SAFETY DATA SHEET
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

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)
Chemical name             Fuel oil, no 2
Product number            ID 13999
Internal Identification   160365, 170050, 170051, 170700, 170704
UFI                       UFI: VP6N-WAV1-791D-R3XP

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses            Distribution of substance (ES01a) Formulation & (re)packing of substances and mixtures
                           Use as a fuel (ES12a, ES12b)

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       +61 2 9186 1132, Chemwatch: International Emergency Response Phone Number
National emergency telephone number +358 800 147 111, +358 9 471 977, Poison Information Centre

SECTION 2:Hazards identification

2.1. Classification of the substance or mixture
Classification EC 1272/2008 (SI 2019 No. 720)
Physical hazards          Not Classified
Health hazards            Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Carc. 2 - H351 STOT RE 2 - H373 Asp. Tox. 1 - H304
Environmental hazards     Aquatic Chronic 2 - H411

2.2. Label elements
Hazard pictograms

Signal word               Danger
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

### Hazard statements
- H332 Harmful if inhaled.
- H315 Causes skin irritation.
- H351 Suspected of causing cancer.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H304 May be fatal if swallowed and enters airways.
- H411 Toxic to aquatic life with long lasting effects.

### Precautionary statements
- P273 Avoid release to the environment.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P331 Do NOT induce vomiting.
- P261 Avoid breathing mist.
- P280 Wear protective gloves.

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

### 2.3. Other hazards
- Evaporates slowly. Risk of soil and ground water contamination.
- 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

#### 3.2. Mixtures

<table>
<thead>
<tr>
<th>Fuel oil, no. 2</th>
<th>80-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 68476-30-2</td>
<td>EC number: 270-671-4</td>
</tr>
</tbody>
</table>

**Classification**
- Acute Tox. 4 - H332
- Skin Irrit. 2 - H315
- Carc. 2 - H351
- STOT RE 2 - H373
- Asp. Tox. 1 - H304
- Aquatic Chronic 2 - H411

<table>
<thead>
<tr>
<th>Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin</th>
<th>0-20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: —</td>
<td></td>
</tr>
</tbody>
</table>

**Classification**
- Flam. Liq. 3 - H226
- Acute Tox. 4 - H332
- Skin Irrit. 2 - H315
- Carc. 2 - H351
- STOT RE 2 - H373
- Asp. Tox. 1 - H304
- Aquatic Chronic 2 - H411

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

### Other information
- REACH registration number;, Fuel oil, no. 2: REACH 01-2119475501-42-XXXX, Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin: REACH 01-2120091562-55-XXXX

### SECTION 4: First aid measures
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

4.1. Description of first aid measures

Inhalation
Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms are severe or persist.

Ingestion
Do not induce vomiting. Get medical attention immediately.

Skin contact
Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.

Eye contact
Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.

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

General information
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

Notes for the doctor
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards
Flammable liquid and vapour. Containers can burst violently or explode when heated, due to excessive pressure build-up.

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

5.3. Advice for firefighters

Protective actions during firefighting
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.

Special protective equipment for firefighters
Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid inhalation of vapours and contact with skin and eyes. Wear adequate protective equipment at all operations.

For emergency responders
Prevent unauthorized access. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharge.

6.2. Environmental precautions

Environmental precautions
Avoid release to the environment. Stop leak if safe to do so. Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with sand, earth or other suitable non-combustible material. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.
Methods for cleaning up
Immediately start clean-up of the liquid and contaminated soil. Small Spillages: Absorb spillage with sand or other inert absorbent. Pay attention to the fire and health hazards caused by the product.

6.4. Reference to other sections
For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
The product contains volatile substances which may spread in the atmosphere. Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. Use only outdoors or in a well-ventilated area. Avoid inhalation of vapours and contact with skin and eyes. Use personal protective equipment and/or local ventilation when needed. Do not eat, drink or smoke when using this product. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

7.2. Conditions for safe storage, including any incompatibilities
Flammable liquid storage. Store in accordance with local regulations. Store in a demarcated bunded area to prevent release to drains and/or watercourses. Only store in correctly labelled containers. Use containers made of the following materials: Mild steel. Stainless steel.

7.3. Specific end use(s)
Not known.

SECTION 8: Exposure controls/Personal protection

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

PNEC
Not available.

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

DNEL
Workers - Inhalation; Short term systemic effects: 4300 mg/m³, (15 min), Aerosol
Workers - Inhalation; Long term systemic effects: 68 mg/m³, (8h), Aerosol
Workers - Dermal; Long term systemic effects: 2.9 mg/kg, bw, (8h)
Consumer - Inhalation; Short term systemic effects: 2600 mg/m³, (15 min), Aerosol
Consumer - Inhalation; Long term systemic effects: 20 mg/m³, (24h), Aerosol
Consumer - Dermal; Long term systemic effects: 1.3 mg/kg, bw, (24h)

8.2. Exposure controls
Provide adequate ventilation. Use personal protective equipment and/or local ventilation when needed. Handle in accordance with good industrial hygiene and safety practice. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

Eye/face protection
Spectacles.

Hand protection
Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. Polyvinyl chloride (PVC). The breakthrough time for any glove material may be different for different glove manufacturers. Protective gloves according to standard EN 374. Change protective gloves regularly.

Other skin and body protection
Wear anti-static protective clothing if there is a risk of ignition from static electricity.
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

Respiratory protection
Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P3. Filter must be changed often enough. Gas and combination filter cartridges suitable for intended use should be used.

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

Appearance
Liquid.

Colour
Yellowish. Brownish.

Odour
Hydrocarbons.

Odour threshold
-

pH
-

Melting point
Pour point -6 ... 10°C (ISO 3016)

Initial boiling point and range
150...420°C

Flash point
≥ 60°C (EN ISO 2719)

Upper/lower flammability or explosive limits
Lower flammable/explosive limit: 1 % Estimated value. Upper flammable/explosive limit: 6 % Estimated value.

Vapour pressure
< 1 kPa @ 38°C

Vapour density
-

Relative density
≤ 0,9 @ 15°C (EN ISO 12185, ISO 3675)

Solubility(ies)
The product has poor water-solubility. < 50 mg/l @ 20°C

Partition coefficient
log Kow: ≥ 4

Auto-ignition temperature
~ 250°C

Decomposition Temperature
-

Viscosity
Kinematic viscosity 2,0...11,0 mm²/s @ 40°C (EN ISO 3104).

Explosive properties
Not considered to be explosive.

Oxidising properties
Does not meet the criteria for classification as oxidising.

9.2. Other information
Not known.

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 at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions
No potentially hazardous reactions known.
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

10.4. Conditions to avoid

Conditions to avoid
Keep away from heat, sparks and open flame.

10.5. Incompatible materials

Materials to avoid
Oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products
Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects
Harmful if inhaled.

Acute toxicity - inhalation
ATE inhalation (vapours mg/l) 11.0

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

Serious eye damage/irritation
Based on available data the classification criteria are not met. (OECD 405)

Skin sensitisation
Based on available data the classification criteria are not met. (OECD 406)

Germ cell mutagenicity
Genotoxicity - in vitro Based on available data the classification criteria are not met. (OECD 471)
Genotoxicity - in vivo Based on available data the classification criteria are not met. (OECD 475)

Carcinogenicity
Carcinogenicity Suspected of causing cancer. Product may contain cracked gas oil streams. Contains a substance/a group of substances which may cause cancer.

Reproductive toxicity
Reproductive toxicity - development Based on available data the classification criteria are not met. (OECD 414)

Specific target organ toxicity - single exposure
STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

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

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

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

Toxicological information on ingredients.
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

Fuel oil, no. 2

Acute toxicity - oral
Notes (oral LD₅₀) \( \text{LD}_\text{so} > 5000 \text{ mg/kg, Oral, Rat (OECD 401, 420)} \)

Acute toxicity - dermal
Notes (dermal LD₅₀) \( \text{LD}_\text{so} > 4300 \text{ mg/kg, Dermal, Rabbit (OECD 434)} \)

Acute toxicity - inhalation
Notes (inhalation LC₅₀) \( \text{LC}_\text{so} 3.6 - 5.4 \text{ mg/l, Inhalation, Rat (4h) (OECD 403)} \)

ATE inhalation (vapours mg/l) 11.0

Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin

Acute toxicity - inhalation
ATE inhalation (vapours mg/l) 11.0

SECTION 12: Ecological information

12.1. Toxicity

Toxic to aquatic life with long lasting effects.

Ecological information on ingredients.

Fuel oil, no. 2

Acute aquatic toxicity
Acute toxicity - fish \( \text{LL}_\text{so}, 96 \text{ hours: } 21 \text{ mg/l, Oncorhynchus mykiss (Rainbow trout)} \)
NOEL, 96 hours: 10 mg/l, Oncorhynchus mykiss (Rainbow trout)
WAF (OECD 203, EU C.1)

Acute toxicity - aquatic invertebrates
EL50, 48 hours: 68 mg/l, Daphnia magna
NOEL, 48 hours: 46 mg/l, Daphnia magna
WAF (OECD 202, EU C.2)

Acute toxicity - aquatic plants
EEl50, 72 hours: 10 mg/l, Pseudokirchneriella subcapitata
NOEL, 72 hours: 1 mg/l, Pseudokirchneriella subcapitata
WAF (OECD 201, EU C.3)

Acute toxicity - microorganisms
EL50, 40 hours: > 1000 mg/l, Micro-organisms (wastewater sludge)
NOEL, 40 hours: 3.22 mg/l, Micro-organisms (wastewater sludge)
(QSAR)

Chronic aquatic toxicity
Chronic toxicity - fish early life stage
NOEL, 14 days: 0.08 mg/l, Oncorhynchus mykiss (Rainbow trout)
(QSAR)

Chronic toxicity - aquatic invertebrates
NOEL, 21 days: 0.2 mg/l, Daphnia magna
(QSAR)

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.

Stability (hydrolysis)
No significant reaction in water.
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

Ecological information on ingredients.

**Fuel oil, no. 2**

**Biodegradation**

Inherently biodegradable.

(OECD 301F)

**12.3. Bioaccumulative potential**

Bioaccumulative potential

Possibly bioaccumulative.

Partition coefficient

log Kow: ≥ 4

**12.4. Mobility in soil**

Mobility

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**

Results of PBT and vPvB assessment

This product does not contain any substances classified as PBT or vPvB.

**12.6. Other adverse effects**

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.

Endocrine-disrupting properties

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

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

Disposal methods

Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out.

Waste class

The waste code classification is to be carried out according to the European Waste Catalogue (EWC).

For example: 13 07 01 fuel oil and diesel.

**SECTION 14: Transport information**

**14.1. UN number**

UN No. (ADR/RID) 1202

**14.2. UN proper shipping name**

Proper shipping name (ADR/RID)

UN 1202 GAS OIL

**14.3. Transport hazard class(es)**

ADR/RID class 3

**14.4. Packing group**

ADR/RID packing group III

**14.5. Environmental hazards**

8/26
Marine Diesel Oil DMB grade (MDODMB); Neste Marine 0.1 Co-processed (DMB)

Environmentally hazardous substance/marine pollutant

MARINE POLLUTANT

14.6. Special precautions for user

Hazard Identification Number  30
(ADR/RID)

Tunnel restriction code  (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  Not applicable.

SECTION 15: Regulatory information

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

National regulations EU regulatory references for the safety data sheet:

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet
ACGIH = American Conference of Governmental Industrial Hygienists
TLV = Treshold Limit Value
TWA = Time-Weighted Average

Key literature references and sources for data

Revision comments
Product name change. Updated, sections: 2.3, 11.1, 12.6
NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date  17/04/2023
Supersedes date  21/07/2022
SDS number  5540

Hazard statements in full
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.
# Exposure scenario
Formulation & (re)packing of Substances and Mixtures

## Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Fuel oil, no. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>68476-30-2</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES02</td>
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</tbody>
</table>

## 1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Main title</th>
<th>Formulation &amp; (re)packing of Substances and Mixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process scope</td>
<td>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.</td>
</tr>
</tbody>
</table>

## Environment

<table>
<thead>
<tr>
<th>Environmental release category</th>
<th>ERC2 Formulation into mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPERC</td>
<td>ESVOC SPERC 2.2.v1</td>
</tr>
</tbody>
</table>

## Worker

<table>
<thead>
<tr>
<th>Process category</th>
<th>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</td>
</tr>
<tr>
<td></td>
<td>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</td>
</tr>
<tr>
<td></td>
<td>PROC4 Chemical production where opportunity for exposure arises</td>
</tr>
<tr>
<td></td>
<td>PROC5 Mixing or blending in batch processes</td>
</tr>
<tr>
<td></td>
<td>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</td>
</tr>
<tr>
<td></td>
<td>PROC14 Tabletting, compression, extrusion, pelletisation, granulation</td>
</tr>
<tr>
<td></td>
<td>PROC15 Use as laboratory reagent.</td>
</tr>
</tbody>
</table>

## 2. Conditions of use affecting exposure (Industrial - Environment 1)

### Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

### Amounts used

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 280 000 tonnes/year
- Fraction of Regional tonnage used locally: 0.11
- Annual site tonnage: 30 000 tonnes
- Maximum daily site tonnage: 100 tonne/day

### Frequency and duration of use
Formulation & (re)packing of Substances and Mixtures

Continuous release.
Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): 0.01

Emission factor - water
Release fraction to wastewater from process (initial release prior to RMM): 0.00002

Emission factor - soil
Release fraction to soil from process (initial release prior to RMM): 0.0001

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 95.2%
Removal efficiency (total): 95.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 440 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

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

Air
Treat air emission to provide the required removal efficiency of 0%.

Water
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 78.9. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

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

Conditions and measures related to external recovery of waste

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

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state
Liquid With potential for aerosol generation

Vapour pressure
Vapour pressure < 0.5 kPa at STP.

Concentration details
Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure
## Formulation & (re)packing of Substances and Mixtures

### Setting
Assumes a good basic standard of occupational hygiene is implemented.

### Temperature
Assumes use at not more than 20°C above ambient temperature, unless stated differently.

### Organisational measures to prevent/limit releases, dispersion and exposure

| Organisational measures | General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; Ensure suitable personal protective equipment is available; Clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. |
|

### Risk management measures
Formulation & (re)packing of Substances and Mixtures

General exposures (closed systems)
Handle substance within a closed system.

General exposures (open systems)
Wear suitable gloves tested to EN374.

Batch processes at elevated temperatures
Provide extract ventilation to points where emissions occur.

Process sampling
No other specific measures identified.

Bulk transfers
Handle substance within a closed system.
Wear suitable gloves tested to EN374.

Drum/batch transfers
Use drum pumps or carefully pour from container.
Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Mixing operations
(open systems)
Provide extract ventilation to points where emissions occur.
Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Production of preparations or articles by tabletting, compression, extrusion, pelletisation
Wear suitable gloves tested to EN374.

Drum and small package filling
Wear suitable gloves tested to EN374.

Laboratory activities
No other specific measures identified.

Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Storage
Handle substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.011
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.23

4. Guidance to check compliance with the exposure scenario (Environment 1)
Formulation & (re)packing of Substances and Mixtures

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 onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

3. Exposure estimation (Health 1)

**Assessment method**

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

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.
Exposure scenario
Distribution of Substance

Identification

Product name Fuel oil, no. 2
CAS number 68476-30-2
Version number 2017
Es reference ES01a

1. Title of exposure scenario

Main title Distribution of Substance
Process scope Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

Environment

Environmental release category ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC5 Use at industrial site leading to inclusion into/onto article
ERC6a Use of intermediate
ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC7 Use of functional fluid at industrial site

SPERC ESVOC SPERC 1.1b.v1

Worker

Process category PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (industrial - Environment 1)

Product characteristics Substance is complex UVCB. Predominantly hydrophobic.

Amounts used 15/26
Distribution of Substance

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 280,000 tonnes/year
Fraction of Regional tonnage used locally: 0.002
Annual site tonnage: 560 tonnes
Maximum daily site tonnage: 28 tonne/day

Frequency and duration of use
Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from process (initial release prior to RMM): 0.001

Emission factor - water
Release fraction to wastewater from process (initial release prior to RMM): 0.000001

Emission factor - soil
Release fraction to soil from process (initial release prior to RMM): 0.00001

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

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

Air
Treat air emission to provide a typical removal efficiency of 90%.

Water
No wastewater treatment required.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

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

Conditions and measures related to external recovery of waste

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

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state
Liquid With potential for aerosol generation

Vapour pressure
Vapour pressure < 0.5 kPa at STP.

Concentration details
Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting
Assumes a good basic standard of occupational hygiene is implemented.

Temperature
Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Distribution of Substance

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures

General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; Ensure suitable personal protective equipment is available; Clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Risk management measures

General exposures (closed systems)
Handle substance within a closed system.

General exposures (open systems)
Wear suitable gloves tested to EN374.

Process sampling
No other specific measures identified.

Laboratory activities
No other specific measures identified.

Bulk closed loading and unloading
Handle substance within a closed system.
Wear suitable gloves tested to EN374.

Bulk open loading and unloading
Wear suitable gloves tested to EN374.

Drum and small package filling
Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance. Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Storage
Handle substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.00013 Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0032

4. Guidance to check compliance with the exposure scenario (Environment 1)
Distribution of Substance

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 onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

3. Exposure estimation (Health 1)

Assessment method

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

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.
Exposure scenario
Use as a Fuel - Industrial

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Fuel oil, no. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>68476-30-2</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES12a</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Main title</th>
<th>Use as a Fuel - Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process scope</td>
<td>Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.</td>
</tr>
</tbody>
</table>

Environment

<table>
<thead>
<tr>
<th>Environmental release category</th>
<th>ERC7 Use of functional fluid at industrial site</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPERC</td>
<td>ESVOC SPERC 7.12a.v1</td>
</tr>
</tbody>
</table>

Worker

<table>
<thead>
<tr>
<th>Process category</th>
<th>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</td>
</tr>
<tr>
<td></td>
<td>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</td>
</tr>
<tr>
<td></td>
<td>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC16 Use of fuels</td>
</tr>
</tbody>
</table>

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

| Substance is complex UVCB. Predominantly hydrophobic. |

Amounts used

| Fraction of EU tonnage used in region: 0.1 |
| Regional use tonnage: 47 000 tonnes/year |
| Fraction of Regional tonnage used locally: 1 |
| Annual site tonnage: 47 000 tonnes |
| Maximum daily site tonnage: 160 tonne/day |

Frequency and duration of use

| Continuous release. |
| Emission days: 300 days/year |

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from process (initial release prior to RMM): 0.005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 0.00001</td>
</tr>
</tbody>
</table>
Use as a Fuel - Industrial

**Emission factor - soil**
Release fraction to soil from process (initial release prior to RMM): 0

**Environmental factors not influenced by risk management measures**

**Dilution**
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

**Risk management measures**

**Good practice**
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 95.2%
Removal efficiency (total): 95.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 880 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**
Treat air emission to provide a typical removal efficiency of 95%.

**Water**
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 73.2. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

**Soil**
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

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

**Conditions and measures related to external recovery of waste**

**Recovery method**
This substance is consumed during use and no waste of the substance is generated.

**2. Conditions of use affecting exposure (Workers - Health 1)**

**Product characteristics**

**Physical state**
Liquid With potential for aerosol generation

**Vapour pressure**
Vapour pressure < 0.5 kPa at STP.

**Concentration details**
Covers percentage substance in the product up to 100% (unless stated differently).

**Frequency and duration of use**
Covers daily exposures up to 8 hours (unless stated differently).

**Other given operational conditions affecting workers exposure**

**Setting**
Assumes a good basic standard of occupational hygiene is implemented.

**Temperature**
Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Organisational measures to prevent/limit releases, dispersion and exposure**
Use as a Fuel - Industrial

**Organisational measures**

General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; Ensure suitable personal protective equipment is available; Clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

**Risk management measures**

- Bulk transfers
  Wear suitable gloves tested to EN374.
- Drum/batch transfers
  Wear suitable gloves tested to EN374.
- Use as a fuel (closed systems)
  No other specific measures identified.
- Equipment cleaning and maintenance
  Drain down and flush system prior to equipment break-in or maintenance. Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
- Storage
  Handle substance within a closed system.

**3. Exposure estimation (Environment 1)**

**Assessment method**

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.00054
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.18

**4. Guidance to check compliance with the exposure scenario (Environment 1)**

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 onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

**3. Exposure estimation (Health 1)**

**Assessment method**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Use as a Fuel - Industrial

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Qualitative approach used to conclude safe use.

### 4. Guidance to check compliance with the exposure scenario (Health 1)

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.
Exposure scenario
Use as a Fuel - Professional

Identification

Product name
Fuel oil, no. 2

CAS number
68476-30-2

Version number
2017

Es reference
ES12b

1. Title of exposure scenario

Main title
Use as a Fuel - Professional

Process scope
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Environment

Environmental release category
ERC9a Widespread use of functional fluid (indoor)
ERC9b Widespread use of functional fluid (outdoor)

SPERC
ESVOC SPERC 9.12b.v1

Worker

Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC16 Use of fuels

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 83 000 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 42 tonnes
Maximum daily site tonnage: 0.11 tonne/day

Frequency and duration of use
Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.0001

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.00001
### Use as a Fuel - Professional

**Emission factor - soil**
Release fraction to soil from wide dispersive use (regional only): 0.00001

**Environmental factors not influenced by risk management measures**

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

**Risk management measures**

**Good practice**
Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by fresh water.

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 95.2%
Removal efficiency (total): 95.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 300 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

<table>
<thead>
<tr>
<th>Air</th>
<th>Not determined.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>No wastewater treatment required.</td>
</tr>
<tr>
<td>Soil</td>
<td>Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.</td>
</tr>
</tbody>
</table>

**Conditions and measures related to external treatment of waste for disposal**

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

**Conditions and measures related to external recovery of waste**

| Recovery method | This substance is consumed during use and no waste of the substance is generated. |

### 2. Conditions of use affecting exposure (Workers - Health 1)

**Product characteristics**

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid With potential for aerosol generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapour pressure</td>
<td>Vapour pressure &lt; 0.5 kPa at STP.</td>
</tr>
<tr>
<td>Concentration details</td>
<td>Covers percentage substance in the product up to 100% (unless stated differently).</td>
</tr>
</tbody>
</table>

**Frequency and duration of use**
Covers daily exposures up to 8 hours (unless stated differently).

**Other given operational conditions affecting workers exposure**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Assumes a good basic standard of occupational hygiene is implemented.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Assumes use at not more than 20°C above ambient temperature, unless stated differently.</td>
</tr>
</tbody>
</table>

**Organisational measures to prevent/limit releases, dispersion and exposure**
Use as a Fuel - Professional

**Organisational measures**

General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; Ensure suitable personal protective equipment is available; Clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

**Risk management measures**

Bulk transfers
Wear suitable gloves tested to EN374.

Drum/batch transfers
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.

Refuelling
Wear suitable gloves tested to EN374.

Use as a fuel
(closed systems)
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
, or:
Ensure operation is undertaken outdoors.

Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Storage
Handle substance within a closed system.

### 3. Exposure estimation (Environment 1)

**Assessment method**

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.00013
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.00038

### 4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
### Use as a Fuel - Professional

#### 3. Exposure estimation (Health 1)

**Assessment method**

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Qualitative approach used to conclude safe use.

#### 4. Guidance to check compliance with the exposure scenario (Health 1)

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.