SAFETY DATA SHEET
Aviation Jet Fuel JET A-1 (JETA1)

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

1.1. Product identifier

Product name: Aviation Jet Fuel JET A-1 (JETA1)
Product number: ID 10505
Internal identification: 145163

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 (ES02) Use as a fuel (ES12a, ES12b)

Uses advised against: Consumer Professional use. Uses in coatings Use in cleaning agents Lubricants Metal working fluids/rolling oils Use as binders and release agents Use in agrochemicals Road and construction applications Explosives manufacture & use

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 (SI 2019 No. 720)

Physical hazards: Flam. Liq. 3 - H226
Health hazards: Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304
Environmental hazards: Aquatic Chronic 2 - H411

2.2. Label elements

Hazard pictograms

Signal word: Danger
### Hazard statements
- H226 Flammable liquid and vapour.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H304 May be fatal if swallowed and enters airways.
- H411 Toxic to aquatic life with long lasting effects.

### Precautionary statements
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P273 Avoid release to the environment.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P331 Do NOT induce vomiting.
- P261 Avoid breathing vapours.
- P280 Wear protective gloves.

### Contains
Kerosine (petroleum), sweetened, Distillates (petroleum), hydrotreated light; Kerosine - unspecified, Kerosine (petroleum), hydrotreated, Renewable hydrocarbons (kerosine type fraction)

### 2.3. Other hazards
Evaporates slowly. May cause eye and respiratory system irritation. Risk of soil and ground water contamination.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Mass Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerosine (petroleum), hydrotreated sulfured</td>
<td>0 - 100 %</td>
</tr>
<tr>
<td>CAS number: 64742-81-0</td>
<td>EC number: 265-184-9</td>
</tr>
</tbody>
</table>

**Classification**
- Flam. Liq. 3 - H226
- Skin Irrit. 2 - H315
- STOT SE 3 - H336
- Asp. Tox. 1 - H304
- Aquatic Chronic 2 - H411

<table>
<thead>
<tr>
<th>Component</th>
<th>Mass Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated light; Kerosine - unspecified</td>
<td>0 - 100 %</td>
</tr>
<tr>
<td>CAS number: 64742-47-8</td>
<td>EC number: 265-149-8</td>
</tr>
</tbody>
</table>

**Classification**
- Flam. Liq. 3 - H226
- Skin Irrit. 2 - H315
- STOT SE 3 - H336
- Asp. Tox. 1 - H304
- Aquatic Chronic 2 - H411

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2/25
Aviation Jet Fuel JET A-1 (JETA1)

<table>
<thead>
<tr>
<th>Kerosine (petroleum), sweetened</th>
<th>0 - 100 %</th>
</tr>
</thead>
</table>

**Classification**
- Flam. Liq. 3 - H226
- Skin Irrit. 2 - H315
- STOT SE 3 - H336
- Asp. Tox. 1 - H304
- Aquatic Chronic 2 - H411

<table>
<thead>
<tr>
<th>Renewable hydrocarbons (kerosine type fraction)</th>
<th>0 - 50 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: —</td>
<td></td>
</tr>
</tbody>
</table>

**Classification**
- Flam. Liq. 3 - H226
- Asp. Tox. 1 - H304

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

**Composition comments**
Mixture of a petroleum product and additives. Total aromatics at maximum: 26.5 %.
Naphthalene (CAS 91-20-3) < 1 %. Toluene (CAS 108-88-3) < 1%. Benzene (CAS 71-43-2) < 0.1 %.

**Other information**
- REACH registration number: Kerosine (petroleum), hydrodesulfurized: 01- 2119462828-25-XXXX, Distillates (petroleum), hydrotreated light; Kerosine - unspecified: 01- 2119484819-18-XXXX, Kerosine (petroleum), sweetened: 01- 2119502385-46-XXXX, Renewable hydrocarbons (kerosine type fraction): 01- 2119850115-46

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**Inhalation**
- Remove person to fresh air and keep comfortable for breathing. For breathing difficulties, oxygen may be necessary. If breathing stops, provide artificial respiration. 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 if irritation persists after washing.

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

**General information**
Irritating to skin. May irritate eyes. Vapours in high concentrations are narcotic. May cause nausea, headache, dizziness and intoxication. 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.
Aviation Jet Fuel JET A-1 (JETA1)

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.

6.3. Methods and material for containment and cleaning up

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. Take care as floors and other surfaces may become slippery.

6.4. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions
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 non-sparking tools. Ground/bond container and receiving equipment. All handling should only take place in well-ventilated areas. 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. Wash contaminated clothing before reuse. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

7.2. Conditions for safe storage, including any incompatibilities
Aviation Jet Fuel JET A-1 (JETA1)

Storage precautions
Flammable liquid storage. Vapours may form explosive mixtures with air. 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. Keep container tightly closed. Protect from sunlight.

7.3. Specific end use(s)
Specific end use(s) Not known.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits
Solvent naphtha, group 3: 100mg/m³ (8h), HTP 2020/FIN.
The individual limit values can be applied for the hydrocarbons.

PNEC Not available.

Renewable hydrocarbons (kerosine type fraction)

DNEL Workers - Dermal; Long term systemic effects: 42 mg/kg/day
Workers - Inhalation; Long term systemic effects: 147 mg/m³

Category: Kerosines

DNEL Consumer - Oral; Long term systemic effects: 18,75 mg/kg bw/day

naphthalene (CAS: 91-20-3)

DNEL Workers - Dermal; Long term systemic effects: 3,57 mg/kg
Workers - Inhalation; Long term local effects: 25 mg/m³
Workers - Inhalation; Long term systemic effects: 25 mg/m³

8.2. Exposure controls

Appropriate engineering controls
All handling should only take place in well-ventilated areas. 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. Neoprene. 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
Protective clothing when needed. Wear anti-static protective clothing if there is a risk of ignition from static electricity.

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: Gas filter, type A2. Gas and combination filter cartridges suitable for intended use should be used. Filter must be changed often enough.

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

SECTION 9: Physical and chemical properties
Aviation Jet Fuel JET A-1 (JETA1)

9.1. Information on basic physical and chemical properties

**Appearance**  Liquid.

**Colour**  Clear.

**Odour**  Hydrocarbons.

**Odour threshold**  -

**pH**  -

**Melting point**  \(\leq -47^\circ\text{C}\) (ASTM D2386, D5972, IP 529)

**Initial boiling point and range**  130 - 300°C (ASTM D 86)

**Flash point**  \(\geq 38^\circ\text{C}\) (IP 170)

**Upper/lower flammability or explosive limits**  Lower flammable/explosive limit: 0.6 % Upper flammable/explosive limit: 6 %

**Vapour pressure**  ~ 2 kPa @ 38°C

**Vapour density**  > 3 (Air = 1.0)

**Relative density**  0.775 - 0.840 @ 15°C (ASTM D4052)

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

**Partition coefficient**  log Kow: > 3

**Auto-ignition temperature**  ~ 250°C

**Decomposition Temperature**  -

**Viscosity**  Kinematic viscosity < 7 mm²/s @ 40°C

**Explosive properties**  Not considered to be explosive.

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

9.2. Other information

**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.

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
# Aviation Jet Fuel JET A-1 (JETA1)

**Hazardous decomposition products**

Does not decompose when used and stored as recommended.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Toxicological effects</th>
<th>Based on available data the classification criteria are not met.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Irritating to skin. (EPA Guidelines in FR Vol. 44, No. 145, p. 44054-44093) The product irritates mucous membranes and may cause abdominal discomfort if swallowed. May cause respiratory irritation.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Based on available data the classification criteria are not met. (EPA OTS 798.4500)</td>
</tr>
<tr>
<td>Skin sensitisation</td>
<td>Based on available data the classification criteria are not met. (OECD 406, EPA OTS 798.4100)</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Based on available data the classification criteria are not met. (OECD 471, modified Ames test, 479)</td>
</tr>
<tr>
<td>Genotoxicity - in vitro</td>
<td>Based on available data the classification criteria are not met. (OECD 479)</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on available data the classification criteria are not met. (OECD 451)</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Based on available data the classification criteria are not met. (OECD 415)</td>
</tr>
<tr>
<td>Reproductive toxicity - fertility</td>
<td>Based on available data the classification criteria are not met. (OECD 414)</td>
</tr>
<tr>
<td>Reproductive toxicity - development</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure</td>
<td></td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>May cause nausea, headache, dizziness and intoxication. Anaesthetic in high concentrations.</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure</td>
<td>Based on available data the classification criteria are not met. (OECD 408, 411, 413)</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.</td>
</tr>
</tbody>
</table>

### Toxicological information on ingredients.

**Renewable hydrocarbons (kerosine type fraction)**

<table>
<thead>
<tr>
<th>Acute toxicity - oral</th>
<th>Notes (oral LD₅₀)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LD₅₀ &gt; 2000 mg/kg, Oral, Rat (EC B1 tris)</td>
</tr>
</tbody>
</table>

### Acute toxicity - dermal

<table>
<thead>
<tr>
<th>Notes (dermal LD₅₀)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD₅₀ &gt; 2000 mg/kg, Dermal, Rat (EC B3)</td>
</tr>
</tbody>
</table>

**Category: Kerosines**

<table>
<thead>
<tr>
<th>Acute toxicity - oral</th>
<th>Notes (oral LD₅₀)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LD₅₀ &gt; 5000 mg/kg, Oral, Rat (OECD 420, EPA OTS 798.1175)</td>
</tr>
</tbody>
</table>
**Aviation Jet Fuel JET A-1 (JETA1)**

### Acute toxicity - dermal
Notes (dermal LD₅₀)
LD₅₀ > 2000 mg/kg, Dermal, Rabbit (OECD 402, EPA OTS 798.1100)

### Acute toxicity - inhalation
Notes (inhalation LC₅₀)
LC₅₀ > 5,28 mg/l, Inhalation, Rat (4h) (OECD 403)

### Section 12: Ecological information

#### 12.1. Toxicity

**Toxicity**
Toxic to aquatic life with long lasting effects.

**Acute aquatic toxicity**

**Ecological information on ingredients.**

<table>
<thead>
<tr>
<th>Renewable hydrocarbons (kerosine type fraction)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute aquatic toxicity</strong></td>
</tr>
<tr>
<td><strong>Acute toxicity - fish</strong></td>
</tr>
<tr>
<td>LL₅₀, 96 hours: &gt; 1000 mg/l,</td>
</tr>
<tr>
<td>WAF (OECD 203)</td>
</tr>
<tr>
<td><strong>Acute toxicity - aquatic invertebrates</strong></td>
</tr>
<tr>
<td>EL₅₀, 48 hours: &gt; 100 mg/l,</td>
</tr>
<tr>
<td>WAF (OECD 202)</td>
</tr>
<tr>
<td><strong>Acute toxicity - aquatic plants</strong></td>
</tr>
<tr>
<td>EL₅₀, 72 hours: &gt; 100 mg/l,</td>
</tr>
<tr>
<td>WAF (OECD 201)</td>
</tr>
<tr>
<td><strong>Acute toxicity - microorganisms</strong></td>
</tr>
<tr>
<td>EC₅₀, 3 hours: &gt; 1000 mg/l, Micro-organisms (wastewater sludge)</td>
</tr>
<tr>
<td>(OECD 209)</td>
</tr>
</tbody>
</table>

**Chronic aquatic toxicity**

<table>
<thead>
<tr>
<th>Chronic toxicity - aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOEC, 21 days: 1 mg/l,</td>
</tr>
<tr>
<td>LOEC, 21 days: 3,2 mg/l, Daphnia magna</td>
</tr>
<tr>
<td>WAF (OECD 211)</td>
</tr>
<tr>
<td>NOEC, 10 days: 373 mg/kg,</td>
</tr>
<tr>
<td>LC₅₀, 10 days: 1200 mg/kg, Sediment organisms</td>
</tr>
</tbody>
</table>

**Category: Kerosines**

<table>
<thead>
<tr>
<th><strong>Acute aquatic toxicity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute toxicity - fish</strong></td>
</tr>
<tr>
<td>LL₅₀, 24 hours: 5-17 mg/l,</td>
</tr>
<tr>
<td>Oncorhynchus mykiss (Rainbow trout)</td>
</tr>
<tr>
<td>LL₅₀, 48 hours: 2-5 mg/l,</td>
</tr>
<tr>
<td>Oncorhynchus mykiss (Rainbow trout)</td>
</tr>
<tr>
<td>WAF (OECD 203)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Acute toxicity - aquatic invertebrates</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>EL₅₀, 24 hours: 4,6 mg/l, Daphnia magna</td>
</tr>
<tr>
<td>EL₅₀, 48 hours: 1,4 mg/l, Daphnia magna</td>
</tr>
<tr>
<td>NOEL, 48 hours: 0,3 mg/l, Daphnia magna</td>
</tr>
<tr>
<td>WAF (OECD 202)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Acute toxicity - aquatic plants</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>EL₅₀, 24 hours: 1-3 mg/l, Pseudokirchneriella subcapitata</td>
</tr>
<tr>
<td>NOEL, 24 hours: 1 mg/l, Pseudokirchneriella subcapitata</td>
</tr>
<tr>
<td>WAF (OECD 201)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Chronic aquatic toxicity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronic toxicity - fish early life stage</strong></td>
</tr>
<tr>
<td>NOEL, 28 days: 0,1 mg/l, Oncorhynchus mykiss (Rainbow trout)</td>
</tr>
<tr>
<td>(QSAR)</td>
</tr>
</tbody>
</table>
Aviation Jet Fuel JET A-1 (JETA1)

Chronic toxicity - aquatic invertebrates
EL50, 21 days: 0.81 mg/l, Daphnia magna
NOEL, 21 days: 0.48 mg/l, Daphnia magna
WAF (OECD 211)

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.

Ecological information on ingredients.

Renewable hydrocarbons (kerosine type fraction)

Biodegradation
Rapidly degradable
(OECD 301B)

Category: Kerosines

Biodegradation
Inherently biodegradable.
(OECD 301F)

12.3. Bioaccumulative potential

Bioaccumulative potential
Possibly bioaccumulative.

Partition coefficient
log Kow: > 3

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.

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. Empty containers or liners may retain some product residues and hence be potentially hazardous.

SECTION 14: Transport information

Sea transport notes
This cargo is considered an Energy-rich fuel and effective 1 January 2019 should be carried subject to Annex I of MARPOL, see Annex 12 of MEPC.2/Circ.24. Please also refer to MEPC.1/Circ.879 - GUIDELINES FOR THE CARRIAGE OF ENERGY-RICH FUELS AND THEIR BLENDS

14.1. UN number
Aviation Jet Fuel JET A-1 (JETA1)

UN No. (ADR/RID) 1863

14.2. UN proper shipping name
Proper shipping name (ADR/RID) UN 1863 FUEL, AVIATION, TURBINE ENGINE

14.3. Transport hazard class(es)
ADR/RID class 3

14.4. Packing group
ADR/RID packing group III

14.5. Environmental hazards
Environmentally hazardous substance/marine pollutant

![Marine Pollutant]

14.6. Special precautions for user
Hazard Identification Number (ADR/RID) 30
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 EU OELV = European Occupational Exposure Limit Value

Aviation Jet Fuel JET A-1 (JETA1)

Training advice
DO NOT SIPHON PRODUCT BY MOUTH SUCTION.

Revision comments
Updated, sections: 1.4, 15.1
NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date
15/08/2022

Supersedes date
08/06/2020

SDS number
5306

Hazard statements in full
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.
Exposure scenario
Distribution of Substance - Industrial

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Kerosines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES01a</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

Main title          Distribution of Substance - Industrial
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

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 8,700,000 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 17,000 tonnes
Maximum daily site tonnage: 58 tonnes
Distribution of Substance - Industrial

**Frequency and duration of use**
- Continuous release.
- Emission days: 300 days/year

**Other given operational conditions affecting environmental exposure**

**Emission factor - air**
- Release fraction to air from process (initial release prior to RMM): 1.0E-03

**Emission factor - water**
- Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05

**Emission factor - soil**
- Release fraction to soil from process (initial release prior to RMM): 1.0E-05

**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%
- Removal efficiency (total): 95%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2.1E+06 kg/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 90%.

**Water**
- Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): 0.0
- 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**
- 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

**Vapour pressure**
- Vapour pressure 0.5 - 10 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**
Distribution of Substance - Industrial

**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 (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)
No other specific measures identified.

- General exposures (open systems)
No other specific measures identified.

- Process sampling
No other specific measures identified.

- Laboratory activities
No other specific measures identified.

- Bulk transfers
No other specific measures identified.

- Drum and small package filling
No other specific measures identified.

- Equipment cleaning and maintenance
No other specific measures identified.

- Bulk product storage
No other specific measures identified.

3. Exposure estimation (Environment 1)

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)

Maximum Risk Characterisation Ratios for air emissions 2.3E-04 Maximum Risk Characterisation Ratios for wastewater emissions 1.3E-02

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
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
# Exposure scenario
## Formulation & (Re)packing of Substances and Mixtures - Industrial

<table>
<thead>
<tr>
<th>Identification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Kerosines</td>
</tr>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES02</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

- **Main title**: Formulation & (Re)packing of Substances and Mixtures - Industrial
- **Process scope**: 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.

### Environment

- **Environmental release category**: ERC2 Formulation into mixture
- **SPERC**: ESVOC SPERC 2.2.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
  - PROC5 Mixing or blending in batch processes
  - 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)
  - PROC14 Tabletting, compression, extrusion, pelletisation, granulation
  - PROC15 Use as laboratory reagent.

### 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: 6,800,000 tonnes/year
  - Fraction of Regional tonnage used locally: 1
  - Annual site tonnage: 30,000 tonnes
  - Maximum daily site tonnage: 100 tonnes
- **Frequency and duration of use**:
  - Continuous release.
  - Emission days: 300 days/year
Formulation & (Re)packing of Substances and Mixtures - Industrial

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): 2.5E-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 2.0E-04</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 1.0E-04</td>
</tr>
</tbody>
</table>

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 type**
  - Municipal STP.

- **STP details**
  - Estimated substance removal from wastewater via domestic sewage treatment: 95.0% Removal efficiency (total): 95.0%
  - Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 100 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 0%.

- **Water**
  - Prevent leaks and prevent soil/water pollution caused by leaks. Onsite wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): 94.8 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0

- **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

- **Vapour pressure**
  - Vapour pressure 0.5 - 10 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.
Formulation & (Re)packing of Substances and Mixtures - Industrial

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 (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)
No other specific measures identified.

General exposures (open systems)
No other specific measures identified.

Process sampling
No other specific measures identified.

Laboratory activities
No other specific measures identified.

Bulk transfers
No other specific measures identified.

Mixing operations
No other specific measures identified.

Manual
Transfer from/pouring from containers
No other specific measures identified.

Drum/batch transfers
No other specific measures identified.

Tabletting, compression, extrusion or pelletisation
No other specific measures identified.

Drum and small package filling
No other specific measures identified.

Equipment cleaning and maintenance
No other specific measures identified.

Bulk product storage
No other specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Maximum Risk Characterisation Ratios for air emissions 1.6E-02
Maximum Risk Characterisation Ratios for wastewater emissions 9.7E-01

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

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)

<table>
<thead>
<tr>
<th>Assessment method</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated</td>
</tr>
<tr>
<td>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.</td>
</tr>
</tbody>
</table>

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

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

- **Product name**: Kerosines
- **Version number**: 2018
- **Es reference**: ES12a

### 1. Title of exposure scenario

- **Main title**: Use as a Fuel - Industrial
- **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**: ERC7 Use of functional fluid at industrial site
- **SPERC**: ESVOC SPERC 7.12a.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: 1,600,000 tonnes/year
- Fraction of Regional tonnage used locally: 1
- Annual site tonnage: 1,500,000 tonnes
- Maximum daily site tonnage: 5000 tonnes

#### Frequency and duration of use

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

#### Other given operational conditions affecting environmental exposure

- **Emission factor - air**: Release fraction to air from process (initial release prior to RMM): 5.0E-02
- **Emission factor - water**: Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05
- **Emission factor - soil**: Release fraction to soil from process (initial release prior to RMM): 0

### Environmental factors not influenced by risk management measures

20/25
Use as a Fuel - Industrial

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 type
Municipal STP.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 95.0%
Removal efficiency (total): 95%
Maximum allowable site tonnage (Msafe), based on release following total wastewater
treatment removal: 2.1E+06 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
Prevent leaks and prevent soil/water pollution caused by leaks. Treat onsite wastewater (prior
to receiving water discharge) to provide the required removal efficiency of (%): 94.4 If
discharging to domestic sewage treatment plant, provide the required onsite wastewater
removal efficiency of (%): 0.0

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.

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

Vapour pressure
Vapour pressure 0.5 - 10 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

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

Risk management measures

General exposures (closed systems)
No other specific measures identified.

Use as a fuel
(closed systems)
No other specific measures identified.

Bulk transfers
No other specific measures identified.

Drum/batch transfers
No other specific measures identified.

Equipment cleaning and maintenance
No other specific measures identified.

Bulk product storage
No other specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Maximum Risk Characterisation Ratios for air emissions 2.9E-02
Maximum Risk Characterisation Ratios for wastewater emissions 9.0E-01

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

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

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

<table>
<thead>
<tr>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
</tr>
<tr>
<td><strong>Version number</strong></td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

<table>
<thead>
<tr>
<th><strong>Main title</strong></th>
<th>Use as a Fuel - Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process scope</strong></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><strong>Environmental release category</strong></th>
<th>ERC9a Widespread use of functional fluid (indoor)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPERC</strong></td>
<td>ESVOC SPERC 9.12b.v1</td>
</tr>
</tbody>
</table>

### Worker

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

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

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance is complex UVCB. Predominantly hydrophobic.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Amounts used</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraction of EU tonnage used in region: 0.1</td>
</tr>
<tr>
<td>Regional use tonnage: 4,600,000 tonnes/year</td>
</tr>
<tr>
<td>Fraction of Regional tonnage used locally: 1</td>
</tr>
<tr>
<td>Annual site tonnage: 2300 tonnes</td>
</tr>
<tr>
<td>Maximum daily site tonnage: 6.4 tonnes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Frequency and duration of use</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous release.</td>
</tr>
<tr>
<td>Emission days: 365 days/year</td>
</tr>
</tbody>
</table>

| **Emission factor - air** | Release fraction to air from wide dispersive use (regional only): 1.0E-03 |
| **Emission factor - water** | Release fraction to wastewater from wide dispersive use: 1.0E-05 |
| **Emission factor - soil** | Release fraction to soil from wide dispersive use (regional only): 1.0E-05 |

| **Environmental factors not influenced by risk management measures** | 23/25 |
Use as a Fuel - Professional

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 fresh water.

STP type
- Municipal STP.

STP details
- Estimated substance removal from wastewater via domestic sewage treatment: 95.0%
- Removal efficiency (total): 95.0%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2.9E+05 kg/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 N/A%.

Water
- Prevent leaks and prevent soil/water pollution caused by leaks. Onsite wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): 0.0
- If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0

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.

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

Vapour pressure
- Vapour pressure 0.5 - 10 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

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

Risk management measures

General exposures (closed systems)
No other specific measures identified.

- Use as a fuel
  (closed systems)
No other specific measures identified.

- Bulk transfers
No other specific measures identified.

- Transfer from/pouring from containers
No other specific measures identified.

- Equipment cleaning and maintenance
No other specific measures identified.

- Bulk product storage
No other specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

Maximum Risk Characterisation Ratios for air emissions 4.4E-04
Maximum Risk Characterisation Ratios for wastewater emissions 3.4E-03

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.