top of the containers. Open slowly to keep any pressure releases under control. Empty containers may contain flammable product residues. Do not weld, braze, drill, cut, or incinerate empty containers unless they have been properly cleaned/reclaimed.
Packaging Materials	:	For the production of containers or internal coatings, use approved material suitable for the use of the product. Use mild steel and stainless steel for containers and coatings. Some synthetic materials may not be suitable for containers or coatings based on the characteristics of the material and the intended uses. Check with the manufacturer for compatibility.

7.3. Special end-uses

Refer to section 1.

SECTION 8: Exposure/Personal Protective Controls

8.1. Control parameters

8.1.1 National occupational and biological exposure limit values

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
Belgium - Occupational exposure limit values	
OEL TWA	100 mg/m³
Ireland - Occupational exposure limit values	
OEL TWA	100 mg/m³
Romania - Occupational exposure limit values	
OEL TWA	700 mg/m³
OEL STEL	1000 mg/m³
USA - ACGIH - Occupational Exposure Limit Values	
ACGIH OEL TWA	100 mg/m³ Diesel fuel (Total HC)

hydrogen sulfide (7783-06-4)	
EU - Indicative Occupational Exposure Limit Value (IOEL)	
Local name	Hydrogen sulphide
IOEL TWA	7 mg/m³
	5 ppm
IOEL STEL	14 mg/m³
	10 ppm
Regulatory reference	COMMISSION DIRECTIVE 2009/161/EU
Austria - Occupational exposure limit values	
MAK (OEL TWA)	7 mg/m³
	5 ppm
MAK (OEL STEL)	7 mg/m³

hydrogen sulfide (7783-06-4)	
	5 ppm
Belgium - Occupational exposure limit values	
OEL TWA	2.3 mg/m³
	1,64 ppm
OEL STEL	5.61 mg/m³
	4 ppm
Denmark - Occupational exposure limit values	
OEL TWA	7 mg/m³
	5 ppm
OEL STEL	14 mg/m³
	10 ppm
Finland - Occupational exposure limit values	
HTP (OEL TWA)	7 mg/m³
	5 ppm
HTP (OEL STEL)	14 mg/m³
	10 ppm
France - Occupational exposure limit values	
VME (UL TWA)	7 mg/m³
	5 ppm
VLE (OEL C/STEL)	14 mg/m³
	10 ppm
Germany - Occupational exposure limit values (TRGS 900)	
AGW (OEL TWA)	7.1 mg/m³
	5 ppm
AGW (OEL C)	14.2 mg/m³
AGW (OEL C) [ppm]	10 ppm
Hungary - Occupational exposure limit values	
AND (OEL THREE)	7 mg/m³
CK (OEL STEL)	14 mg/m³
Ireland - Occupational exposure limit values	
OEL TWA	7 mg/m³
	5 ppm
OEL STEL	14 mg/m³
	10 ppm
Italy - Occupational exposure limit values	
Local name	Hydrogen sulfide
OEL TWA	7 mg/m³
	5 ppm
OEL STEL	14 mg/m³

hydrogen sulfide (7783-06-4)	
	10 ppm
Regulatory reference	Annex XXXVIII of Legislative Decree No. 135 of 4 September 2024
Latvia - Occupational exposure limit values	
OEL TWA	7 mg/m³
	5 ppm
OEL STEL	14 mg/m³
	10 ppm
Netherlands - Occupational exposure limit values	
TGG-8u (OEL TWA)	2.3 mg/m³
	1,64 ppm
Poland - Occupational exposure limit values	
NDS (OEL TWA)	7 mg/m³
NDSCh (OEL STEL)	14 mg/m³
Romania - Occupational exposure limit values	
OEL TWA	7 mg/m³
	5 ppm
OEL STEL	14 mg/m³
	10 ppm
Spain - Occupational exposure limit values	
CUSTARD-ED (UL TWA)	7 mg/m³
	5 ppm
VLA-EC (OEL STEL)	14 mg/m³
	10 ppm
Sweden - Occupational exposure limit values	
NGV (OEL TWA)	7 mg/m³
	5 ppm
KGV (OEL SET)	14 mg/m³
	10 ppm
United Kingdom - Occupational exposure limit values	
WEL TWA (OEL TWA)	7 mg/m³
	5 ppm
WELL SET (OEL SET)	14 mg/m³
	10 ppm
Norway - Occupational exposure limit values	
Grenseverdi (OEL TWA)	7 mg/m³
	5 ppm
Korttidsverdi (OEL STEL)	14 mg/m³
	10 ppm

hydrogen sulfide (7783-06-4)	
Switzerland - Occupational exposure limit values	
MAK (OEL TWA)	7.1 mg/m³
	5 ppm
KZGW (OEL STEL)	14.2 mg/m³
	10 ppm
USA - ACGIH - Occupational Exposure Limit Values	
ACGIH OEL TWA	1 ppm (ACGIH 2021)
ACGIH OEL STEL	5 ppm (ACGIH 2021)

8.1.2. Recommended monitoring procedures

Monitoring methods	
Monitoring methods	Monitoring procedures must be selected on the basis of indications established by the competent local authorities or national employment contracts. Refer to Legislative Decree 81/2008 and good industrial hygiene practices. UNI EN 482:2021: Exposure in the workplace - Procedures for determining the concentration of chemical agents - Basic performance requirements. UNI EN 689:2019: Exposure in the workplace - Measurement of exposure by inhalation to chemical agents - Strategy for verifying compliance with occupational exposure limit values.

8.1.3. Formation of Air Contaminants

Applicable OEL and BLV for air contaminants : May release : Hydrogen sulphide. This substance is a constituent of the product, and can be emitted as a pollutant.

8.1.4. DNEL e PNEC

MOTOR DIESEL (all types)	
DNEL/DMEL (additional indications)	
Further information	Not applicable
NECP (additional indications)	
Further information	Not applicable

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
DNEL/DMEL (Workers)	
Acute - systemic effects, inhalation	4300 mg/m³ (15 min) (DNEL)
Long-term - systemic effects, cutaneous	2.9 mg/kg body weight/day (8h/d) (DNEL)
Long-term - systemic effects, inhalation	68 mg/m³ (8h / d) (DNEL) (Aerosol inalabile)
DNEL/DMEL (General Population)	
Acute - systemic effects, inhalation	2600 mg/m³ (15 min) (DNEL)
Long-term - systemic effects, inhalation	20 mg/m³ (DNEL)
Long-term - systemic effects, cutaneous	1.3 mg/kg body weight/day (DNEL)
NECP (additional indications)	
Further information	The substance is a UVCB complex. Not applicable.

Note : The derived no-effect level (DNEL) is a safe level of exposure derived from toxicological data in accordance with specific indications contained in the European REACH legislation. DNEL may differ from an occupational exposure limit value (OEL) for the same chemical. OELs may be recommended by an individual society, a state control body or an expert organisation such as the Scientific Committee on Occupational Exposure Limit Values (SCOEL) or the American Conference of Governmental Industrial Hygienists (ACGIH). OELs are considered safe levels of exposure for a typical worker in a work environment for an 8-hour shift, with a 40-hour workweek, as either a time-weighted average concentration (TWA) or a short-term (15-minute) exposure limit (STEL). Although OELs are also considered to be health protection indicators, they are derived through a different process than REACH.

8.1.5. Control Belt

No further information available

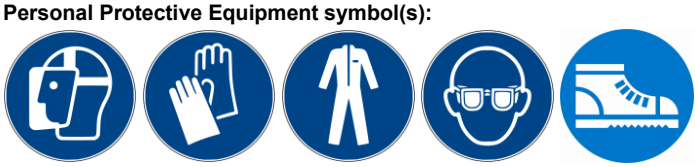
8.2. Exposure Controls

8.2.1. Appropriate roadworthiness tests

Suitable roadworthiness tests:
Minimize exposure to mists/vapors/aerosols. Before accessing the storage tanks and starting any type of intervention in a confined space (e.g. tunnels), carry out adequate remediation, check the atmosphere and check the oxygen content and the degree of flammability.

8.2.2. Personal protective equipment

Personal protective equipment:
Protective visor. Gloves. Protective clothing. Safety glasses. Safety shoes.
Personal Protective Equipment symbol(s):



8.2.2.1. Eye and face protection

Eye Protection:
Wear tight safety glasses or face shield. ISO 16321-1

8.2.2.2. Skin protection

Skin and body protection:
Protective clothing (EN 14605 or EN 13034). EN ISO 20346. EN 1149-5. Wash contaminated clothing before putting it back on.

Hand protection:
If there is a possibility of contact with the skin, use hydrocarbon-resistant gloves, plush on the inside. Presumably suitable materials: nitrile (NBR) or PVC with a protection index of at least 5 (permeation time ≥240 min). If contact with the hot product is possible or foreseeable, the gloves must be heat-resistant and thermally insulated. Use gloves in accordance with the conditions and limits set by the manufacturer. Replace gloves immediately if they show cuts, holes, or other signs of degradation. If necessary, refer to the UNI EN 374 standard. Personal hygiene is a fundamental element for effective hand care. Gloves should only be worn with clean hands. After using gloves, hands should be washed and dried perfectly.

Other skin protection
Protective clothing - choice of material:
Personnel must wear antistatic clothing made of natural fibers or synthetic fibers resistant to high temperature

8.2.2.3. Respiratory protection

Respiratory protection:
Regardless of other possible actions (plant adjustments, operating procedures and other means to reduce workers' exposure), the personal protective equipment that can be adopted as needed is indicated. In ventilated or outdoor environments: in the presence of mists and in case of handling of the product in the absence of suitable mist containment systems, use masks or half-masks with mist/aerosol filter (P). In case of significant presence of vapours (e.g. in case of high-temperature handling), use masks or half-masks with an organic vapour filter (A) and H2S (B), if applicable. (EN 136/140/145). Combined gas/dust respirator with filter type: EN 14387. In confined spaces (e.g. inside tanks): the adoption of respiratory protective devices (half masks, masks, respiratory devices) must be evaluated according to the work activity, the duration and the foreseeable intensity of exposure. For the characteristics, refer to the Ministerial Decree 02/05/2001. If exposure levels cannot be determined or estimated with good certainty, or if oxygen deficiency may occur, use only a stand-alone respirator.

8.2.2.4. Thermal hazards

Protection against thermal hazards:
None under normal use.

8.2.3. Environmental exposure controls

Environmental exposure controls:
Do not dispose of the product in the environment. Storage facilities/areas must be equipped with appropriate systems to prevent soil and water contamination in the event of leaks or spills. Prevent the release of undissolved substances into or recover from wastewater. Do not distribute the sludge generated by industrial water treatment on natural soils. Sludge generated by industrial water treatment must be incinerated, kept under containment or treated.
Limitation and control of consumer exposure:
No special precautions are required if handling takes place at room temperature.

SECTION 9: Physical and Chemical Properties

9.1. Information on fundamental physical and chemical properties

Physical state	:	Liquid
Color	:	Natural colour: pale yellow / amber In the cases provided for by law, the product is artificially coloured.
Aspect	:	Clean liquid.
Molecular mass	:	Not applicable for mixtures
Smell	:	Similar to oil.
Olfactory threshold	:	Lack of data (on mixture/mixture components) – Data not available
Melting Point	:	Not applicable
Freezing point	:	-40 – 6 °C (CONCAWE, 2010a).
Boiling point	:	141 – 462 °C (COCNAWE 1996a)
Inflammability	:	Flammable liquid and vapors.
Explosive properties	:	None (based on composition).
Oxidizing properties	:	None (based on composition).
Lower explosive limit	:	1 vol %
Upper explosive limit	:	6 vol %
Flash point	:	≥ 60 °C (ISO 2719)
Auto-ignition temperature	:	≥ 225 °C
Decomposition Temperature	:	Lack of data (on mixture/mixture components) – Data not available
ph	:	Not applicable
Viscosity, kinematics	:	≥ 1,5 mm²/s (40 °C) (ASTM D 445) (COCAWE 2010a)
Dynamic viscosity	:	Not determined
Solubility	:	The product is not soluble in water. Water: Non-miscible and insoluble Organic Solvent: Fully soluble.
Partition coefficient n-octanol/water (Log Kow)	:	Not applicable for mixtures
N-octanol/water partition coefficient (Log Pow)	:	Not applicable for mixtures
Vapour pressure	:	≈ 0,4 kPa (40 °C) (CONCAWE, 1996a)
Vapour pressure at 50°C	:	Lack of data (on mixture/mixture components) – Data not available
Critical Pressure	:	Not applicable for mixtures
Density	:	0,82 – 0,85 g/cm³ (EN 590)
Relative Density	:	Lack of data (on mixture/mixture components) – Data not available
Relative vapor density at 20°C	:	Lack of data (on mixture/mixture components) – Data not available
Particle characteristics	:	Not applicable

9.2. Other information

9.2.1. Information on classes of physical hazards

No further information available

9.2.2. Other security features

Relative evaporation rate (butylacetate=1)	:	Lack of data in the literature - Data not available
Further information	:	Data not available

SECTION 10: Stability and Responsiveness

10.1. Responsiveness

The mixture does not present any additional reactivity hazards other than those listed in the following subheadings.

10.2. Chemical Stability

Stable product in relation to its intrinsic characteristics.

10.3. Possibility of dangerous reactions

Dangerous reactions (under normal storage and handling conditions) are not to be expected. Contact with strong oxidants (such as peroxides and chromates) may cause a fire hazard. Sensitivity to heat, friction and shock cannot be assessed in advance.

10.4. Conditions to be avoided

Store away from open flames, hot surfaces and ignition sources. Avoid the accumulation of electrostatic charges. Do not smoke.

10.5. Incompatible Materials

Oxidizing agents.

10.6. Hazardous decomposition products

Under normal storage and use conditions, no hazardous decomposition products should be created. Thermal decomposition can produce: Toxic fumes.

SECTION 11: Toxicological information

11.1. Information on hazard classes defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified (Based on the available data, the classification criteria are not met)
Acute toxicity (cutaneous) : Not classified (Based on the available data, the classification criteria are not met)
Acute toxicity (inhalation) : Inhalation: Vapours: Harmful if inhaled.
Further information : (depending on composition)

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
DL50 oral rat	≈ 7600 mg/kg body weight (OECD 402; API, 1980)
DL50 Skin Rabbit	≥ 4300 mg/kg (OECD 434; API, 1980)
CL50 Inhalation - Rat	≥ 4,1 mg/l/4h (OECD 403; Atlantic Richfield Company, 1988) (Vapori + aerosol)

hydrogen sulfide (7783-06-4)	
CL50 Inhalation - Rat [ppm]	> 350 ppm/4h
CL50 Inhalation - Rat (Dust/Mist)	621 mg/l/4h (Union Carbide, 1981) ECHA Website, 2015)

Skin corrosion/skin irritation : Causes skin irritation.
pH: Not applicable
Further information : (depending on composition) (Reference: Fuels, diesel - Diesel, not specified)

Fuels, Diesel - Diesel Fuel, not Specified (68334-30-5)	
ph	Not applicable

Severe eye damage/eye irritation : Not classified (Based on the available data, the classification criteria are not met)
pH: Not applicable
Further information : (depending on composition)

Fuels, Diesel - Diesel Fuel, not Specified (68334-30-5)	
ph	Not applicable

Respiratory or skin sensitization : Not classified (Based on the available data, the classification criteria are not met)
Further information : (depending on composition)
Germ cell mutagenicity : Not classified (Based on the available data, the classification criteria are not met)
Further information : (depending on composition)

Carcinogenicity : Suspected of causing cancer.
Further information : (depending on composition)

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
Dose, long-term, dermal, mouse, local	0,025 mL (Biles, McKee, Lewis, Scala, DePass; 1988)

Reproductive toxicity : Not classified (Based on the available data, the classification criteria are not met)
Further information : (depending on composition)
Specific Target Organ Toxicity (STOT) — single exposure : Not classified (Based on the available data, the classification criteria are not met)
Further information : (depending on composition)
Specific Target Organ Toxicity (STOT) — repeated exposure : It can cause damage to organs (thymus, liver, blood) in the event of prolonged or repeated exposure (Dermal).
Further information : (depending on composition)

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
NOAEC (Inhalation,Rat,Dust/Mist/Fumes,90 days)	≥ 1,71 mg/l air (OECD 413, systemic effects) (Lock, Dalbey, Schmoyer, Griesemer; 1984)
NOAEL (Subacute, Dermal, 90 days)	0,5 mg/kg body weight/day (ml/Kg) (OECD 410, systemic effects) (Atlantic Richfield Company, 1992)
Specific Target Organ Toxicity (STOT) — repeated exposure	It can cause damage to organs (thymus, liver, bone marrow) in the event of prolonged or repeated exposure (Dermal).

hydrogen sulfide (7783-06-4)	
LOAEC (inhalation, rat, gas, 90 days)	30,5 – 80 ppmv/6h/day
NOAEC (inhalation, rat, gas, 90 days)	10,1 – 30,5 ppmv/6h/day

Danger in the event of suction : It can be fatal if swallowed and penetrated into the respiratory tract.
Further information : For all petroleum products with a viscosity of less than 20.5 mm2/s at 40 °C, a specific risk is related to the aspiration of the liquid into the lungs, which can occur directly following ingestion, or subsequently in the event of vomiting, spontaneous or provoked.
In this case, chemical pneumonia can occur, a condition that requires medical treatment and can be fatal.

MOTOR DIESEL (all types)	
Viscosity, kinematics	≥ 1,5 mm²/s (40 °C) (ASTM D 445) (COCAWE 2010a)
Hydrocarbon	Yes

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
Viscosity, kinematics	2 – 7,5 mm²/s (40 °C) (ASTM D 445)
Hydrocarbon	Yes

11.2. Information on other hazards

11.2.1. Endocrine Disrupting Properties

Adverse Health Effects Caused by Endocrine-Disrupting Properties : Nobody. The mixture does not contain a substance(s) included in the list established in accordance with Article 59(1) of REACH to have endocrine-disrupting properties, or a substance(s) identified as having endocrine-disrupting properties according to the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1%.

11.2.2. Other information

Possible harmful effects on humans and possible symptoms : Harmful if inhaled. It can cause damage to organs with prolonged or repeated exposure. Aspiration into the lungs can cause chemical pneumonia. Suspected of causing cancer. Repeated and prolonged contact can cause skin redness, irritation and contact dermatitis due to degreasing effect. Avoid all contact with eyes and skin and do not inhale vapors and mists.

SECTION 12: Ecological Information

12.1. Toxicity

Ecology - general : Toxic to aquatic organisms, it can cause long-term negative effects for the aquatic environment. Dispersion into the environment can lead to the contamination of environmental matrices (air, soil, subsoil, surface water and groundwater). Use according to good working practice, avoiding dispersing the product into the environment. Inform the authorities if the product is discharged into the sewer system or public waters.

Ecology - air : The product has a low vapor pressure. Exposure is only possible in special cases (use at high temperatures, or for operations that cause splashes or mists).

Ecology - water : Toxic to aquatic organisms.

Hazardous to the aquatic environment, short-term (acute) : Not classified (Based on the available data, the classification criteria are not met)

Hazardous to the aquatic environment, long-term (chronic) : Toxic to aquatic organisms with long-lasting effects.

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
CL50 - Fish [1]	≥ 21 mg/l LL50, 96 h (NOEL = 10 mg/l) (Oncorhynchus mykiss, OECD 203) (Girling, Cann; 1996)
EC50 - Crustaceans [1]	≥ 68 mg/l EL50, 48 h (NOEL = 46 mg/l) (OECD 202) (Girling, Cann; 1996)
ErC50 algae	22 mg/l EL50, 72 h (Pseudokirchneriella subcapitata, OECD 201) (SRC, 1994)
NOEC (acute)	1 mg/l NOEL, 72 h (Raphidocelis subcapitata, OECD 201) (Girling et Cann, 1996)
NOEC (chronic)	0.083 mg/l NOEL, 14 d (Oncorhynchus mykiss) (QSAR, Redman et al, CONCAWE, 2010)
NOEC chronic crustaceans	0.2 mg/l (Daphnia magna, 21d; QSAR; Redman, et al. (20010b))

hydrogen sulfide (7783-06-4)	
CL50 - Fish [1]	0.019 – 0.037 mg/l (Lepomis macrochirus)
EC50 - Crustaceans [1]	0,12 mg/l (Küster E, Dorusch F and Altenburger R)
ErC50 algae	1,87 mg/l (24h, Küster E, Dorusch F and Altenburger R)

12.2. Persistence and degradability

MOTOR DIESEL (all types)	
Persistence and degradability	The main constituents of the product are to be considered "inherently" biodegradable, but not "readily" biodegradable: therefore they can be moderately persistent, particularly in anaerobic conditions.

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
Persistence and degradability	The main constituents of the product are to be considered "inherently" biodegradable, but not "readily" biodegradable: therefore they can be moderately persistent, particularly in anaerobic conditions.

hydrogen sulfide (7783-06-4)	
Persistence and degradability	Easily biodegradable.
Biodegradation	76 % (48h)

12.3. Bioaccumulation potential

MOTOR DIESEL (all types)	
N-octanol/water partition coefficient (Log Pow)	Not applicable for mixtures
Partition coefficient n-octanol/water (Log Kow)	Not applicable for mixtures
Bioaccumulation potential	Not established.

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
N-octanol/water partition coefficient (Log Pow)	3,6 – 6 Value range for the main constituents of diesel oil (hydrocarbon categories)
Bioaccumulation potential	The test methods for this endpoint are not applicable to UVCB substances.

hydrogen sulfide (7783-06-4)	
N-octanol/water partition coefficient (Log Pow)	0,45
Bioaccumulation potential	Unavailable.

12.4. Mobility in soil

MOTOR DIESEL (all types)	
Ecology - soil	Data not available.

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
Ecology - soil	The test methods for this endpoint are not applicable to UVCB substances.

hydrogen sulfide (7783-06-4)	
Ecology - soil	Unavailable.

12.5. Results of the PBT and vPvB assessment

MOTOR DIESEL (all types)
This substance/mixture does not meet the PBT criteria of the REACH Regulation, Annex XIII
This substance/mixture does not meet the vPvB criteria of the REACH Regulation, Annex XIII

Component	
Substance(s) that does not meet the PBT criteria of the REACH Regulation, in accordance with Annex XIII	Fuels, Diesel - Diesel Fuel, Unspecified (68334-30-5), Hydrogen Sulfide (7783-06-4)(1)
Substance(s) that does not meet the vPvB criteria of REACH, in accordance with Annex XIII	Fuels, Diesel - Diesel Fuel, Unspecified (68334-30-5), Hydrogen Sulfide (7783-06-4)(1)

(1) Substance(s) in a concentration of less than 0,1% and indicated on a voluntary basis

12.6. Endocrine Disrupting Properties

Adverse effects on the environment caused by endocrine-disrupting properties : No one is known. The mixture does not contain a substance(s) included in the list established in accordance with Article 59(1) of REACH to have endocrine-disrupting properties, or a substance(s) identified as having endocrine-disrupting properties according to the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1%.

12.7. Other adverse effects

Other adverse effects : Nobody.

MOTOR DIESEL (all types)	
Other information	This product has no specific characteristics of inhibition of bacterial cultures. In any case, the water contaminated by the product must be treated in purification plants suitable for the purpose.

Fuels, Diesel - Diesel Fuel, Not Specified (68334-30-5)	
Other information	This product has no specific characteristics of inhibition of bacterial cultures. In any case, the water contaminated by the product must be treated in purification plants suitable for the purpose.

hydrogen sulfide (7783-06-4)	
Other information	This product has no specific characteristics of inhibition of bacterial cultures. In any case, the water contaminated by the product must be treated in purification plants suitable for the purpose.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Waste treatment methods : Do not dump the product, whether new or used, into sewers, tunnels or waterways. Collect and deliver to authorized collectors (Legislative Decree 152/2006 and related regulations).

Recommendations for disposal in sewers : Do not distribute the sludge generated by industrial water treatment on natural soils. Sludge generated by industrial water treatment must be incinerated, kept under containment or treated.

Advice for the disposal of the Product/Packaging : European Waste Catalogue code(s) (Decision 2001/118/EC): 13 07 01* ("fuel oil and diesel fuel"), 13 07 03* ("other fuels (including mixtures)"). The EWC code indicated is only a general indication, based on the original composition of the product and its intended use. The user has the final responsibility to choose the most appropriate EWC code, based on the actual use of the product and any alterations or contamination.

Further information : Empty containers may contain combustible product residues. Do not puncture, cut, grind, weld, braze, burn, or incinerate unreclaimed empty containers or drums.

About Green Waste : The product as such does not contain halogenated compounds.

European List of Wastes (LoW, EC 2150/2002) : 13 07 01* - Heating oil and diesel fuel13 07 03* - Other fuels (including mixtures)

SECTION 14: Transportation Information

In accordance with: ADR / IMDG / IATA / ADN / RID

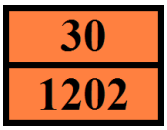
ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
A 1202	A 1202	A 1202	A 1202	A 1202
14.2. Official UN transport designation				
DIESEL FUEL / DIESEL / LIGHT HEATING OIL	GAS OIL	Diesel fuel	DIESEL OIL	DIESEL OIL
Description of the transport document				
A 1202 DIESEL FUEL / DIESEL FUEL / LIGHT HEATING OIL, 3, III, (D/E), HAZARDOUS TO THE ENVIRONMENT	UN 1202 GAS OIL, 3, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1202 Diesel fuel, 3, III, ENVIRONMENTALLY HAZARDOUS	A 1202 DIESEL FUEL, 3, III, HAZARDOUS TO THE ENVIRONMENT	A 1202 DIESEL FUEL, 3, III, HAZARDOUS TO THE ENVIRONMENT
14.3. Transport hazard classes				
3	3	3	3	3
				
14.4. Packaging group				
III	III	III	III	III

ADR	IMDG	IATA	ADN	RID
14.5. Hazards to the environment				
Hazardous to the environment: Yes	Hazardous to the environment: Yes Marine pollutant: Yes EmS No. (Fire): F-E EmS No.: S-E	Hazardous to the environment: Yes	Hazardous to the environment: Yes	Hazardous to the environment: Yes
No further information available				

14.6. Special precautions for users

Ground transport

Transport Regulations (ADR) : Subject to the provisions
Classification Code (ADR) : F1
Special Provisions (ADR) : 640K, 664
Limited quantities (ADR) : 5L
Exempt quantities (ADR) : E1
Transport category (ADR) : 3
Hazard identification number (n°. Kemler) : 30
Orange panel :



Tunnel Restriction Code (ADR) : D/E
EAC Code : 3Y

Sea transport

Transport Regulations (IMDG) : Subject to the provisions
Special Provisions (IMDG) : 363
Limited quantities (IMDG) : 5 L
Exempt quantities (IMDG) : E1
IBC Packaging Instructions (IMDG) : IBC03
Stowage category (IMDG) : At
Properties and Observations (IMDG) : Immiscible with water.

Air transport

Transport Regulations (IATA) : Subject to the provisions
Exempt passenger and cargo aircraft quantities (IATA) : E1
Max. net quantities of limited passenger and cargo aircraft (IATA) : 10L
Max. net quantities per passenger and cargo aircraft (IATA) : 60L
Max. net cargo air quantity (IATA) : 220L
Special Provisions (IATA) : A3
ERG Code (IATA) : 3L

River transport

Transport Regulations (ADN) : Subject to the provisions
Classification Code (ADN) : F1
Limited quantities (ADN) : 5 L
Exempt quantities (ADN) : E1
Required Equipment (ADN) : PP, EX, A
Ventilation (ADN) : VE01

Transport by rail

Transport Regulations (RID) : Subject to the provisions
Classification Code (RID) : F1
Special Provisions (RID) : 640K
Limited quantities (RID) : 5L

Exempt quantities (RID)	:	E1
Packing Instructions (RID)	:	P001, IBC03, LP01, R001
Provisions on common packaging (RID)	:	MP19
Instructions for transport in mobile tanks and bulk containers (RID)	:	T2
Special Provisions Mobile Tanks and Bulk Transport Containers (RID)	:	TP1
Tank codes for RID tanks (RID)	:	LGBF
Transport category (RID)	:	3
Special Transport Regulations - Parcels (RID)	:	W12
Colli express (RID)	:	CE4
Hazard Identification Number (RID)	:	30

14.7. Bulk shipping in accordance with IMO acts

IBC Code : Not applicable (refer to Annex I to MARPOL).

SECTION 15: Regulatory Information

15.1. Laws and regulations on health, safety and the environment specific to the substance or mixture

15.1.1. EU Regulations

Additional Rules, Restrictions and Legal Requirements : Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). (et sequens). 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 (et sequens). Substances that deplete the ozone layer (1005/2009) - Annex I substances (ODP). POP (2019/1021) - Persistent organic pollutants. EU Regulation (649/2012) - Export and Import of Hazardous Chemicals (PIC). Commission Delegated Regulation (EU) 2017/2100. Commission Regulation (EU) 2018/605.

REACH Annex XVII (List of Restrictions)

List of EU restrictions (Annex XVII of REACH)

Reference code	Applicable on	Entity title or description
3(a)	ENGINE DIESEL (all types); Fuels, diesel - Diesel, not specified	Substances or mixtures that meet the criteria for one 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)	ENGINE DIESEL (all types); Fuels, diesel - Diesel, not specified	Substances or mixtures that meet the criteria for one 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 development, 3.8 effects other than narcotic effects, 3.9 and 3.10
3(c)	ENGINE DIESEL (all types); Fuels, diesel - Diesel, not specified	Substances or mixtures that meet the criteria for one of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
40	Fuels, diesel - Diesel, not specified	Substances classified as Category 1 or 2 flammable gases, Category 1, 2 or 3 flammable liquids, Category 1 or 2 flammable solids, substances and mixtures that emit Category 1, 2 or 3 flammable gases when in contact with water, Category 1 pyrophoric liquids or Category 1 pyrophoric solids, even if they are not listed in Annex VI, Part 3 of Regulation (EC) No 1272/2008

Annex XIV REACH (List of authorisations)

Does not contain any substances listed in Annex XIV of REACH (list of authorisations)

List of substances included in the "Candidate List" of the REACH Regulation (SVHC)

Does not contain any substances listed on the REACH Candidate List

PIC Regulation (Subject to Informed Consent)

It does not contain any substances listed in the PIC list (EU Regulation 649/2012 concerning the export and import of hazardous chemicals)

Regulation on POPs (Persistent Organic Pollutants)

Does not contain substances listed in the POPs list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (2024/590)

Does not contain any substances listed on the ozone depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) on the control of dual-use items

Does not contain a substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Seveso Directive (disaster risk reduction)

Seveso Further information : Seveso Category: P5c

Explosives Precursors Regulation (2019/1148)

It does not contain any substances listed in the list of explosives precursors (Regulation EU 2019/1148 as regards the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Does not contain substances listed in the list of drug precursors (Regulation (EC) 273/2004 on the manufacture and placing on the market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National rules

Legislative Decree 81/2008, relating to the "Implementation of art. 1 of the law of 3 August 2007, on the protection of health and safety in the workplace."
Legislative Decree 105/2015 (adoption of Directive 2012/18/EC for the control of major-accident hazards related to certain dangerous substances).
Legislative Decree 152/06 : "Environmental regulations", and subsequent amendments and additionsD. Lgs 151/2001 (Consolidated Law on the protection and support of maternity and paternity)

Germany

Employment restrictions : Employment bans or restrictions for the protection of young people in the workplace in accordance with § 22 JArbSchG in the case of the formation of dangerous substances must be observed.
The prohibitions and restrictions in accordance with § 4 and §5 MuSchArbV must be observed.

National Laws and Recommendations : TRGS 400: Risk assessment for activities with hazardous substances.
TRGS 401: Risks arising from skin contact - identification, evaluation, measurements.
TRGS 402: Identification and Risk Assessment from Hazardous Substance Activities: Inhalation Exposure.
TRGS 500: Protective measures.
TRGS 510: Storage of hazardous substances in non-fixed tanks.
TRGS 555: Work instructions and information for workers.
TRGS 800: Fire protection measures.
TRGS 900: Occupational exposure limits.

Water hazard class (WGK) (D) : WGK 2, Significant Water Risk (AwSV Classification, Annex 1).

WGK note : Classification according to Verwaltungsvorschriftwassergefährdender Stoffe (VwVwS) of 27 July 2005.

Storage class (LGK, TRGS 510) : LGK 3 - Flammable liquids.

Joint Storage Table :

LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13

Joint storage not allowed for : LGK 1, LGK 2A, LGK 4.1A, LGK 4.1B, LGK 4.2, LGK 4.3, LGK 5.1A, LGK 5.1C, LGK 5.2, LGK 6.1B, LGK 6.2, LGK 7.

Joint storage with restrictions allowed for : LGK 5.1B, LGK 6.1D, LGK 11, LGK 10-13.

Joint storage allowed for : LGK 2B, LGK 3, LGK 6.1A, LGK 6.1C, LGK 8A, LGK 8B, LGK 10, LGK 12, LGK 13.

Ordinance on Dangerous Accidents (12. BImSchV) : It is not subject to the Ordinance on Dangerous Accidents (12. BImSchV)

Holland

ABM Category	:	Z(2) - biodegradable substances with properties hazardous to humans and the environment (carcinogenicity/mutagenicity/reprotoxicity/potential for bioaccumulation or toxicity)
SZW list of carcinogens	:	None of the components are listed
SZW list of mutagens	:	None of the components are listed
SZW list of reprotoxic substances – Breastfeeding	:	None of the components are listed
SZW list of reprotoxic substances – Fertility	:	None of the components are listed
SZW list of reprotoxic substances – Development	:	None of the components are listed

Denmark

Comments on classification	:	For storage of flammable liquids follow emergency management guidelines
Danish National Regulations	:	Young people under 18 years of age are not allowed to use the product Pregnant/breastfeeding women working with the product should not be in direct contact with it The requirements of the Danish Occupational Safety Authority regarding work with carcinogens must be followed during use and disposal

Switzerland

Storage class (LK)	:	LK 3 - Flammable liquids

15.2. Chemical Safety Assessment

No chemical safety assessment has been performed for this mixture
A chemical safety assessment was conducted for the following substances in this mixture:
Fuels, diesel - Diesel, not specified

SECTION 16: Other Information

Indications of changes:
EU SDS format according to COMMISSION REGULATION (EU) 2020/878. All sections.

Abbreviations and acronyms:	
	Full text of the H sentences quoted in this safety data sheet. These phrases are for informational purposes only and may not correspond to the classification of the product.
	N/A = not available
	N/A = not applicable
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
STA	Estimation of acute toxicity
BCF	Bioconcentration factor
CAS Number	Chemical Abstract Service (CAS) Number
CLP	Regulation on classification, labelling and packaging; Regulation (EC) No 1272/2008
DMEL	Derived level with minimal effects
DNEL	Derived level with no effect
EC number	EC Number (European Community)
EC50	Effective concentration for 50% of the population tested (median effective concentration)
ED	Endocrine Disruptor
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
IOELV	Indicative Occupational Exposure Limit Value

Abbreviations and acronyms:	
LC50	Lethal concentration for 50% of the tested population (median lethal concentration)
LD50	Lethal dose resulting in the death of 50% of the tested population (median lethal dose)
LOAEC	Lowest concentration at which an adverse effect is observed
LOAEL	Lowest level at which an adverse effect is observed
NOAEC	Concentration free of observed adverse effects
NOAEL	Dose free of observed adverse effects
NOEC	Concentration with no observed effects
N.A.S.	Not otherwise specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent, bioaccumulative and toxic
PNEC	Predicted concentration with no effect
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals, Regulation (EC) No 1907/2006
RID	Regulation on the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Wastewater Treatment Plant
TRGS	Technical Rules for Hazardous Substances
VOC	Volatile organic compounds
vPvB	Very persistent and very bioaccumulative
WGK	Water Hazard Class

Data Sources : This Safety Data Sheet is based on the characteristics of the components/additives, according to the information provided by the original suppliers. 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 (et sequens). Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Training tips : Provide appropriate training to professional operators in the use of Personal Protective Equipment (PPE), based on the information contained in this Safety Data Sheet.

Other information : Do not use the product for any purpose that has not been indicated by the manufacturer. If hydrogen sulfide (H2S) inhalation is suspected, rescuers should wear appropriate breathing equipment, seat belts, and ropes, and adopt the appropriate rescue procedures. Immediately transfer the injured person to the hospital. Begin artificial respiration immediately if breathing has stopped. Administer oxygen if necessary. This situation is particularly relevant for operations involving direct exposure to vapors inside tanks or other confined spaces.

Full text of the H and EUH hazard statements:	
Acute Tox. 2 (by inhalation)	Acute toxicity (by inhalation), category 2
Acute Tox. 4 (for inhalation: dust, mist)	Acute toxicity (by inhalation: dust, mist) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute hazard, category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic hazard, category 2

Full text of the H and EUH hazard statements:	
Asp. Tox. 1	Aspiration hazard, category 1
Carc. 2	Carcinogenicity, category 2
Flam. Gas 1A	Flammable gases, category 1A
Flam. Liq. 3	Flammable liquids, category 3
Press. Gas	Gas under pressure
Skin Irrit. 2	Skin corrosion/irritation, category 2
STOT RE 2	Specific Target Organ Toxicity – Repeated Exposure, Category 2
H220	Highly flammable gas.
H226	Flammable liquid and vapors.
H304	It can be fatal if swallowed and penetrated into the respiratory tract.
H315	Causes skin irritation.
H330	The planes were inflated.
H332	The night was intruding.
H351	Suspected of causing cancer.
H373	It can cause damage to organs (thymus, liver, blood) in the event of prolonged or repeated exposure (Dermal).
H400	Very toxic to aquatic organisms.
H411	Toxic to aquatic organisms with long-lasting effects.

Full text of the descriptors of use	
ERC1	Substance Manufacture
ERC2	Formulation of mixtures
ERC3	Solid matrix formulation
ERC4	Industrial use of non-reactive processing aids (without inclusion inside or on the surface of the article)
ERC5	Industrial use resulting in inclusion in or on the surface of an item
ERC6a	Use of intermediates
ERC6b	Industrial use of reactive processing aids (without inclusion inside or on the surface of the article)
ERC6c	Industrial use of monomers in polymerization processes (with or without inclusion inside or on the surface of the article)
ERC6d	Industrial use of reaction process regulators in polymerization (with or without inclusion in or on the surface of an article)
ERC7	Industrial use of functional fluids
ERC8a	Generalized use of non-reactive processing aids (without inside or on the surface of an article, indoor use)
ERC8d	Generalized use of non-reactive processing aids (without inclusion inside or on the surface of an article, outdoor use)
ERC9a	Generalized use of functional fluids (indoor use)
ERC9b	Generalized use of functional fluids (outdoors)
ESVOC SPERC 1.1b.v1	Distribution: Industrial (SU3)
ESVOC SPERC 2.2.v1	Formulation and packaging of preparations and mixtures: industrial (SU10)
ESVOC SPERC 4.3a.v1	Uses in coatings: industrial (SU3)
ESVOC SPERC 4.6a.v1	Lubricants: Industrial (SU3)
ESVOC SPERC 4.7a.v1	Metal working fluids and rolling oilds: Industrial (SU3)

Full text of the descriptors of use	
ESVOC SPERC 7.12a.v1	Use as fuel: industrial (SU3)
ESVOC SPERC 8.3b.v1	Uses in coatings: professional (SU22)
ESVOC SPERC 8.6c.v1	Lubricants: Professional (SU22) - high environmental release
ESVOC SPERC 9.12b.v1	Fuel usage: Professional (SU22)
ESVOC SPERC 9.12c.v1	Use as a fuel: Consumer (SU21)
PROC1	Production or refining of chemicals in closed processes, without the possibility of exposure, or in processes with equivalent containment conditions
PROC10	Application with rollers or brushes
PROC11	Non-industrial spray application
PROC13	Treatment of articles for eco-coated immersion
PROC15	Use as laboratory reagents
PROC16	Use of fuels
PROC17	Lubrication under Harsh Energy Conditions in Metalworking Operations
PROC18	General greasing/lubrication under severe kinetic conditions
PROC19	Manual activities with direct contact
PROC2	Production or refining of chemicals in a closed, continuous process, with occasional controlled exposure or processes with equivalent containment conditions
PROC20	Use of functional fluids in small devices
PROC3	Manufacture or formulation of chemicals in closed batch processes, with occasional controlled exposure, or processes with equivalent containment conditions
PROC4	Production of chemicals with the possibility of exposure
PROC5	Mixing or blending in batch processes
PROC7	Industrial spray application
PROC8a	Transfer of a substance or preparation (filling/emptying) to non-dedicated facilities
PROC8b	Transfer of a substance or mixture (filling/emptying) at dedicated facilities
PROC9	Transfer of a substance or preparation into small containers (dedicated filling line, including weighing)
SU10	Formulation [mixing] of preparations and/or repackaging (except alloys)
SU21	Consumer uses: households (= general population = consumers)
SU22	Professional uses: public sector (administration, education, entertainment, services, crafts)
SU3	Industrial uses: uses of substances on their own or in preparations at industrial sites

Classification and procedures used to determine the classification of mixtures under Regulation (EC) 1272/2008 [CLP]:		
Acute Tox. 4 (for inhalation: dust, mist)	H332	Calculation method
Skin Irrit. 2	H315	Calculation method
Carc. 2	H351	Concentration limits
STOT RE 2	H373	Calculation method
Asp. Tox. 1	H304	Calculation method
Aquatic Chronic 2	H411	Calculation method

The information and recommendations contained herein are, to the best of JENERGY's knowledge, accurate and reliable as of the date of publication. JENERGY can be contacted to ensure that the document is the most up-to-date available from JENERGY. The information and recommendations are offered for the consideration of the user, and it is the responsibility of the user to consider whether the product is appropriate for his specific use. All information provided is intended solely as a guide to safe handling, use, processing, storage, transportation, disposal and issuance and is not intended to amount to a warranty or product quality specification. The information refers only to the specific material designated and cannot have any validity for the same material used in combination with other materials or in any other process, unless specified in the text. This MSDS contains only information regarding the product for the purposes of health, safety and environmental requirements only and does not replace any product information or specifications. If the buyer repacks this product, they must ensure that the appropriate health and safety information is included in the container. Appropriate signs and safe handling procedures must be made available to the carrier and the user.
Alterations to this document are strictly prohibited.

ATTACHMENT

EXPOSURE SCENARIOS

Related to the MARINE DIESEL component (bunker use)

Identified use name	Sector	Area of use SU	PROC Process Categories	ERC Environmental Release Categories	Specific ERC environmental release categories
01a- Distribution of the substance (GEST1A_I)	Industrial (G26)	3	1, 2, 3, 4, 8a, 8b, 9, 15	1,2,3,4,5,6a,6b,6c,6d,7	ESVOC SpERC 1.1b.v1
02- Formulation and (re)packaging of substances and mixtures (GEST2_I)	Industrial (G26)	3, 10	1, 2, 3, 4, 5, 8a, 8b, 9, 14 15	2	ESVOC SpERC 2.2.v1
03a-Use in coatings (GEST3_I): Industrial (G26)	Industrial (G26)	3	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15	4	ESVOC SpERC 4.3a.v1
03b-Use in coatings (GEST3_I): Professional (G27)	Professional (G27)	22	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	8a, 8d	ESVOC SpERC 8.3b.v1
05a- Use in drilling and production of wells for oil and natural gas extraction (GEST5_I): Industrial (G26)	Industrial (G26)	3	1, 2, 3, 4, 8a, 8b	4	Qualitative assessment for the environment
05a- Use in drilling and production of wells for oil and natural gas extraction (GEST5_I): Professional (G27)	Professional (G27)	22	1, 2, 3, 4, 8a, 8b	8d	Qualitative assessment for the environment
06a - Lubricants (GEST6_I): Industrial (G26)	Industrial (G26)	3	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4, 7	ESVOC SpERC 4.6a.v1

06b - Lubricants (GEST6_I): Professional (G27) (Low Release)	Professional (G27)	22	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20	9a, 9b	ESVOC SpERC 9.6b.v1
06c - Lubricants (GEST6_I): Professional (G27) (High Release): Industrial (G26)	Professional (G27)	22	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20	8a, 8d	ESVOC SpERC 8.6c.v1
07a – Metalworking and rolling fluids (GEST7_I): Industrial (G26)	Industrial (G26)	3	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17	4	ESVOC SpERC 4.7a.v1
12a-Fuel Use (GEST12_I): Industrial (G26)	Industrial (G26)	3	1, 2, 3, 8a, 8b, 16	7	ESVOC SpERC 7.12a.v1
12b- Use as fuel (GEST12_I) Professional (G27)	Professional (G27)	22	1, 2, 3, 8a, 8b, 16	9a,9b	ESVOC SpERC 9.12b.v1
12c- Use as fuel (GEST12_I) Consumers (G28)	Consumer (G28)	21	13	9a,9b	ESVOC SpERC 9.12c.v1

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1. Diesel Distribution – Industrial

Section 1 Exposure scenario entitled Gas Oils (vacuum, hydrocracked & distillate fuels) R20, R38, R40, R65, R51/53	
Title	
Substance Manufacturing	
Description Use	
Sector of use	3
Category Processing	1, 2, 3, 4, 8a, 8b, 9, 15
Environmental Release Categories	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7
Specific Environment Release Categories	ESVOC SpERC 1.1b.v1
Processes, assignments, activities held	
Bulk loading (including marine vessel/barge, rail/road car and for loading IBCs) and packaging (including drums and small packaging) of substance, including its sampling, storage, unloading, maintenance and associated worker activities.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining proper general ventilation standards. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood of the substance coming into contact with your hands. Eliminate contamination/spills as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to staff aimed at preventing/limiting exposures and notify the onset of any dermatological problems. (E3)
General Exposures (Closed Systems) (CS15)	Handling the substance in a closed system (E47)
General Exposures (Open Systems) (CS16)	Wear protective gloves that comply with the EN374 standard. (PPE15)
In-process sampling (CS2)	No further specific measures have been identified (EI20)

Laboratory activities (CS36)	No further specific measures have been identified (EI20)
Closed loading and unloading of bulk products(CS501)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Open loading and unloading of bulk products(CS503)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Open loading and unloading of bulk products(CS503)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Filling drums and small containers(CS6)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Equipment Cleaning & Maintenance(CS39)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Storage(CS67)	Store the substance within a closed system (E84)
Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	2.8e7
Fraction of regional tonnage used locally (A3)	0.002
Annual tonnage of the site (tonnes/year) (A5)	5.6e4
Maximum Daily Site Tonnage (kg/day) (A4)	1.9e5
Frequency and duration of use	
Continuous release. (FD2)	
Issuing Days (days/year) (FD4)	300
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction released into the air by the process (initial release before the application of risk management measures (OOC4)	1.0e-3
Fraction released into waste water from the process (initial release before application of risk management measures): (OOC5)	1.0e-6
Fraction released into the soil by the process (initial release before application of risk management measures): (OOC6)	0.0001
Technical conditions and process-level measures (source) to prevent release	
Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used.	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j) Prevent the release of undissolved substances or recover them from wastewater. (TCR14) No waste water treatment required. (TCR6).	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	90
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	0
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of leak prevention measurements on site	
Prevent discharge of insoluble substance or recover from wastewater [WHO1]. Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3).	
Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1

Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	2.9e6
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.	
3.2 Environment	
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2)].	
Section 4	
4.1 Health	
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).	
4.2 Environment	
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)	

2. Formulation and (Re)packaging of Diesel – Industrial

Section 1 Exposure Scenario entitled Gas Oils (vacuum, hydrocracked & distillate fuels) R20, R38, R40, R65, R51/53	
Title	
Formulation and (Re)Packaging of the Substance and Mixture	
Description Use	
Sector of use	3,10
Category Processing	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15
Environmental Release Categories	2
Specific Environment Release Categories	ESVOC SpERC 2.2.v1
Processes, assignments, activities held	
Formulation, packaging and re-packaging of the substance and its mixtures in batch or continuous operations, including storage, material transfer, mixing, compression, compression, palletizing, extrusion, large and small scale packaging, maintenance, sampling and associated laboratory activities	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining proper general ventilation standards. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood of the substance coming into contact with your hands. Eliminate contamination/spills as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to staff aimed at preventing/limiting exposures and notify the onset of any dermatological problems. (E3)
General Exposures (Closed Systems) (CS15)	Handling the substance in a closed system (E47)
General Exposures (Open Systems) (CS16)	Wear protective gloves that comply with the EN374 standard. (PPE15)
In-process sampling (CS2)	No further specific measures have been identified (EI20)

Drum/batch transfers (CS8)	Use drum pumps or take extra care when pouring from containers (E64) Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Bulk Transfer (CS14)	Handle the substance in a closed system (E47) Wear protective gloves that comply with the EN374 standard. (PPE15)
Mixing Operations (Open Systems) (CS30)	Provide extraction ventilation at emission points (E54) Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Production or preparation of articles by tableting, compression, extrusion or pelletizing (CS100)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Drum/batch transfers (CS8)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Laboratory activities (CS36)	No further specific measures have been identified (EI20)
Equipment Cleaning and Maintenance (CS39)	Drain the system before opening or servicing equipment (E65) Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Storage (CS67)	Store the substance within a closed system (E84)

Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	2.8e7
Fraction of regional tonnage used locally (A3)	0.0011
Annual tonnage of the site (tonnes/year) (A5)	3.0e4
Maximum Daily Site Tonnage (kg/day) (A4)	1.0e5
Frequency and duration of use	
Continuous release. (FD2)	
Issuing Days (days/year) (FD4)	300
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction released into the air by the process (after the application of typical risk management measures, in accordance with the requirements of the EU Solvent Emissions Directive): (OOC11)	1.0e-2
Fraction released into waste water from the process (initial release before application of risk management measures): (OOC5)	2.0e-5
Fraction released into the soil by the process (initial release before application of risk management measures): (OOC6)	0.0001
Technical conditions and process-level measures (source) to prevent release	
Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used.	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
The risk associated with environmental exposure is induced by the freshwater sediment compartment. (TCR1b) Prevent the release of undissolved substances or recover them from wastewater. (TCR14) In the case of discharge to an urban wastewater treatment plant, no treatment is required. (TCR9)	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	0
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	59.9
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of measures to prevent escapes from the site	
Prevent discharge of insoluble substance or recover from wastewater [WHO1].	

Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3).	
Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	6.8e5
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.	
3.2 Environment	
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2)].	

Section 4
4.1 Health
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)

3. Use of Diesel Oil in Coatings – Industrial

Section 1	
Title	
Substance Manufacturing	
Description Use	
Sector of use	3
Category Processing	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15
Environmental Release Categories	4
Specific Environment Release Categories	ESVOC SpERC 4.3a.v1
Processes, assignments, activities held	
It covers use in coatings (paints, inks, adhesives, etc.) including exposures during use (including receiving, storage, preparation and mass and semi-bulk transfer materials, spraying, roller, spatula, dipping, flowing, fluidized bed on production lines and forming film) and cleaning, maintenance and related laboratory activities.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers up to 100% of the substance in the product (unless otherwise stated)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining a proper standard of general ventilation. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood that the substance will come into contact with the m(E3). Other skin protection measures, such as waterproof suits and face shields, may be required during high-dispersion activities, such as spray application, which can lead to significant aerosol release. (E4)
General Exposures (Closed Systems) (CS15)	Handling the substance in a closed system (E47)
Bulk Transfer (CS14)	Handle the substance in a closed system (E47) Wear protective gloves that comply with the EN374 standard. (PPE15))
Product transfers (CS3) Drum/batch transfers. (CS8)	Wear protective gloves that comply with the EN374 standard. (PPE15))

Transfer/pour from containers (CS22)	
Preparation of the material for application (CS96). Mixing Operations (Open Systems) (CS30)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Film Forming - Accelerated Drying, Drying, and Other Technologies (CS99)	Handle the substance in a closed system (E47)Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11)
Film forming - air drying (CS95)	Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11). Wear protective gloves that comply with the EN374 standard. (PPE15)
Spray Application (Auto/Robotized) (CS97)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in the event of openings (E60)Wear protective gloves that comply with EN374 standard. (PPE15) Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11)
Spray or mist application with manual systems (CS24)	Wear a full face mask (EN140 compliant) equipped with a type A/P2 filter or higher. (PPE29) Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17) Ensure that operating personnel are properly trained in order to limit any exposure (EI19) Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11)
Additive and stabilization (CS69)	Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17)
Dipping, pouring and mixing (CS4)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Production or preparation of articles by tableting, compression, extrusion or pelletizing (CS100)	No further specific measures have been identified (EI20)
Laboratory activities (CS36)	No further specific measures have been identified (EI20)
Equipment Cleaning & Maintenance(CS39)	Drain the system before opening or servicing equipment (E65) Wear chemical protective gloves (conforming to EN374 standard), along with a basic training course. (PPE16)
Storage(CS67)	Store the substance within a closed system (E84)

Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	8.1e3
Fraction of regional tonnage used locally (A3)	1
Annual tonnage of the site (tonnes/year) (A5)	8.1e3
Maximum Daily Site Tonnage (kg/day) (A4)	2.7e4
Frequency and duration of use	
Continuous release. (FD2)	
Issuing Days (days/year) (FD4)	300
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction of release of pollutants from the process (initial version before RMM)	0.98
Process wastewater release fraction (initial release before RMM)	7.0e-5
Release fraction for process soil (initial version before RMM)	0
Technical conditions and process-level measures (source) to prevent release	

Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used.	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
The risk associated with environmental exposure is induced by the freshwater sediment compartment. (TCR1b) Prevent the release of undissolved substances or recover them from wastewater. (TCR14) In the case of discharge to an urban wastewater treatment plant, no treatment is required. (TCR9)	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	90
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	58.2
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of leak prevention measurements on site	
Prevent discharge of insoluble substance or recover from wastewater [WHO1]. Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3).	
Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	1.4e5
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	

Section 3 Estimating Exposures
3.1 Health
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.
3.2 Environment
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2)].
Section 4
4.1 Health
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)

4. Use of Diesel Oil in Coatings – Professional

Section 1 Exposure Scenario entitled Gas Oils (vacuum, hydrocracked & distillate fuels) R20, R38, R40, R65, R51/53	
Title	
Uses in coatings	
Description Use	
Sector of use	3,10
Category Processing	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19
Environmental Release Categories	8a, 8d
Specific Environment Release Categories	ESVOC SpERC 8.3b.v1
Processes, assignments, activities held	
It covers use in coatings (paints, inks, adhesives, etc.) including exposures during use (including receiving materials, storage, preparation and mass and semi-bulk transfer, spraying, roller, brush, spatula application by hand or similar methods, and film formation), and cleaning equipment, maintenance and associated laboratory activities.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining proper general ventilation standards. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood of the substance coming into contact with your hands. Eliminate contamination/spills as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to staff aimed at preventing/limiting exposures and notify the onset of any dermatological problems. (E3) Other skin protection measures, such as waterproof suits and face shields, may be required during high-dispersion activities, such as spray application, which can lead to significant aerosol release. (E4)
General Exposures (Closed Systems) (CS15)	Handling the substance in a closed system (E47)

Filling/preparation of equipment from drums or containers. (CS45)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Product transfers (CS3)Drum/batch transfers (CS8)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Material Preparation for Application (CS96), Mixing Operations (Closed Systems) (CS29)	No further specific measures have been identified (EI20)
Polymer Intermediate Storage (CS66),Mixing Operations (Open Systems) (CS30)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Film forming - air drying (CS95)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Spray or mist application with manual systems (CS24), Indoors (OC8)	Carry out in a ventilated cab or room equipped with an extractor (E57) Wear protective gloves that comply with the EN374 standard. (PPE15)Limit the content of the substance in the product to 25% (OC18)Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11)
Spray or mist application with manual systems (CS24), Outdoors (OC9)	Wear a full face mask (EN140 compliant) equipped with a type A/P2 filter or higher. (PPE29) Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17) Limit the content of the substance in the product to 25% (OC18) Do not carry out activities that involve the possibility of exposure for a period of more than 4 hours (OC28) Ensure that operational personnel are properly trained in order to limit any exposure (EI19)
Additive and stabilization (CS69)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16) Limit the content of the substance in the product to 25% (OC18)
Dipping, pouring and mixing (CS4)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Manual application - finger painting, crayons, stickers (CS72)	Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17) Limit the content of the substance in the product to 5 % (OC17)
Laboratory activities (CS36)	No further specific measures have been identified (EI20)
Equipment Cleaning and Maintenance (CS39)	Drain the system before opening or servicing equipment (E65) Wear chemical protective gloves (conforming to EN374 standard), along with a basic training course. (PPE16)
Storage (CS67)	Store the substance within a closed system (E84)

Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	2.3e3
Fraction of regional tonnage used locally (A3)	0.0005
Annual tonnage of the site (tonnes/year) (A5)	1.2
Maximum Daily Site Tonnage (kg/day) (A4)	3.2
Frequency and duration of use	
Continuous release. (FD2)	
Issuing Days (days/year) (FD4)	365
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction released into the air by the process (initial release before application of risk management measures): (OOC4)	0.98
Fraction released into waste water from the process (initial release before application of risk management measures): (OOC5)	0.01
Fraction released into the soil by the process (initial release before application of risk management measures): (OOC6)	0.01
Technical conditions and process-level measures (source) to prevent release	
Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used.	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j) No waste water treatment required. (TCR6)	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	N/A
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	0
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of leak prevention measurements on site	
Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3).	
Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	5.0e1
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	

For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.
3.2 Environment
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2)].
Section 4
4.1 Health
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)

5. Use of Diesel in the drilling and production of wells for the extraction of oil and natural gas – Industrial

Section 1	
Title	
Substance Manufacturing	
Description Use	
Sector of use	3
Category Processing	1, 2, 3, 4, 8a, 8b
Environmental Release Categories	4
Specific Environment Release Categories	Qualitative evaluation
Processes, assignments, activities held	
Operations on the ground of the oil well drilling and production (including drilling mud and good cleaning) including material transfers, on site formulation, also head operations, shaker room activities and related maintenance.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers up to 100% of the substance in the product (unless otherwise stated)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining a proper standard of general ventilation. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood that the substance will come into contact with the m(E3).
Bulk Transfer (CS14)	Transfer through closed lines (E52)
Filling/preparation of equipment from drums or containers. (CS45)	Wear protective gloves that comply with the EN374 standard. (PPE15))
Drilling Mud (Re)formulation (CS115)	No further specific measures have been identified (EI20)

General Exposures (Open Systems) (CS16)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Operation of Solids Filtration Equipment (CS117) Printing (CS11)	Carry out the operation in the presence of a correctly sized and positioned receiver hood (E71)
Cleaning Solids Filtration Equipment (CS120)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Treatment and Disposal Cuts (CS515)	Provide extractive ventilation at emission points (E54)
In-process sampling (CS2)	No further specific measures have been identified (EI20)
General Exposures (Closed Systems) (CS15)	Handling the substance in a closed system (E47)
General Exposures (Open Systems) (CS16)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Pouring from small containers (CS9)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Equipment Cleaning and Maintenance (CS39)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Storage (CS67)	Store the substance within a closed system (E84)
Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	1
Regional tonnage (tonnes/year) (A2)	7.75E+03
Fraction of regional tonnage used locally (A3)	Not applicable
Annual tonnage of the site (tonnes/year) (A5)	Not applicable
Maximum Daily Site Tonnage (kg/day) (A4)	Not applicable
Frequency and duration of use	
Issuing Days (days/year) (FD4)	Not applicable
Environmental factors not affected by management risks	
Local dilution factor in seawater (EF2)	Not applicable
Other operability conditions affecting environmental exposure	
Fraction of release of pollutants from the process (initial version before RMM)	Not applicable
Process wastewater release fraction (initial release before RMM)	Not applicable
Technical conditions and process-level measures (source) to prevent release	
Discharge to the aquatic environment is limited (see section 4.2).	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
Not applicable	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	Not applicable
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	Not applicable
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	Not applicable
Organization of leak prevention measurements on site	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	Not applicable
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	Not applicable
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	Not applicable
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	Not applicable

Conditions and measures relating to the external treatment of waste
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)
Conditions and measures relating to waste recovery treatment
Section 3 Estimating Exposures
3.1 Health
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.
3.2 Environment
Quantitative exposure and risk assessment is not possible due to lack of emissions to the environment and aquatic organisms. Qualitative approach used to conclude safe use.
Section 4
4.1 Health
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
4.2 Environment
Discharge for the aquatic environment is restricted by law and the industry prohibits release.1 Commission 10SPAR 2009. Discharges, emissions and spills from Offshore Oil and Gas in 2007, including evaluation of data reported in 2006 and 2007.

6. Use of Diesel in the drilling and production of wells for the extraction of oil and natural gas – Professional

Section 1 Exposure Scenario entitled Gas Oils (vacuum, hydrocracked & distillate fuels) R20, R38, R40, R65, R51/53	
Title	
Used in oil drilling operations and production operations	
Description Use	
Sector of use	22
Category Processing	1, 2, 3, 4, 8a, 8b
Environmental Release Categories	8d
Specific Environment Release Categories	Qualitative assessment
Processes, assignments, activities held	
Oilfield drilling and activities (including drilling and cleanup mud) including material transfers, on-site formulation, butt operations, agitator room activities and related maintenance	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining proper general ventilation standards. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood of the substance coming into contact with your hands. Eliminate contamination/spills as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to staff aimed at preventing/limiting exposures and notify the onset of any dermatological problems. (E3)
Bulk Transfer (CS14)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Filling/preparation of equipment from drums or containers. (CS45)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Drilling Mud (Re)formulation (CS115)	No further specific measures have been identified (EI20)

Well Work Platform Operations (CS116)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Operation of Solids Filtration Equipment (CS117) High Temperature (CS111)	Carry out the operation in the presence of a correctly sized and positioned receiver hood (E71)
Cleaning Solids Filtration Equipment (CS120)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Cut Treatment and Elimination (CS515)	Provide extractive ventilation at emission points (E54)
In-process sampling (CS2)	No further specific measures have been identified (EI20)
General Exposures (Closed Systems) (CS15)	Handling the substance in a closed system (E47)
General Exposures (Open Systems) (CS16)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Pouring from small containers (CS9)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Equipment Cleaning and Maintenance (CS39)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Storage (CS67)	Store the substance within a closed system (E84)
Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	1
Regional tonnage (tonnes/year) (A2)	7.75E+03
Fraction of regional tonnage used locally (A3)	Not Applicable
Annual tonnage of the site (tonnes/year) (A5)	Not Applicable
Maximum Daily Site Tonnage (kg/day) (A4)	Not Applicable
Frequency and duration of use	
Issuing Days (days/year) (FD4)	Not Applicable
Environmental factors not affected by management risks	
Local dilution factor in seawater (EF2)	Not Applicable
Other operability conditions affecting environmental exposure	
Fraction released into the air by the process (initial release before application of risk management measures): (OOC4)	Not Applicable
Fraction released into waste water from the process (initial release before application of risk management measures): (OOC5)	Not Applicable
Organization of measures to prevent escapes from the site	
Avoid leakage into the environment, in accordance with applicable legislation. (WHO4)	
Conditions and measures relating to the municipal recovery plan	
Technical conditions and process-level measures (source) to prevent release	
Release into the aquatic environment is restricted (see Section 4.2). (TCS2)	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and release into the soil	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	Not Applicable
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	Not Applicable

Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	Not Applicable
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	Not Applicable
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.	
3.2 Environment	
Quantitative assessment of exposure and risks is not possible due to the lack of emissions to the aquatic environment. (EE7)	
Section 4	
4.1 Health	
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).	
4.2 Environment	
Lo smaltimento in ambiente acquatico è limitato per legge. L'industria ne proibisce l'esecuzione. (DSU9) 1OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2007, including the assessment of data reported in 2006 and 2007.	

7. Use of Diesel in Lubricants

Section 1	
Title	
Substance Manufacturing	
Description Use	
Sector of use	3
Category Processing	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18
Environmental Release Categories	4, 7
Specific Environment Release Categories	ESVOC SpERC 4.6a.v1
Processes, assignments, activities held	
Operations on the ground of the oil well drilling and production (including drilling mud and good cleaning) including material transfers, on site formulation, also head operations, shaker room activities and related maintenance. It involves the use of lubricants formulated in closed and open systems including material transfers, operation of machines/engines and similar artifacts, reprocessing on reject items, equipment maintenance and disposal of waste.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers up to 100% of the substance in the product (unless otherwise stated)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining a proper standard of general ventilation. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood that the substance will come into contact with the m(E3). Other skin protection measures, such as waterproof suits and face shields, may be required during high-dispersion activities, such as spray application, which can lead to significant aerosol release. (E4)
Bulk Transfer (CS14)	Transfer through closed lines (E52)
Filling/preparation of equipment from drums or containers. (CS45)	Wear protective gloves that comply with the EN374 standard. (PPE15))

(Factory Equipment Filling (CS75)	Wear protective gloves that comply with the EN374 standard. (PPE15))
Driving and Lubricating High-Energy Open Equipment (CS17)	Provide extractive ventilation at the points where emissions occur (E54) Limit access to the affected area when opening the equipment (E68)
Manual roller application or brushing (CS13)	Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17)
Handling of Diving and Pouring Articles (CS35)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Spray Application (CS10)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in case of openings (E60) Wear appropriate protective gloves (conforming to EN374 standard), coverall and eye protection. (PPE23)
Maintenance (of large equipment) and installation of machinery (CS77)	Ensure that material transfer takes place under containment or extraction ventilation conditions (E66) Ensure an extraction ventilation system at emission points where there is a possibility of contact with a hot lubricant (>50°C) (E67) Wear protective gloves that comply with the EN374 standard. (PPE15)
Small Parts Maintenance (CS18)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Rework of scrap items (CS19)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Storage (CS67)	Store the substance within a closed system (E84)

Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	2.7e4
Fraction of regional tonnage used locally (A3)	0.0036
Annual tonnage of the site (tonnes/year) (A5)	1.0e2
Maximum Daily Site Tonnage (kg/day) (A4)	5.0e3
Frequency and duration of use	
Issuing Days (days/year) (FD4)	20
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction of release of pollutants from the process (initial version before RMM)	5.0e-3
Process wastewater release fraction (initial release before RMM)	3.0e-6
Release fraction for process soil (initial version before RMM)	0.001
Technical conditions and process-level measures (source) to prevent release	
Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j) No waste water treatment required. (TCR6)	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	70
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	0
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of leak prevention measurements on site	
Prevent discharge of insoluble substance or recover from wastewater [WHO1]. Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3)..	
Conditions and measures relating to the municipal recovery plan	

Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	7.8e4
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.	
3.2 Environment	
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2)	
Section 4	
4.1 Health	
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).	

4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)

8. Use of Diesel in Lubricants: minimum environmental release

Section 1 Exposure Scenario entitled Gas Oils (vacuum, hydrocracked & distillate fuels) R20, R38, R40, R65, R51/53	
Title	
Formulation and (Re)Packaging of the Substance and Mixture	
Description Use	
Sector of use	22
Category Processing	1, 2, 3, 4, 8a, 8b, 9, 13, 17, 20
Environmental Release Categories	9a, 9b
Specific Environment Release Categories	ESVOC SpERC 9.6b.v1
Processes, assignments, activities held	
It involves the use of lubricants formulated in closed and open systems including material transfer operations, engine operation and similar artifacts, reprocessing on returned items, maintenance equipment and disposal of waste oils.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining proper general ventilation standards. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood of the substance coming into contact with your hands. Eliminate contamination/spills as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to staff aimed at preventing/limiting exposures and notify the onset of any dermatological problems. (E3) Other skin protection measures, such as waterproof suits and face shields, may be required during high-dispersion activities, such as spray application, which can lead to significant aerosol release. (E4)
General Exposures (Closed Systems) (CS15)	Handle the substance in a closed system (E47) Wear protective gloves that comply with the EN374 standard. (PPE15)

Driving equipment containing engine oils and the like (CS26)	No further specific measures have been identified (EI20)
Driving equipment containing engine oils and the like (CS26)	Ensure an adequate standard of controlled ventilation (10 to 15 air changes per hour) (E40) Wear protective gloves that comply with the EN374 standard. (PPE15)
Bulk Transfer (CS14)	Wear protective gloves that comply with the EN374 standard. (PPE15) Do not carry out activities that involve the possibility of exposure for a period of more than 4 hours (OC28)
Filling/preparation of equipment from drums or containers. (CS45) non-dedicated structure (CS82)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Driving and Lubricating High-Energy Open Equipment (CS17) Indoors (OC8)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in case of openings (E60) Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11)
Driving and Lubricating High-Energy Open Equipment (CS17) Outdoors (OC9)	Make sure that the operation is carried out outdoors (E69) Do not carry out activities that involve the possibility of exposure for a period of more than 4 hours (OC28) Limit the content of the substance in the product to 25% (OC18) Wear protective gloves that comply with the EN374 standard. (PPE15) Ensure that operational personnel are properly trained in order to limit any exposure (EI19)
Maintenance (of large equipment) and installation of machinery (CS77)	Ensure that material transfer takes place under containment or extraction ventilation conditions (E66) Ensure an extraction ventilation system at emission points where there is a possibility of contact with a hot lubricant (>50°C) (E67) Wear protective gloves that comply with the EN374 standard. (PPE15)
Small Parts Maintenance (CS18)	Drain or remove substances from equipment before opening or maintenance (E81) Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11) Wear chemical protective gloves (conforming to EN374 standard), along with a basic training course. (PPE16)
Gearbox or topping up engine lubricant (CS78)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Manual roller application or brushing	Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17)
Spray application (CS10) with localized exhaust air ventilation (CS109)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in case of openings (E60) Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11) Wear chemical protective gloves (conforming to EN374 standard), along with a basic training course. (PPE16) Ensure that operational personnel are properly trained in order to limit any exposure (EI19)
Spray application (CS10) without localized exhaust air ventilation (CS110)	Wear a full face mask (EN140 compliant) with a type A/P2 filter or higher (PPE32) Wear chemical protective gloves (EN374 compliant), along with intensive control, management and supervision measures. (PPE18) Limit the content of the substance in the product to 25% (OC18) Do not carry out activities that involve the possibility of exposure for a period of more than 4 hours (OC28)
Dip and pour treatment (CS35)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Storage (CS67)	Store the substance within a closed system (E84)

Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	3.2e3

Fraction of regional tonnage used locally (A3)	0.0005
Annual tonnage of the site (tonnes/year) (A5)	1.6
Maximum Daily Site Tonnage (kg/day) (A4)	4.4
Frequency and duration of use	
Continuous release. (FD2)	
Issuing Days (days/year) (FD4)	365
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction released into the air by the process (initial release before application of risk management measures): (OOC4)	0.01
Fraction released into waste water from the process (initial release before application of risk management measures): (OOC5)	0.01
Fraction released into the soil by the process (initial release before application of risk management measures): (OOC6)	0.01
Technical conditions and process-level measures (source) to prevent release	
Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used.	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j) No waste water treatment required. (TCR6)	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	N/A
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	0
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of measures to prevent escapes from the site	
Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3).	
Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	6.8e1
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.	
3.2 Environment	

The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2).
Section 4
4.1 Health
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)

9. Use of Diesel in Lubricants: high environmental release

Section 1 Exposure Scenario entitled Gas Oils (vacuum, hydrocracked & distillate fuels) R20, R38, R40, R65, R51/53	
Title	
Substance Manufacturing	
Description Use	
Sector of use	22
Category Processing	1, 2, 3, 4, 8a, 8b, 9, 13, 17, 20
Environmental Release Categories	8a, 8d
Specific Environment Release Categories	ESVOC SpERC 8.6c.v1
Processes, assignments, activities held	
It involves the use of lubricants formulated in closed and open systems including material transfers, operation of machines/engines and similar artifacts, reprocessing on reject items, equipment maintenance and disposal of waste.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers up to 100% of the substance in the product (unless otherwise stated)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining a proper standard of general ventilation. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood that the substance will come into contact with the m(E3). Other skin protection measures, such as waterproof suits and face shields, may be required during high-dispersion activities, such as spray application, which can lead to significant aerosol release. (E4)
General Exposures (Closed Systems) (CS15)	Handle the substance in a closed system (E47)Wear protective gloves that comply with the EN374 standard. (PPE15)
Driving equipment containing engine oils and the like (CS26)	No further specific measures have been identified (EI20)

General Exposures (Open Systems) (CS16)	Ensure an adequate standard of controlled ventilation (10 to 15 air changes per hour) (E40) Wear protective gloves that comply with the EN374 standard. (PPE15)
Bulk Transfer (CS14)	Wear protective gloves that comply with the EN374 standard. (PPE15) Do not carry out activities that involve the possibility of exposure for a period of more than 4 hours (OC28)
Filling/preparation of equipment from drums or containers. (CS45)dedicated structure (CS81)	Use drum pumps or take extra care when pouring from containers (E64) Wear protective gloves that comply with EN374 standard. (PPE15)
Filling/preparation of equipment from drums or containers. (CS45)non-dedicated structure (CS82)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Driving and Lubricating High-Energy Open Equipment (CS17) Indoors (OC8)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in case of openings (E60) Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11)
Driving and Lubricating High-Energy Open Equipment (CS17) Outdoors (OC9)	Make sure that the operation is carried out outdoors (E69)Do not carry out activities that involve the possibility of exposure for a period of more than 4 hours (OC28)Limit the content of the substance in the product to 25% (OC18)Wear protective gloves that comply with the EN374 standard. (PPE15)
Maintenance (of large equipment) and installation of machinery (CS77)	Ensure that material transfer takes place under containment or extraction ventilation conditions (E66) Ensure an extraction ventilation system at emission points where there is a possibility of contact with a hot lubricant (>50°C) (E67) Wear protective gloves that comply with the EN374 standard. (PPE15)
Small Parts Maintenance (CS18)	Drain or remove substances from equipment before opening or maintenance (E81) Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11) Wear chemical protective gloves (conforming to EN374 standard), along with a basic training course. (PPE16)
Gearbox or topping up engine lubricant (CS78)	Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
Manual roller application or brushing (CS13)	Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17)
Spray Application (CS10)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in case of openings (E60)Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11)Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)Ensure that operating personnel are properly trained in order to limit possible exposure (EI19)If the technical measures are not of practical application: (G16)Wear a full mask (conforming to EN140 standard) equipped with a type A/P2 or higher filter (PPE32)Wearing chemical protective gloves (conforming to EN374 standard), together with intensive control measures, management and supervision. (PPE18)Limit the content of the substance in the product to 25% (OC18)Do not engage in activities that involve the possibility of exposure for more than 4 hours (OC28)
Dip and pour treatment (CS35)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Storage (CS67)	Store the substance within a closed system (E84)
Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	

Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	3.2e3
Fraction of regional tonnage used locally (A3)	0.0005
Annual tonnage of the site (tonnes/year) (A5)	1.6
Maximum Daily Site Tonnage (kg/day) (A4)	4.4
Frequency and duration of use	
Issuing Days (days/year) (FD4)	365
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction of release of pollutants from the process (initial version before RMM)	1.5e-1
Process wastewater release fraction (initial release before RMM)	0.05
Release fraction for process soil (initial version before RMM)	0.05
Technical conditions and process-level measures (source) to prevent release	
Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j) No waste water treatment required. (TCR6)	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	N/A
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	0
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of leak prevention measurements on site	
Prevent discharge of insoluble substance or recover from wastewater [WHO1]. Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3)..	
Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	6.8e1
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.	
3.2 Environment	
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2)	
Section 4	
4.1 Health	
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32).	

The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)

10. Use of Diesel in the processing of liquid metals/rolling oils – Industrial.

Section 1 Exposure Scenario entitled Gas Oils (vacuum, hydrocracked & distillate fuels) R20, R38, R40, R65, R51/53	
Title	
Substance Manufacturing	
Description Use	
Sector of use	3
Category Processing	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17
Environmental Release Categories	4
Specific Environment Release Categories	ESVOC SpERC 4.7a.v1
Processes, assignments, activities held	
It provides for use in MWF formulated files/rolling oils including transfer, rolling and annealing activities, cutting/machining activities, automatic and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, discharge and waste disposal.	
Valuation method	
See Section 3	
Section 2 Operating Conditions and Risk Management Measures	
Section 2.1 Control of workers' exposure	
Product features	
Physical state of the product	Liquid
Vapor Pressure (kPa)	Liquid, vapor pressure < 0.5 kPa under standard conditions (OC3).
Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified)(G2)
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20° C above room temperature, unless otherwise specified (G15). It presupposes the application of an appropriate basic standard of hygiene in the working environment. (G1).
Exposure scenarios	**Specific risk management measures and operating conditions**
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining a proper standard of general ventilation. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
General Measures (Skin Irritants)(G19)	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood that the substance will come into contact with the m(E3). Other skin protection measures, such as waterproof suits and face shields, may be required during high-dispersion activities, such as spray application, which can lead to significant aerosol release. (E4)
General Exposures (Closed Systems) (CS15)	Handling the substance in a closed system (E47)
General Exposures (Open Systems) (CS16)	Provide extractive ventilation at emission points (E54)

Bulk Transfer (CS14)	Handle the substance in a closed system (E47) Wear protective gloves that comply with the EN374 standard. (PPE15)
Filling/preparation of equipment from drums or containers. (CS45)	Wear protective gloves that comply with the EN374 standard. (PPE15)
In-process sampling (CS2)	No further specific measures have been identified (EI20)
Mechanical Metalworking (CS79)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in case of openings (E60)
Dip and pour treatment (CS35)	Wear protective gloves that comply with the EN374 standard. (PPE15)
Spray Application (CS10)	Limit exposure by partially isolating operations or equipment and ensure proper extraction ventilation in case of openings (E60)Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11) Wear appropriate protective gloves (conforming to EN374 standard), coveralls and eye protection. (PPE23)
Manual roller application or brushing (CS13)	Wear chemical protective gloves (EN374 compliant), along with specific task training. (PPE17)
Automated Metal Rolling & Stamping (CS80)	Handle the substance within a predominantly closed system with extraction ventilation (E49)
Semi-Automated Metal Rolling & Stamping (CS83)	Provide extractive ventilation at emission points (E54)
Equipment Cleaning and Maintenance (CS39)	Drain and purge the system before opening or servicing equipment (E55) Wear chemical protective gloves (conforming to EN374 standard), along with a basic training course. (PPE16)
Storage (CS67)	Store the substance within a closed system (E84)

Section 2.2	
Product features	
The substance is a UVCB complex. (PrC3) Predominantly hydrophobic. (PrC4a)	
Amounts used	
Fraction of EU tonnage used locally (A1)	0.1
Regional tonnage (tonnes/year) (A2)	1.0e4
Fraction of regional tonnage used locally (A3)	0.0097
Annual tonnage of the site (tonnes/year) (A5)	1.0e2
Maximum Daily Site Tonnage (kg/day) (A4)	5.0e3
Frequency and duration of use	
Issuing Days (days/year) (FD4)	20
Environmental factors not affected by management risks	
Local dilution factor in fresh water (EF1)	10
Local dilution factor in seawater (EF2)	100
Other operability conditions affecting environmental exposure	
Fraction of release of pollutants from the process (initial version before RMM)	0.02
Process wastewater release fraction (initial release before RMM)	3.0e-6
Release fraction for process soil (initial version before RMM)	0
Technical conditions and process-level measures (source) to prevent release	
Procedures vary from site to site, so conservative estimates of process emissions (TCS1) are used	
Conditions and technical measures on site to reduce or limit discharges, airborne emissions and leaks	
Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j) No waste water treatment required. (TCR6)	
Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7).	70
Treat waste water on site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%):	0
In the case of discharge to an urban wastewater treatment plant, ensure the required removal effectiveness on site ≥ (%)	0
Organization of leak prevention measurements on site	
Prevent discharge of insoluble substance or recover from wastewater [WHO1]. Do not distribute the sludge generated by industrial water treatment on natural soils. (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated. (WHO3)..	

Conditions and measures relating to the municipal recovery plan	
Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3).	94.1
Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94.1
Maximum allowable tonnage for the site (MSafe) based on the release after total waste water removal treatment (kg/d) (STP6).	7.8e4
Assumed flow rate for the urban wastewater treatment plant (m3/d): (STP5)	2000
Conditions and measures relating to the external treatment of waste	
External waste treatment and disposal must comply with applicable local and/or national legislation. (ETW3)	
Conditions and measures relating to waste recovery treatment	
External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures	
3.1 Health	
For the purpose of assessing the level of exposure at the workplace, where not expressly indicated, the ECETOC TRA(G21) method was used.	
3.2 Environment	
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model. (EE2)	
Section 4	
4.1 Health	
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions set out in Section 3(G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).	
4.2 Environment	
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures. (DSU1) The required efficiency of wastewater removal can be achieved by using onsite/offsite technologies, either individually or in combination. (DSU2) The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination. (DSU3) Further information on scaling activities and control technologies is provided by the SpERC data sheets (http://cefic.org/en/reach-for-industries-libraries.html). (DSU4)	

11. Use of Diesel as fuel/fuel - Industrial

Section 1		
Title		
	Use as fuel/fuel	
Usage descriptors		
Areas of use	3	
Process Categories	1, 2, 3, 8a, 8b, 16	
Environmental Release Categories	7	
Specific Environmental Release Categories	ESVOC SpERC 7.12b v1	
Processes, tasks, activities covered		
	It covers use as fuel/fuel (or fuel additive/fuel and additive components) and includes activities connected with its transfer, use, maintenance of equipment and waste management.	
Valuation method		
	See section 3.	
Section 2 Operating conditions and measures for risk prevention		
Section 2.1 Control of workers' exposure		
	Product features	
	Physical state of the product	Liquid
	Vapor Pressure (kPa)	Liquid, 0.5 kPa vapor pressure under standard conditions (OC3)
	Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)
	Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified) (G2).
	Other operating conditions affecting exposure	Assumes that the product is used at a temperature not exceeding 20°C above ambient temperature, unless otherwise specified (G15) It presupposes the application of an appropriate basic standard for hygiene in the workplace (G1).
	Scenario characteristics	***Specific risk management measures and operating conditions***
	General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining a proper standard of general ventilation. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)
	General Measures (Skin Irritants) – G19	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood of the substance coming into contact with your hands. Eliminate contamination/spills as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to staff aimed at preventing/limiting exposures and notify the onset of any dermatological problems. (E3).
	Bulk Transfer – CS14	Wear protective gloves that comply with the EN374 standard. (PPE15)
	Drum/batch transfer – CS8	Wear protective gloves that comply with the EN374 standard. (PPE15)
	Use as fuel/fuel (closed systems) (CS107)	No further specific measures have been identified (EI20)
	Equipment Cleaning and Maintenance (CS39)	Drain the system before opening or servicing equipment (E65) Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)
	Storage (CS67)	Store the substance within a closed system (E84)
Section 2.2 Environmental Exposure Control		
	Product features	
	The substance is a UVCB complex (PrC3). Predominantly hydrophobic (PrC4a)	
	Quantities used	
	Fraction of EU tonnage used locally: (A1)	0,1
	Regional tonnage (tonnes/year) (A2)	4,5e6
	Fraction of regional tonnage used locally (A3)	0,34
	Annual tonnage of the site (tonnes/year) (A5)	1,5e6
	Maximum Daily Site Tonnage (kg/day) (A4)	5,0e6
	Frequency and duration of use	

	Issuing Days (days/year) (FD4)	300
	Environmental factors not affected by risk management	
	Local dilution factor in fresh water (EF1)	10
	Local dilution factor in seawater (EF2)	100
	Other operating conditions affecting environmental exposure	
	Fraction released into the air by the process (initial release before application of risk management measures): (OOC4)	5,0e-3
	Fraction released into wastewater from the process (initial release before application of risk management measures) (OOC5)	0,00001
	Fraction released in the soil by the process (initial release before the application of risk management measures) (OOC6)	0
	Process-level (source) measures and technical conditions to prevent releases	
	Procedures vary from site to site, so conservative process emission estimates (TCS1) are used.	
	Technical conditions on site and measures to reduce or limit discharges, air emissions and releases into the soil	
	The risk associated with environmental exposure is induced by the freshwater sediment compartment. (TCR1b) In the case of discharge to an urban wastewater treatment plant, no treatment is required. (TCR9)	
	Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7)	95
	Treat wastewater on-site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%) (TCR8)	97,7
	In case of discharge to an urban wastewater treatment plant, ensure the required on-site removal effectiveness ≥ (%) (TCR9)	60,4
	Organizational measures to prevent/limit release from the site (1286)	
	Prevent the discharge of insoluble substances or recover from wastewater (WHO1). Do not distribute sludge generated by industrial water treatment on natural land (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated (WHO3)	
	Conditions and measures relating to the municipal wastewater treatment plant	
	Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3)	94,1
	Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	97,7
	Maximum Permissible Site Tonnage (MSafe) based on Release After Total Wastewater Removal Treatment (kg/d) (STP6)	5,0e6
	Assumed flow rate for the urban wastewater treatment plant (m3/d) (STP5)	2000
	Conditions relating to the external treatment of waste for disposal (1272)	
	Combustion emissions are regulated by the control measures in force. (ETW1) Combustion emissions are taken into account in the regional impact assessment. (ETW2)	
	Conditions and measures relating to external waste recovery	
	External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	
Section 3 Estimating Exposures		
Section 3.1 Health		
	For the purpose of assessing the level of exposure in the workplace, where not expressly indicated, the ECETOC TRA (G21) method was used	
Section 3.2 Environment		
	The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model (EE2)	

Section 4 Guidance for verifying compliance with the exposure scenario
Section 4.1 Health
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions described in Section 2 (G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
Section 4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures (DSU1). The required efficiency of wastewater removal can be achieved using onsite/offsite technologies, either individually or in combination (DSU2). The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination (DSU3). Further information on scaling activities and control technologies is provided by the SpERC (http://cefic.org/en/reach-for-industries-libraries.html) (DSU4) data sheets.

12. Use of Diesel as fuel/fuel - Professional

Section 1	
Title	
Use as fuel/fuel	
Usage descriptors	
Areas of use	22
Process Categories	1, 2, 3, 8a, 8b, 16
Environmental Release Categories	9a, 9b
Specific Environmental Release Categories	ESVOC SpERC 9.12b v1
Processes, tasks, activities covered	
It covers use as fuel/fuel (or fuel additives/fuel and additive components) and includes activities related to its transfer, use, maintenance of equipment and waste management.	
Valuation method	
See section 3.	

Section 2 Operating conditions and measures for risk prevention		
Section 2.1 Control of workers' exposure		
Product features		
Physical state of the product	Liquid	
Vapor Pressure (kPa)	Liquid, 0.5 kPa vapor pressure under standard conditions (OC3)	
Concentration of the substance in the product	Covers a percentage of substance in the product up to 100% (unless otherwise stated) (G13)	
Frequency and duration of use/exposure	Covers a daily exposure of up to 8 hours (unless otherwise specified) (G2).	
Other operating conditions affecting exposure	Assumes that the product is used at a temperature not exceeding 20°C above ambient temperature, unless otherwise specified (G15) It presupposes the application of an appropriate basic standard for hygiene in the workplace (G1).	
Scenario characteristics	***Specific risk management measures and operating conditions***	
General measures applicable to all activities (CS135)	Control potential exposure by taking appropriate measures such as closed or contained systems, properly designed and regularly maintained systems, and maintaining a proper standard of general ventilation. Drain systems and transfer lines before disrupting containment. Drain and purge equipment, where possible, before servicing. Where exposure is possible: ensure that staff are adequately informed about the nature of the exposure and the basic actions to be taken to limit exposures; ensure that adequate personal protective equipment is available; Immediately eliminate spills and dispose of waste in accordance with legal requirements; monitor the effectiveness of control measures; consider the need for a health surveillance system; identify and apply corrective measures. (G25)	
General Measures (Skin Irritants) – G19	Avoid direct contact of the product with the skin. Identify potential areas of indirect skin contact. Wear protective gloves (tested to EN374 standard) if there is a likelihood of the substance coming into contact with your hands. Eliminate contamination/spills as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to staff aimed at preventing/limiting exposures and notify the onset of any dermatological problems. (E3).	
Bulk Transfer – CS14	Wear protective gloves that comply with the EN374 standard. (PPE15)	
Drum/batch transfer – CS8	Use drum pumps or take extra care when pouring from containers (E64) Wear protective gloves that comply with the EN374 standard. (PPE15)	
Supply (CS507)	Wear protective gloves that comply with the EN374 standard. (PPE15)	
Use as fuel/fuel (closed systems) (CS107)	Ensure an adequate standard of general ventilation (no less than 3-5 air changes per hour) (E11) Make sure the operation is carried out outdoors (E69)	
Equipment Cleaning and Maintenance (CS39)	Drain the system before opening or servicing equipment (E65) Wear chemical protective gloves (EN374 compliant), along with a basic training course. (PPE16)	
Storage (CS67)	Store the substance within a closed system (E84)	
Section 2.2 Environmental Exposure Control		
Product features		
The substance is a UVCB complex (PrC3). Predominantly hydrophobic (PrC4a)		
Quantities used		
Fraction of EU tonnage used locally: (A1)		0,1
Regional tonnage (tonnes/year) (A2)		6,7e6

	Fraction of regional tonnage used locally (A3)	0,0005
	Annual tonnage of the site (tonnes/year) (A5)	3,3e3
	Maximum Daily Site Tonnage (kg/day) (A4)	9,2e3
	Frequency and duration of use	
	Issuing Days (days/year) (FD4)	365
	Environmental factors not affected by risk management	
	Local dilution factor in fresh water (EF1)	10
	Local dilution factor in seawater (EF2)	100
	Other operating conditions affecting environmental exposure	
	Fraction released into the air by the process (initial release before application of risk management measures): (OOC4)	1,0e-4
	Fraction released into wastewater from the process (initial release before application of risk management measures) (OOC5)	0,00001
	Fraction released in the soil by the process (initial release before the application of risk management measures) (OOC6)	0,00001
	Process-level (source) measures and technical conditions to prevent releases	
	Procedures vary from site to site, so conservative process emission estimates (TCS1) are used.	
	Technical conditions on site and measures to reduce or limit discharges, air emissions and releases into the soil	
	Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j) No waste water treatment required. (TCR6)	
	Treat emissions in such a way as to ensure a typical removal effectiveness of (%) (TCR7)	N/A
	Treat wastewater on-site (before starting the discharge operation) to ensure the required removal effectiveness ≥ (%) (TCR8)	0
	In case of discharge to an urban wastewater treatment plant, ensure the required on-site removal effectiveness ≥ (%) (TCR9)	0
	Organizational measures to prevent/limit release from the site (1286)	
	Prevent the discharge of insoluble substances or recover from wastewater (WHO1). Do not distribute sludge generated by industrial water treatment on natural land (WHO2) Sludge generated by industrial water treatment must be incinerated, kept under containment or treated (WHO3)	
	Conditions and measures relating to the municipal wastewater treatment plant	
	Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3)	94,1
	Total effectiveness of wastewater removal, after the adoption of on-site and offsite (urban-type treatment plant) RMMs (%) (STP4)	94,1
	Maximum Permissible Site Tonnage (MSafe) based on Release After Total Wastewater Removal Treatment (kg/d) (STP6)	1,4e5
	Assumed flow rate for the urban wastewater treatment plant (m3/d) (STP5)	2000
	Conditions relating to the external treatment of waste for disposal (1272)	
	Combustion emissions are regulated by the control measures in force. (ETW1) Combustion emissions are taken into account in the regional impact assessment. (ETW2)	
	Conditions and measures relating to external waste recovery	
	External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	

Section 3 Estimating Exposures
Section 3.1 Health
For the purpose of assessing the level of exposure in the workplace, where not expressly indicated, the ECETOC TRA (G21) method was used
Section 3.2 Environment
The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model (EE2)
Section 4 Guidance for verifying compliance with the exposure scenario
Section 4.1 Health
Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions described in Section 2 (G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23). The available data on hazard characteristics do not allow for derivation of a DNEL for skin irritant effects. (G32). The available data on hazard characteristics do not support the need to establish a DNEL for other health effects. (G36). Risk Management Measures are based on the qualitative characterization of risk. (G37).
Section 4.2 Environment
The guideline is based on assumptions of use that may not apply to all sites; therefore, a scaling operation may be required to define appropriate site-specific risk management measures (DSU1). The required efficiency of wastewater removal can be achieved using onsite/offsite technologies, either individually or in combination (DSU2). The required efficiency of air removal can be achieved by using onsite technologies, either individually or in combination (DSU3). Further information on scaling activities and control technologies is provided by the SpERC (http://cefic.org/en/reach-for-industries-libraries.html) (DSU4) data sheets.

13. Use of Diesel as fuel/fuel - Consumer

Section 1		
Title		
Use as fuel/fuel		
Usage descriptors		
Areas of use	21	
Process Categories	13	
Environmental Release Categories	9a, 9b	
Specific Environmental Release Categories	ESVOC SpERC 9.12c v1	
Processes, tasks, activities covered		
Covers use as Fuel Consumers/Fuel		
Valuation method		
See section 3.		
Section 2 Operating conditions and measures for risk prevention		
Section 2.1 Control of workers' exposure		
Product features		
Physical state of the product	Liquid	
Vapor Pressure (kPa)	Liquid, vapor pressure >10 Pa under standard conditions (OC15)	
Concentration of the substance in the product	Unless otherwise specified, covers the concentration up to 100%	
Frequency and duration of use/exposure	Unless otherwise specified, it covers a frequency of use up to 37500g (ConsOC2) Covers a skin contact area of up to 420 cm2 (ConsOC5a)	
Other operating conditions affecting exposure	Unless otherwise specified, it covers usage up to 0.143 times/day (ConsOC4a) Covers exposure up to 2 hours/event:(ConsOC14a)	
Scenario characteristics	***Specific risk management measures and operating conditions***	
Fuels - Liquid: Automotive Refueling (PC13_1)	OC	Unless otherwise specified, Covers concentrations up to 100 %: (ConsOC1a); Covers use up to 52 days/year (ConsOC3a); Covers use up to 1 times/day of use (ConsOC4a); Covers a skin contact area of up to 210.00 cm2 (ConsOC5a); For any occasion of use, it covers the use of an amount up to 37500 g (ConsOC2a); Covers outdoor use. (ConsOC12); Covers use in a 100m3 room size (ConsOC11a); Covers exposure up to 0.05 (hours/event) (ConsOC14a).
	RMM	No specific risk management measures identified other than the conditions of use mentioned. (ConsRMM15)
Fuel – Liquid: Use in garden equipment (PC13_3)	OC	Unless otherwise specified, Covers concentrations up to 100 %: (ConsOC1a); Covers use up to 26 days/year (ConsOC3a); Covers use up to 1 times/day of use (ConsOC4a); For any occasion of use, it covers the use of an amount up to 750 g (ConsOC2a); Covers outdoor use (ConsOC12); Covers use in a 100m3 room size (ConsOC11a); Covers exposure up to 2.00 (hours/event) (ConsOC14a)
	RMM	No specific risk management measures identified other than the conditions of use mentioned. (ConsRMM15)
Fuels – Liquid: Garden equipment replenishment (PC13_3)	OC	Unless otherwise specified, Covers concentrations up to 100 %: (ConsOC1a); Covers use up to 26 days/year (ConsOC3a); Covers use up to 1 times/day of use (ConsOC4a); Covers a skin contact area of up to 420 cm2 (ConsOC5a); For any occasion of use, it covers the use of an amount up to 750 g (ConsOC2a); Covers use in a garage for one car (34 m3) with typical ventilation. (ConsOC10); Covers use in a room with a size of 34 m3 (ConsOC11a); Covers exposure up to 0.03 (hours/event) (ConsOC14a)
	RMM	No specific risk management measures identified other than the conditions of use mentioned. (ConsRMM15)
Section 2.2 Environmental Exposure Control		
Product features		
The substance is a UVCB complex (PrC3). Predominantly hydrophobic (PrC4a)		
Quantities used		
Fraction of EU tonnage used locally: (A1)		0,1
Regional tonnage (tonnes/year) (A2)		1,6e7
Fraction of regional tonnage used locally (A3)		0,0005
Annual tonnage of the site (tonnes/year) (A5)		8,2e3
Maximum Daily Site Tonnage (kg/day) (A4)		2,3e4
Frequency and duration of use		
Issuing Days (days/year) (FD4)		365
Environmental factors not affected by risk management		
Local dilution factor in fresh water (EF1)		10
Local dilution factor in seawater (EF2)		100
Other operating conditions affecting environmental exposure		

	Environmental risk is related to indirect exposure of humans via ingestion. (TCR1j)	
	Fraction released into the air by the process (initial release before application of risk management measures): (OOC4)	1.0e-4
	Fraction released into wastewater from the process (initial release before application of risk management measures) (OOC5)	0,00001
	Fraction released in the soil by the process (initial release before the application of risk management measures) (OOC6)	0,00001
	Conditions and measures relating to the municipal wastewater treatment plant	
	Estimated removal of wastewater substance by means of an urban treatment plant (%) (STP3)	94,1
	Maximum Permissible Site Tonnage (MSafe) based on Release After Total Wastewater Removal Treatment (kg/d) (STP6)	3,5e5
	Assumed flow rate for the urban wastewater treatment plant (m3/d) (STP5)	2000
	Conditions relating to the external treatment of waste for disposal (1272)	
	Combustion emissions are regulated by the control measures in force. (ETW1) Combustion emissions are taken into account in the regional impact assessment. (ETW2)	
	Conditions and measures relating to external waste recovery	
	External waste collection and recycling must comply with applicable local and/or national legislation. (ERW1)	

Section 3 Estimating Exposures

Section 3.1 Health

The ECETOC TRA tool was used to assess the level of consumer exposure, consistent with the content of ECETOC Report No. 107 and Chapter R15 of the IR&CSA TGD. Where the agents determining exposure differ from these sources, these will be indicated. (G42)

Section 3.2 Environment

The HBM (Hydrocarbon Block Method) method was used to calculate environmental exposure with the Petrorisk model (EE2)

Section 4 Guidance for verifying compliance with the exposure scenario

Section 4.1 Health

Exposures are expected not to exceed DN(M)EL when the Risk Management Measures/Operating Conditions described in Section 2 (G22) are applied. Where different Risk Management Measures/Operating Conditions are in place, users are required to ensure that risks are managed at least at an equivalent level. (G23).

Section 4.2 Environment

Further information on scaling activities and control technologies is provided by the SpERC (http://cefic.org/en/reach-for-industries-libraries.html) (DSU4) data sheets.