

Supersedes date
23/01/2024

Revision date
29/01/2026

Revision Number
2

Country-Language: FIN-EN

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

1.1. Product identifier

Product Name	Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)
Product Code(s)	13999
Safety data sheet number	13999
Other means of identification	160365, 170050, 170051, 170700, 170704
Unique Formula Identifier (UFI)	VP6N-WAV1-791D-R3XP
Pure substance/mixture	Mixture

Contains Fuel oil, no. 2; Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin

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

Recommended use	Distribution of substance (ES01a) Formulation & (re)packing of substances and mixtures (ES02) Use as a fuel (ES012a, ES12b)
Uses advised against	Supported uses are listed above. Other uses are not recommended.

1.3. Details of the supplier of the safety data sheet

Supplier

Neste Oyj
Keilaranta 21, Espoo, P.O.B. 95, FIN-00095 NESTE, FINLAND
Tel. +358 10 45811
SDS@neste.com (chemical safety)

1.4. Emergency telephone number

Emergency Telephone :

Emergency Telephone - §45 - (EC)1272/2008	
Europe	112
Finland	+358 800 147 111, +358 9 471 977, Poison Information Centre
Sweden	När det är akut: 112, begär giftinformation. I mindre akuta fall 010-456 6700, Giftinformationscentralens direktnummer

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Skin corrosion/irritation	Category 2 - (H315)
Carcinogenicity	Category 2 - (H351)

Reproductive toxicity	Category 1B - (H360FD)
Specific target organ toxicity (repeated exposure)	Category 2 - (H373)
Aspiration hazard	Category 1 - (H304)
Hazardous to the aquatic environment - chronic	Category 2 - (H411)

2.2. Label elements

Contains Fuel oil, no. 2; Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin



Signal word

Danger

Hazard statements

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H332 - Harmful if inhaled

H351 - Suspected of causing cancer

H360FD - May damage fertility. May damage the unborn child

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

H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)

P260 - Do not breathe dust, fume, gas, mist, vapors and spray

P273 - Avoid release to the environment

P280 - Wear protective gloves, protective clothing, eye protection and face protection

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

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

P331 - Do NOT induce vomiting

2.3. Other hazards

Evaporates slowly. Risk of soil and ground water contamination.

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Chemical name	Weight-%	REACH registration number	EC No. (Index No.)	Classification according to Regulation (EC) No.	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	Notes

				1272/2008 [CLP]				
Fuel oil, no. 2 68476-30-2	80 - 100	01-2119475501- 42	270-671-4	Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) Acute Tox. 4 (H332) Carc. 2 (H351) Repr. 1B (H360FD) STOT RE 2 (H373) Aquatic Chronic 2 (H411)	-	-	-	-
Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin -	0 - 20	01-2120091562- 55	941-364-9	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) Acute Tox. 4 (H332) Carc. 2 (H351) STOT RE 2 (H373) Aquatic Chronic 2 (H411)	-	-	-	-

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

No information available

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59).

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice

IF exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance.

Inhalation

Remove person to fresh air and keep comfortable for breathing. Keep affected person under observation. If breathing is difficult, (trained personnel should) give oxygen. If not breathing, give artificial respiration. Get medical attention.

Eye contact

Get medical attention if irritation develops and persists. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.

Ingestion

Delayed pulmonary edema may occur. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Self-protection of the first aider

Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Avoid breathing vapours or mists.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms

Irritating to skin. May irritate eyes. Harmful by inhalation. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

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

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical. Carbon dioxide (CO₂). Water spray. Alcohol resistant foam.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Flammable. Risk of ignition. Containers may explode when heated.

Hazardous combustion products Carbon dioxide (CO₂). Carbon monoxide.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Wear positive pressure self-contained breathing apparatus (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Avoid breathing vapours or mists. Ensure adequate ventilation. Do not touch or walk through spilled material.

For emergency responders Evacuate area. Prevent unauthorized access. Keep people away from and upwind of spill/leak. Take precautionary measures against static discharges. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Be aware that gases can spread at ground level (heavier than air) and pay attention to the wind direction. Flash back possible over considerable distance.

6.2. Environmental precautions

Environmental precautions Risk of soil and ground water contamination. Avoid release to the environment. Keep out of drains, sewers, ditches and waterways. Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. Keep out of drains, sewers, ditches and waterways. Risk of soil and ground water contamination. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods for cleaning up Pay attention to the fire and health hazards caused by the product. Take precautionary measures against static discharges. Dam up. Take up with sand, earth or other non-combustible absorbent material. Pick up and transfer to properly labelled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See Section 7 for more information, See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use spark-proof tools and explosion-proof equipment. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. The product contains volatile substances which may spread in the atmosphere. Use only outdoors or in a well-ventilated area.

Do not breathe vapour or mist. Avoid contact with skin, eyes or clothing. Use with local exhaust ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Use personal protective equipment. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Flammable liquid storage. Store away from other materials. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take action to prevent static discharges. Store in a demarcated bunded area to prevent release to drains and/or watercourses. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labelled containers. Do not store near combustible materials. Store in accordance with local regulations.

7.3. Specific end use(s)

Risk Management Methods (RMM) Not applicable.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits The individual limit values can be applied for the hydrocarbons. Diesel fuel as total hydrocarbons; ACGIH TLV®-TWA (8h) 100 mg/m³ (IFV).

Biological occupational exposure limits No information available.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Fuel oil, no. 2 68476-30-2	-	2.90 mg/kg bw/day (8 h) [4] [6]	68 mg/m ³ , Aerosol (8 h) [4] [6] 4300 mg/m ³ , Aerosol (15 min) [4] [7]

Notes

[1]

[4] Systemic health effects.

[6] Long term.

[7] Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
Fuel oil, no. 2 68476-30-2	-	1.3 mg/kg bw/day (24 h)[4] [6]	20 mg/m ³ , Aerosol (8 h) [4] [6] 2600 mg/m ³ , Aerosol (15 min) [4] [7]

Notes

[4] Systemic health effects.

[6] Long term.

[7] Short term.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering controls

Provide adequate ventilation. Use personal protective equipment and/or local ventilation when needed. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

Personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Hand protection

Wear suitable gloves. It is recommended that gloves are made of the following material: Nitrile rubber, Polyvinyl chloride (PVC). Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Wear suitable gloves tested to EN 374. Change protective gloves regularly.

Skin and body protection

Wear suitable protective clothing. Wear anti-static protective clothing if there is a risk of ignition from static electricity.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Filter must be changed often enough. Gas and combination filter cartridges must comply with EN 14387. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P3.

Thermal hazards

No information available.

General advice

Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

Store in a demarcated bunded area to prevent release to drains and/or watercourses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Colour	Yellowish, Brownish
Odour	Hydrocarbons
Odour threshold	No information available

Property	Values	Remarks • Method
Melting point / freezing point	- 6 - 10 °C	Pour Point (ISO 3016)
Boiling point or initial boiling point and boiling range	150 - 420 °C	
Flammability	-	
Lower and upper explosion limit/flammability limit		Estimated
Lower explosion limit	1 %	
Upper explosion limit	6 %	
Flash point	> 75 °C	EN ISO 2719
Autoignition temperature	~ 250 °C	
Decomposition temperature	-	
SADT (°C)	-	
pH	No data available	
pH (as aqueous solution)	No data available	
Kinematic viscosity	2 - 11 mm ² /s	@ 40 °C (EN ISO 3104)
Dynamic viscosity	-	
Solubility		
Water solubility	The product has poor water-solubility. 0.05 g/L @ 20 °C	
Partition coefficient n-octanol/water (log value)	log Kow: >= 4	
Vapour pressure	< 1	kPa @ 38 °C
Density and/or relative density	<= 0.9	@ 15 °C (EN ISO 12185, ISO 3675)
Bulk density	-	
Liquid Density	-	
Relative vapour density	-	
Particle characteristics		
Particle Size	-	
Particle Size Distribution	-	

9.2. Other information

9.2.1. Information with regards to physical hazard classes

Explosive properties	Not considered to be explosive
Oxidising properties	Does not meet the criteria for classification as oxidising

9.2.2. Other safety characteristics

No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks.

10.5. Incompatible materials

Incompatible materials Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products None under normal use conditions.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Acute toxicity Harmful if inhaled

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Fuel oil, no. 2	> 5000 mg/kg, rat (OECD 401, 420)	> 4300 mg/kg, rabbit (OECD 434)	3.6 - 5.4 mg/L, rat (4 h, OECD 403)

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes skin irritation. (OECD 404). The product irritates mucous membranes and may cause abdominal discomfort if swallowed. May cause respiratory irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met. (OECD 405). May cause redness and tearing of the eyes.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met. (OECD 406).

Germ cell mutagenicity Based on available data, the classification criteria are not met. (OECD 471, 475).

Carcinogenicity Suspected of causing cancer. Product may contain cracked gas oil streams. Contains a known or suspected carcinogen.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	European Union
Fuel oil, no. 2	Carc. 2
Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin	Carc. 2

Reproductive toxicity May damage fertility. May damage the unborn child.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
Fuel oil, no. 2	Repr. 1B

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure. (OECD 410, 411, 413).

Aspiration hazard May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Fuel oil, no. 2	OECD 201, EU C.3, 72 hours, Pseudokirchneriella subcapitata, WAF: E _b L50: 10 mg/l, NOEL: 1 mg/l	OECD 203, EU C.1, 96 hours, Oncorhynchus mykiss (Rainbow trout), WAF: LL ₅₀ : 21 mg/l, NOEL: 10 mg/l QSAR, 14 days, Oncorhynchus mykiss (Rainbow trout): NOEL: 0,08 mg/l,	QSAR, 40 hours, Micro-organisms (wastewater sludge): EL50: > 1000 mg/l NOEL: 3,22 mg/l	OECD 202, EU C.2, 48 hours, Daphnia magna, WAF: EL50: 68 mg/l, NOEL: 46 mg/l QSAR, 21 days, Daphnia magna: NOEL: 0,2 mg/l,

12.2. Persistence and degradability

Persistence and degradability The product contains volatile substances which may spread in the atmosphere. Can be photodegraded in the atmosphere.

Fuel oil, no. 2 (68476-30-2)

Method	Exposure time	Value	Results
OECD Test No. 301F: Ready Biodegradability: Manometric Respirometry Test (TG 301 F)			Inherently biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation May bioaccumulate.

Component Information

12.4. Mobility in soil

Mobility in soil Evaporates slowly. The product has poor water-solubility. Product can penetrate soil until reaching the surface of ground water. The product contains substances which are bound to particulate matter and are retained in soil.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Fuel oil, no. 2	Not PBT/vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

12.7. Other adverse effects

Product causes fouling, and direct contact produces harmful effects e.g. to birds and vegetation. Adsorbed hydrocarbon residues can be harmful to sediment organisms.

Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. When handling waste, the safety precautions applying to handling of the product should be considered.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number	1202
14.2 UN proper shipping name	GAS OIL
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazards	Yes
14.6 Special precautions for user	-

IMDG

14.1 UN number or ID number	1202
14.2 UN proper shipping name	GAS OIL
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazard	Marine pollutant
14.6 Special precautions for user	-
14.7 Maritime transport in bulk according to IMO instruments	Not applicable

RID

14.1 UN number or ID number	1202
14.2 UN proper shipping name	GAS OIL
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	-
Classification code	30

ADR

14.1 UN number or ID number	1202
14.2 UN proper shipping name	GAS OIL
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	-
Classification code	30
Tunnel restriction code	(D/E)

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants

Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

P5a - FLAMMABLE LIQUIDS

P5b - FLAMMABLE LIQUIDS
P5c - FLAMMABLE LIQUIDS
E2 - Hazardous to the Aquatic Environment in Category Chronic 2

Named dangerous substances per Seveso Directive (2012/18/EU)

Ozone-depleting substances (ODS) regulation (EC) 2024/590
Not applicable

Other Regulations Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH).
Classification according to Regulation (EC) No. 1272/2008 [CLP].

15.2. Chemical safety assessment

Chemical Safety Report Chemical Safety Assessments have been carried out for these substances

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of any hazard and/or precautionary statements referred to under Sections 2-15

H226 - Flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H360FD - May damage fertility. May damage the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method

STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Chronic aquatic toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Aspiration hazard	On basis of test data
Ozone	Calculation method

Supersedes date 23/01/2024

Revision date 29/01/2026

Reason for revision Change in the mixture classification

Further information Key literature references and sources for data :

Regulations, databases, literature, own research.
CONCAWE Report 15/24: Hazard classification and labelling of petroleum substances in the European Economic Area - 2024.
Chemical Safety Report

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name Fuel oil, no. 2
REACH registration number 01-2119475501-42
EC No. (Index No.) 270-671-4
CAS No. 68476-30-2

Section 1 - Title

Title ES 02 - Formulation & (re)packing of substances and mixtures
Environmental release category(ies) ERC2 - Formulation into mixture
Specific Environmental Release Category ESVOC SPERC 2.2.v3
Process category(ies) PROC 1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
 PROC 2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC 4 Chemical production where opportunity for exposure arises
 PROC5 Mixing or blending in batch processes
 PROC 8a Transfer of substance or mixture (charging and discharging) at nondedicated facilities
 PROC 8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC 9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC14 Tableting, compression, extrusion, pelletisation, granulation
 PROC15 - Use as laboratory reagent
 PROC 28 Manual maintenance (cleaning and repair) of machinery

Revision Number 2025_2
Product Name Fuel oil, no. 2
Processes, tasks, activities covered Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Amounts used
 Type Fraction of EU tonnage used in region
 Value 1

 Type Regional use tonnage
 Value 1 844 000
 Units t(ons)/year

 Type Fraction of regional tonnage used locally
 Value 0,02

 Type Annual site tonnage

Value	30 000
Units	t(ons)/year
Type	Maximum daily site tonnage
Value	100
Units	t(ons)/day

Product characteristics

Remarks Substance is complex UVCB
Predominantly hydrophobic

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

Other operational conditions of use affecting environmental exposure

Type	Continuous release
Emission days	300
Release fraction to wastewater from process (initial release prior to RMM)	0,002
Release fraction to soil from process (initial release prior to RMM)	0,03
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements)	0,5

Conditions and measures related to municipal sewage treatment plant

Type	Not applicable as there is no release to wastewater
Assumed domestic sewage treatment plant flow	2000 m3/d
Removal efficiency fraction (offsite; STP)	0
Removal efficiency (total)	95.7%
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 107000 kg/d.

Environmental factors not influenced by risk management

Local freshwater dilution factor	10
Local marine water dilution factor	100

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Risk from environmental exposure is driven by freshwater sediment Prevent discharge of undissolved substance to or recover from onsite wastewater If discharging to domestic sewage treatment plant, no onsite wastewater treatment required
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Waste management

Air	Treat air emission to provide a typical removal efficiency of 90 %.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= 95,7 %. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= 95,7 %.
Soil	Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations

Section 2.2 - Control of worker exposure

Control of worker exposure

Process category(ies)	Conditions of use applicable to all contributing scenarios
Covers concentrations up to	<= 100 %
Physical form of product	Liquid With potential for aerosol generation
Vapour pressure	< 0.5 kPa
Temperature associated to vapour pressure	STP
Use frequency	Covers exposure up to 8 h/d. (unless stated differently)
Operational conditions	<p>Assumes a good basic standard of occupational hygiene is implemented Covers use at ambient temperatures (unless stated differently)</p> <p>General measures (skin irritants) Ensure that direct skin contact is avoided Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN 374 Clear spills immediately Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS</p> <p>General measures (flammability) Applicable if classified as H224 or H225 or H226, refer to section 2 of the SDS. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.</p> <p>General measures (aspiration hazard) Applicable if classified as H304, refer to section 2 of the SDS. Do not ingest. If swallowed then seek immediate medical assistance</p> <p>General measures applicable to all activities Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves tested to EN 374 Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately Dispose of this material and its container to hazardous or special waste collection point Ensure control measures are regularly inspected and maintained Consider the need for risk based health surveillance.</p> <p>Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS</p>
Process category(ies)	General exposures; Closed systems (PROC 4, PROC 1, PROC 9, PROC 2, PROC 3)
Indoor/Outdoor use	Outdoor use
Operational conditions	Handle substance within a closed system Sample via a closed loop or other system to avoid exposure
Process category(ies)	Mixing operations; Open systems (PROC 5)
Indoor/Outdoor use	Indoor use
Operational conditions	Covers open baths or reservoirs with surface < 3 m2
Process category(ies)	Bulk transfers; Dedicated facility (PROC 8b)
Indoor/Outdoor use	Outdoor use
Operational conditions	Handle substance within a closed system
Process category(ies)	Drum/batch transfers; Dedicated facility (PROC 8b)
Indoor/Outdoor use	Outdoor use
Operational conditions	Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.
Process category(ies)	Manual; Transfer from/pouring from containers; Non-dedicated facility (PROC 8a)

Operational conditions	Use drum pumps Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.
Process category(ies)	Tabletting, compression, extrusion or pelletisation (PROC 14)
Operational conditions	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90 %.
Process category(ies)	Laboratory activities (PROC 15)
Operational conditions	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90 %. No other specific measures identified Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Put lids on containers immediately after use
Process category(ies)	Equipment cleaning and maintenance (PROC 8a, PROC 28)
Operational conditions	Drain down and flush system prior to equipment break-in or maintenance Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin Clear spills immediately
Process category(ies)	Storage (PROC 2, PROC 1)
Indoor/Outdoor use	Outdoor use
Operational conditions	Store substance within a closed system

Section 3 - Exposure estimation

Calculation method

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Section 4 - Guidance to check compliance with the exposure scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination

Further details on scaling and control technologies are provided in SpERC factsheet

(<https://www.esig.org/reach-ges/environment/#factsheets>).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels

Available hazard data does not enable the derivation of a DNEL for dermal irritant effects.

Available hazard data does not support the need for a DNEL to be established for other health effects.

Available hazard data do not enable the derivation of a DNEL for aspiration effects.

Risk management measures are based on qualitative risk characterization.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name Fuel oil, no. 2
REACH registration number 01-2119475501-42
EC No. (Index No.) 270-671-4
CAS No. 68476-30-2

Section 1 - Title

Title ES 12a - Use as a fuel ; Industrial
Environmental release category(ies) ERC7 - Use of functional fluid at industrial site
Specific Environmental Release Category ESVOC SPERC 7.12a.v4
Process category(ies) PROC 1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
 PROC 2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC 8a Transfer of substance or mixture (charging and discharging) at nondedicated facilities
 PROC 8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC16 Use of fuels
 PROC 28 Manual maintenance (cleaning and repair) of machinery

Revision Number 2025_2
Product Name Fuel oil, no. 2
Processes, tasks, activities covered Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Amounts used

Type	Fraction of EU tonnage used in region
Value	1
Type	Regional use tonnage
Value	378 000
Units	t(ons)/year
Type	Fraction of regional tonnage used locally
Value	1
Type	Annual site tonnage
Value	378 000
Units	t(ons)/year
Type	Maximum daily site tonnage
Value	1260
Units	t(ons)/day

Product characteristics
Remarks Substance is complex UVCB

Predominantly hydrophobic

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

Other operational conditions of use affecting environmental exposure

Type	Continuous release
Emission days	300
Release fraction to air from process (initial release prior to RMM)	0,1
Release fraction to wastewater from process (initial release prior to RMM)	0,00002
Release fraction to soil from process (initial release prior to RMM)	0,001

Conditions and measures related to municipal sewage treatment plant

Type	Not applicable as there is no release to wastewater
Assumed domestic sewage treatment plant flow	2000 m3/d
Removal efficiency fraction (offsite; STP)	0
Removal efficiency (total)	70 %
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 1590000 kg/d.

Environmental factors not influenced by risk management

Local freshwater dilution factor	10
Local marine water dilution factor	100

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Risk from environmental exposure is driven by freshwater sediment If discharging to domestic sewage treatment plant, no onsite wastewater treatment required
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Waste management

Air	Treat air emission to provide a typical removal efficiency of 90 %.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= 70 %. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= 70 %.
Soil	Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed

Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated

Conditions and measures related to external treatment of waste for disposal

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations

Section 2.2 - Control of worker exposure

Control of worker exposure	
Process category(ies)	Conditions of use applicable to all contributing scenarios
Covers concentrations up to	<= 100 %
Physical form of product	Liquid With potential for aerosol generation
Vapour pressure	< 0.5 kPa
Temperature associated to vapour pressure	STP
Use frequency	Covers exposure up to 8 h/d. (unless stated differently)
Operational conditions	Assumes a good basic standard of occupational hygiene is implemented Covers use at ambient temperatures (unless stated differently)

	<p>General measures (skin irritants) Ensure that direct skin contact is avoided Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN 374 Clear spills immediately Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS</p> <p>General measures (aspiration hazard) Applicable if classified as H304, refer to section 2 of the SDS. Do not ingest. If swallowed then seek immediate medical assistance</p> <p>General measures (flammability) Applicable if classified as H224 or H225 or H226, refer to section 2 of the SDS. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.</p> <p>General measures applicable to all activities Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves tested to EN 374 Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately Dispose of this material and its container to hazardous or special waste collection point Ensure control measures are regularly inspected and maintained Consider the need for risk based health surveillance.</p> <p>Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS</p>
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Process category(ies)	General exposures; Closed systems (PROC 2, PROC 1)
Indoor/Outdoor use	Outdoor use
Assumes process temperature up to	25 °C
Operational conditions	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately Ensure daily cleaning of the equipment. Handle substance within a closed system Sample via a closed loop or other system to avoid exposure

Process category(ies)	Use of fuels; Closed systems (PROC 16)
Indoor/Outdoor use	Outdoor use
Assumes process temperature up to	25 °C
Operational conditions	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately Ensure daily cleaning of the equipment. Handle substance within a closed system

Process category(ies)	Bulk transfers; Dedicated facility (PROC 8b)
Indoor/Outdoor use	Outdoor use
Assumes process temperature up to	25 °C
Operational conditions	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately Ensure daily cleaning of the equipment. Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.

Process category(ies)	Drum/batch transfers; Dedicated facility (PROC 8b)
Indoor/Outdoor use	Outdoor use
Assumes process temperature up to	25 °C
Operational conditions	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately Ensure daily cleaning of the equipment. Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.

Process category(ies)	Equipment cleaning and maintenance (PROC 8a, PROC 28)
Operational conditions	Drain down and flush system prior to equipment break-in or maintenance Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Wear suitable coveralls to prevent exposure to the skin Clear spills immediately

Process category(ies)	Storage (PROC 2, PROC 1)
Indoor/Outdoor use	Outdoor use
Operational conditions	Store substance within a closed system

Section 3 - Exposure estimation

Calculation method

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Section 4 - Guidance to check compliance with the exposure scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination

Further details on scaling and control technologies are provided in SpERC factsheet

(<https://www.esig.org/reach-ges/environment/#factsheets>).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels

Available hazard data does not enable the derivation of a DNEL for dermal irritant effects.
Available hazard data does not support the need for a DNEL to be established for other health effects.
Available hazard data do not enable the derivation of a DNEL for aspiration effects.
Risk management measures are based on qualitative risk characterization.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name Fuel oil, no. 2
REACH registration number 01-2119475501-42
EC No. (Index No.) 270-671-4
CAS No. 68476-30-2

Section 1 - Title

Title ES 12b - Use as a fuel ; Professional
Environmental release category(ies) ERC 9a Widespread use of functional fluid (indoor)
ERC 9b Widespread use of functional fluid (outdoor)
Specific Environmental Release Category ESVOC SPERC 9.12b.v3
Process category(ies) PROC 1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC 2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC 8a Transfer of substance or mixture (charging and discharging) at nondedicated facilities
PROC 8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC16 Use of fuels
PROC 28 Manual maintenance (cleaning and repair) of machinery

Revision Number 2025_2
Product Name Fuel oil, no. 2
Processes, tasks, activities covered Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Amounts used

Type Fraction of EU tonnage used in region
Value 0,1

Type Regional use tonnage
Value 25 490
Units t(ons)/year

Type Fraction of regional tonnage used locally
Value 0,0005

Type Annual site tonnage
Value 12,7
Units t(ons)/year

Type Maximum daily site tonnage
Value 35
Units kg/d

Product characteristics

Remarks Substance is complex UVCB
Predominantly hydrophobic

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

Other operational conditions of use affecting environmental exposure

Type	Continuous release
Emission days	365
Release fraction to air from wide dispersive use (regional only)	0,5
Release fraction to wastewater from wide dispersive use	0,0001
Release fraction to soil from wide dispersive use (regional only)	0,025

Conditions and measures related to municipal sewage treatment plant

Type	Not applicable as there is no release to wastewater
Assumed domestic sewage treatment plant flow	2000 m3/d
Removal efficiency fraction (offsite; STP)	95,1 %
Removal efficiency (total)	95,1 %
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 5480 kg/d.

Environmental factors not influenced by risk management

Local freshwater dilution factor	10
Local marine water dilution factor	100

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

Technical onsite conditions and measures to reduce or limit discharges, air emissions	Risk from environmental exposure is driven by freshwater No wastewater treatment required
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Waste management

Air	Treat air emission to provide a typical removal efficiency of 90 %.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= 0 %. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= 0 %.
Soil	Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed

Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated

Conditions and measures related to external treatment of waste for disposal

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations

Section 2.2 - Control of worker exposure

Control of worker exposure	
Process category(ies)	Conditions of use applicable to all contributing scenarios
Covers concentrations up to	<= 100 %
Physical form of product	Liquid With potential for aerosol generation
Vapour pressure	< 0.5 kPa
Temperature associated to vapour pressure	STP
Use frequency	Covers exposure up to 8 h/d. (unless stated differently)
Indoor/Outdoor use	Outdoor use
Operational conditions	Assumes a good basic standard of occupational hygiene is implemented Covers use at ambient temperatures (unless stated differently)

	<p>General measures (skin irritants) Ensure that direct skin contact is avoided Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN 374 Clear spills immediately Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS</p> <p>General measures (flammability) Applicable if classified as H224 or H225 or H226, refer to section 2 of the SDS. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.</p> <p>General measures (aspiration hazard) Applicable if classified as H304, refer to section 2 of the SDS. Do not ingest. If swallowed then seek immediate medical assistance</p> <p>General measures applicable to all activities Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin Wear suitable gloves tested to EN 374 Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately Dispose of this material and its container to hazardous or special waste collection point Ensure control measures are regularly inspected and maintained Consider the need for risk based health surveillance.</p>
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Process category(ies)	Bulk transfers; Dedicated facility (PROC 8b)
Assumes process temperature up to	25 °C
Operational conditions	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.

Process category(ies)	Drum/batch transfers; Dedicated facility (PROC 8b)
Assumes process temperature up to	25 °C
Operational conditions	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 80 %. Use drum pumps Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.

Process category(ies)	Refuelling (PROC 8b, PROC 2)
Assumes process temperature up to	25 °C
Operational conditions	Additional good practice advice Obligations according to Article 37(4) of REACH do not apply. Ensure no splashing occurs during transfer.

Process category(ies)	Use of fuels; Closed systems (PROC 16)
Assumes process temperature up to	25 °C
Operational conditions	Handle substance within a closed system

Process category(ies)	Equipment cleaning and maintenance (PROC 8a, PROC 28)
Assumes process temperature up to	25 °C

Operational conditions	Drain down and flush system prior to equipment break-in or maintenance Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS
Process category(ies)	Storage (PROC 2, PROC 1)
Operational conditions	Store substance within a closed system Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS

Section 3 - Exposure estimation

Calculation method

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model

Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Section 4 - Guidance to check compliance with the exposure scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination

Further details on scaling and control technologies are provided in SpERC factsheet

(<https://www.esig.org/reach-ges/environment/#factsheets>).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels

Available hazard data does not enable the derivation of a DNEL for dermal irritant effects.

Available hazard data does not support the need for a DNEL to be established for other health effects.

Available hazard data do not enable the derivation of a DNEL for aspiration effects.

Risk management measures are based on qualitative risk characterization.