



## 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)
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##### 1.4. Emergency telephone number

National emergency telephone number	+358-9-471 977, +358-9-4711, Poison Information Centre
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#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

###### Classification (EC 1272/2008)

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
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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.
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## Aviation Jet Fuel JET A-1 (JETA1)

<b>Precautionary statements</b>	<p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P273 Avoid release to the environment.</p> <p>P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.</p> <p>P331 Do NOT induce vomiting.</p> <p>P261 Avoid breathing vapours.</p> <p>P280 Wear protective gloves.</p>
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<b>Contains</b>	Kerosine (petroleum), sweetened, Distillates (petroleum), hydrotreated light; Kerosine - unspecified, Kerosine (petroleum), hydrodesulfurized, Renewable hydrocarbons (kerosine type fraction)
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### 2.3. Other hazards

<b>Other hazards</b>	Evaporates slowly. May cause eye and respiratory system irritation. Risk of soil and ground water contamination.
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## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

<b>Kerosine (petroleum), hydrodesulfurized</b> CAS number: 64742-81-0      EC number: 265-184-9      REACH registration number: 01-2119462828-25-XXXX	<b>0 - 100 %</b>
<b>Classification</b> Flam. Liq. 3 - H226 Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411	
<b>Distillates (petroleum), hydrotreated light; Kerosine - unspecified</b> CAS number: 64742-47-8      EC number: 265-149-8      REACH registration number: 01-2119484819-18-XXXX	<b>0 - 100 %</b>
<b>Classification</b> Flam. Liq. 3 - H226 Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411	

## Aviation Jet Fuel JET A-1 (JETA1)

<b>Kerosine (petroleum), sweetened</b>		<b>0 - 100 %</b>
CAS number: 91770-15-9	EC number: 294-799-5	REACH registration number: 01-2119502385-46-XXXX

### Classification

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

### Renewable hydrocarbons (kerosine type fraction)

**0 - 50 %**

CAS number: — REACH registration number: 01-2119850115-46

### 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 %.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>Inhalation</b>	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.
<b>Ingestion</b>	Do not induce vomiting. Get medical attention immediately.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.
<b>Eye contact</b>	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

<b>Suitable extinguishing media</b>	Water spray, foam, dry powder or carbon dioxide.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.

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### 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 (CO<sub>2</sub>). 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)

<b>Storage precautions</b>	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. Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations. Only store in correctly labelled containers. Use containers made of the following materials: Carbon steel. Stainless steel. Keep container tightly closed. Protect from sunlight.
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### 7.3. Specific end use(s)

<b>Specific end use(s)</b>	Not known.
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## SECTION 8: Exposure controls/Personal protection

### 8.1. Control parameters

#### Occupational exposure limits

Solvent naphtha, group 3: 100mg/m<sup>3</sup> (8h), HTP 2018/FIN.

The individual limit values can be applied for the hydrocarbons.

#### Benzene

Benzene: 1 ppm (8h), 3,25 mg/m<sup>3</sup>, VNa 1267/2019/FIN (binding limit value).

May be absorbed through the skin.

#### naphthalene

Naphthalene: 1 ppm (8h), 5 mg/m<sup>3</sup> (8h), 2 ppm (15min), 10mg/m<sup>3</sup> (15min), HTP 2018/FIN.

Naphthalene: 10 ppm (8h), 50 mg/m<sup>3</sup> (8h), EU OELV (EC/1991/322).

#### toluene

Toluene: 25 ppm (8h), 81 mg/m<sup>3</sup> (8h), 100ppm (15min), 380 mg/m<sup>3</sup> (15min), HTP 2018/FIN.

Toluene: 50 ppm (8h), 192 mg/m<sup>3</sup> (8h), 100ppm (15min), 384 mg/m<sup>3</sup> (15min), EU OELV (EC/2006/15)

May be absorbed through the skin.

<b>PNEC</b>	Not available.
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### Renewable hydrocarbons (kerosine type fraction)

<b>DNEL</b>	Workers - Dermal; Long term systemic effects: 42 mg/kg/day Workers - Inhalation; Long term systemic effects: 147 mg/m <sup>3</sup>
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### Category: Kerosines

<b>DNEL</b>	Consumer - Oral; Long term systemic effects: 18,75 mg/kg bw/day
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### 8.2. Exposure controls

<b>Appropriate engineering controls</b>	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).
<b>Eye/face protection</b>	Tight-fitting safety glasses.
<b>Hand protection</b>	Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. Neoprene. Polyvinyl chloride (PVC). The selected gloves should have a breakthrough time of at least 8 hours. Protection class 6. Protective gloves according to standards EN 420 and EN 374. Change protective gloves regularly.
<b>Other skin and body protection</b>	Protective clothing when needed. Wear anti-static protective clothing if there is a risk of ignition from static electricity.

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<b>Respiratory protection</b>	Filter device/half mask Gas filter, type A2. Filter device could be used maximum 2 hours at a time. Filter devices must not be used in conditions where the oxygen level is low (< 19 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirator according to standard EN 140.
<b>Environmental exposure controls</b>	Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Liquid.
<b>Colour</b>	Clear.
<b>Odour</b>	Hydrocarbons.
<b>Odour threshold</b>	-
<b>pH</b>	-
<b>Melting point</b>	≤ -47°C (ASTM D2386, D5972, IP 529)
<b>Initial boiling point and range</b>	130 - 300°C (ASTM D 86)
<b>Flash point</b>	≥ 38°C (IP 170)
<b>Upper/lower flammability or explosive limits</b>	Lower flammable/explosive limit: 0,6 % Upper flammable/explosive limit: 6 %
<b>Vapour pressure</b>	~ 2 kPa @ 38°C
<b>Vapour density</b>	> 3 (Air = 1.0)
<b>Relative density</b>	0,775 - 0,840 @ 15°C (ASTM D4052)
<b>Solubility(ies)</b>	The product has poor water-solubility. < 50 mg/l @ 20°C
<b>Partition coefficient</b>	log Kow: > 3
<b>Auto-ignition temperature</b>	~ 250°C
<b>Decomposition Temperature</b>	-
<b>Viscosity</b>	Kinematic viscosity < 7 mm <sup>2</sup> /s @ 40°C
<b>Explosive properties</b>	Not considered to be explosive.
<b>Oxidising properties</b>	Does not meet the criteria for classification as oxidising.

#### 9.2. Other information

<b>Other information</b>	Not known.
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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

<b>Reactivity</b>	There are no known reactivity hazards associated with this product.
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#### 10.2. Chemical stability

<b>Stability</b>	Stable at normal ambient temperatures and when used as recommended.
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#### 10.3. Possibility of hazardous reactions

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**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

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

## **SECTION 11: Toxicological information**

### 11.1. Information on toxicological effects

**Toxicological effects** Based on available data the classification criteria are not met.

#### Skin corrosion/irritation

**Skin corrosion/irritation** 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.

#### Serious eye damage/irritation

**Serious eye damage/irritation** Based on available data the classification criteria are not met. (EPA OTS 798.4500)

#### Skin sensitisation

**Skin sensitisation** Based on available data the classification criteria are not met. (OECD 406, EPA OTS 798.4100)

#### Germ cell mutagenicity

**Genotoxicity - in vitro** Based on available data the classification criteria are not met. (OECD 471, modified Ames test, 479)

**Genotoxicity - in vivo** Based on available data the classification criteria are not met. (OECD 479)

#### Carcinogenicity

**Carcinogenicity** Based on available data the classification criteria are not met. (OECD 451)

#### Reproductive toxicity

**Reproductive toxicity - fertility** Based on available data the classification criteria are not met. (OECD 415)

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

#### Specific target organ toxicity - single exposure

**STOT - single exposure** May cause nausea, headache, dizziness and intoxication. Anaesthetic in high concentrations.

#### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** Based on available data the classification criteria are not met. (OECD 408, 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.

### Toxicological information on ingredients.

#### Renewable hydrocarbons (kerosine type fraction)

## Aviation Jet Fuel JET A-1 (JETA1)

### Acute toxicity - oral

**Notes (oral LD<sub>50</sub>)** LD<sub>50</sub> > 2000 mg/kg, Oral, Rat (EC B1 tris)

### Acute toxicity - dermal

**Notes (dermal LD<sub>50</sub>)** LD<sub>50</sub> > 2000 mg/kg, Dermal, Rat (EC B3)

### Category: Kerosines

### Acute toxicity - oral

**Notes (oral LD<sub>50</sub>)** LD<sub>50</sub> > 5000 mg/kg, Oral, Rat (OECD 420, EPA OTS 798.1175)

### Acute toxicity - dermal

**Notes (dermal LD<sub>50</sub>)** LD<sub>50</sub> > 2000 mg/kg, Dermal, Rabbit (OECD 402, EPA OTS 798.1100)

### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** LC<sub>50</sub> > 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.

### Renewable hydrocarbons (kerosine type fraction)

### Acute aquatic toxicity

**Acute toxicity - fish** LL<sub>50</sub>, 96 hours: > 1000 mg/l,  
WAF (OECD 203)

**Acute toxicity - aquatic invertebrates** EL<sub>50</sub>, 48 hours: > 100 mg/l,  
WAF (OECD 202)

**Acute toxicity - aquatic plants** EL<sub>50</sub>, 72 hours: > 100 mg/l,  
WAF (OECD 201)

**Acute toxicity - microorganisms** EC<sub>50</sub>, 3 hours: > 1000 mg/l, Micro-organisms (wastewater sludge)  
(OECD 209)

### Chronic aquatic toxicity

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: 1 mg/l,  
LOEC, 21 days: 3,2 mg/l, Daphnia magna  
WAF (OECD 211)  
NOEC, 10 days: 373 mg/kg,  
LC<sub>50</sub>, 10 days: 1200 mg/kg, Sediment organisms  
(OSPAR Protocols, Part A: Sediment Bioassay, 2005)

### Category: Kerosines

### Acute aquatic toxicity

**Acute toxicity - fish** LL<sub>50</sub>, 24 hours: 5-17 mg/l, Oncorhynchus mykiss (Rainbow trout)  
LL<sub>50</sub>, 48 hours: 2-5 mg/l, Oncorhynchus mykiss (Rainbow trout)  
WAF (OECD 203)



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<b>Acute toxicity - aquatic invertebrates</b>	EL50, 24 hours: 4,6 mg/l, Daphnia magna EL50, 48 hours: 1,4 mg/l, Daphnia magna NOEL, 48 hours: 0,3 mg/l, Daphnia magna WAF (OECD 202)
<b>Acute toxicity - aquatic plants</b>	EL50, 24 hours: 1-3 mg/l, Pseudokirchneriella subcapitata NOEL, 24 hours: 1 mg/l, Pseudokirchneriella subcapitata WAF (OECD 201)
<b><u>Chronic aquatic toxicity</u></b>	
<b>Chronic toxicity - fish early life stage</b>	NOEL, 28 days: 0,1 mg/l, Oncorhynchus mykiss (Rainbow trout) (QSAR)
<b>Chronic toxicity - aquatic invertebrates</b>	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

## Aviation Jet Fuel JET A-1 (JETA1)

<b>Disposal methods</b>	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.
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### SECTION 14: Transport information

<b>Sea transport notes</b>	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
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#### 14.1. UN number

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

**EU legislation** Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).  
Commission Regulation (EU) No 2015/830 of 28 May 2015.  
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

#### 15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

## Aviation Jet Fuel JET A-1 (JETA1)

### SECTION 16: Other information

**Abbreviations and acronyms used in the safety data sheet** EU OELV = European Occupational Exposure Limit Value

**Key literature references and sources for data** Regulations, databases, literature, own research. CONCAWE Report 13/17: Hazard classification and labelling of petroleum substances in the EEA - 2017. Chemical Safety Report Distillates (petroleum), hydrotreated light, 2019. Chemical Safety Report Kerosine (petroleum), hydrodesulfurized, 2019. Chemical Safety Report Kerosine (petroleum), sweetened, 2019. Chemical Safety Report Renewable hydrocarbons (kerosene type fraction): 2011.

**Training advice** DO NOT SIPHON PRODUCT BY MOUTH SUCTION.

**Revision comments** Updated, sections: 3.2, 8.1, 9.1, 11.1, 12.1-12.2, 14.0, 16. Revised formulation.  
NOTE: Lines within the margin indicate significant changes from the previous revision.

**Revision date** 08/06/2020

**Supersedes date** 17/02/2020

**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

Product name	Kerosines
Version number	2018
Es reference	ES01a

#### 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.
<u>Environment</u>	
Environmental release category	<p>ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)</p> <p>ERC5 Use at industrial site leading to inclusion into/onto article</p> <p>ERC6a Use of intermediate</p> <p>ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)</p> <p>ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)</p> <p>ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)</p> <p>ERC7 Use of functional fluid at industrial site</p>
SPERC	ESVOC SPERC 1.1b.v1
<u>Worker</u>	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC15 Use as laboratory reagent.</p>

#### 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 (m<sup>3</sup>/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

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

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

<b>Organisational measures</b>	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.
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### Risk management measures

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

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

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Process sampling  
No other specific measures identified.

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Laboratory activities  
No other specific measures identified.

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Bulk transfers  
No other specific measures identified.

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Drum and small package filling  
No other specific measures identified.

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Equipment cleaning and maintenance  
No other specific measures identified.

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Bulk product storage  
No other specific measures identified.

### 3. Exposure estimation (Environment 1)

<b>Assessment method</b>	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)

<b>Assessment method</b>	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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## Distribution of Substance - Industrial

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

#### Identification

Product name	Kerosines
Version number	2018
Es reference	ES02

#### 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.
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture
SPERC	ESVOC SPERC 2.2.v1
<u>Worker</u>	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC14 Tableting, compression, extrusion, pelletisation, granulation</p> <p>PROC15 Use as laboratory reagent.</p>

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

<u>Product characteristics</u>	Substance is complex UVCB. Predominantly hydrophobic.
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<u>Amounts used</u>	<p>Fraction of EU tonnage used in region: 0.1</p> <p>Regional use tonnage: 6,800,000 tonnes/year</p> <p>Fraction of Regional tonnage used locally: 1</p> <p>Annual site tonnage: 30,000 tonnes</p> <p>Maximum daily site tonnage: 100 tonnes</p>
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<u>Frequency and duration of use</u>	<p>Continuous release.</p> <p>Emission days: 300 days/year</p>
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## Formulation & (Re)packing of Substances and Mixtures - Industrial

### Other given operational conditions affecting environmental exposure

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

### Environmental factors not influenced by risk management measures

<b>Dilution</b>	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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### Risk management measures

<b>Good practice</b>	Common practices vary across sites, thus conservative process release estimates used.  Risk from environmental exposure is driven by freshwater sediment.
<b>STP type</b>	Municipal STP.
<b>STP details</b>	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 (m <sup>3</sup> /day): 2000.

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

<b>Air</b>	Treat air emission to provide a typical removal efficiency of 0%.
<b>Water</b>	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
<b>Soil</b>	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

<b>Waste treatment</b>	External treatment and disposal of waste should comply with applicable local and/or national regulations.
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### Conditions and measures related to external recovery of waste

<b>Recovery method</b>	External recovery and recycling of waste should comply with applicable local and/or national regulations.
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## 2. Conditions of use affecting exposure (Workers - Health 1)

### Product characteristics

<b>Physical state</b>	Liquid
<b>Vapour pressure</b>	Vapour pressure 0.5 - 10 kPa at STP.
<b>Concentration details</b>	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

<b>Setting</b>	Assumes a good basic standard of occupational hygiene is implemented.
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## 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)

#### 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 - 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.
<u>Environment</u>	
Environmental release category	ERC7 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 7.12a.v1
<u>Worker</u>	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC16 Use of fuels</p>

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

<u>Product characteristics</u>	Substance is complex UVCB. Predominantly hydrophobic.
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<u>Amounts used</u>	<p>Fraction of EU tonnage used in region: 0.1</p> <p>Regional use tonnage: 1,600,000 tonnes/year</p> <p>Fraction of Regional tonnage used locally: 1</p> <p>Annual site tonnage: 1,500,000 tonnes</p> <p>Maximum daily site tonnage: 5000 tonnes</p>
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<u>Frequency and duration of use</u>	<p>Continuous release.</p> <p>Emission days: 300 days/year</p>
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#### 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

## 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 (M<sub>safe</sub>), based on release following total wastewater treatment removal: 2.1E+06 tonne/day  
Assumed domestic sewage treatment plant flow (m<sup>3</sup>/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)

<b>Assessment method</b>	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)

<b>Assessment method</b>	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

#### Identification

Product name	Kerosines
Version number	2018
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.
<u>Environment</u>	
Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12b.v1
<u>Worker</u>	
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)

<u>Product characteristics</u>	Substance is complex UVCB. Predominantly hydrophobic.
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<u>Amounts used</u>	Fraction of EU tonnage used in region: 0.1 Regional use tonnage: 4,600,000 tonnes/year Fraction of Regional tonnage used locally: 1 Annual site tonnage: 2300 tonnes Maximum daily site tonnage: 6.4 tonnes
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<u>Frequency and duration of use</u>	Continuous release. Emission days: 365 days/year
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#### Other given operational conditions affecting environmental exposure

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

## 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 (m<sup>3</sup>/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)

<b>Assessment method</b>	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)

<b>Assessment method</b>	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.