SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Supercedes date	Revision date	Revision Number
15/08/2022	29/10/2024	1

Country-Language: FIN-EN

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)

Synonyms 145163

Product Code(s) 10505

Unique Formula Identifier (UFI) NW2X-E0A2-0004-SK22

Pure substance/mixture Mixture

Contains Distillates (petroleum), hydrotreated light, Kerosine (petroleum), hydrodesulfurized, Kerosine (petroleum), sweetened, Renewable hydrocarbons (kerosine type fraction)

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

Recommended use Distribution of substance (ES 01a)
Formulation & (re)packing of substances and mixtures (ES 02)
Use as a fuel (ES12a, ES12b)

Uses advised against Supported uses are listed above. Other uses are not recommended.

1.3. Details of the supplier of the safety data sheet

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

1.4. Emergency telephone number

Emergency Telephone :

Emergency Telephone - §45 - (EC)1272/2008	
Europe	**112**
Estonia	Poison information telephone number: 16662, calling from abroad: (+372) 7943 794
Finland	+358 800 147 111, +358 9 471 977, Poison Information Centre
France	France: Numéro ORFILA (INRS) : + 33 (0)1 45 42 59 59.
Latvia	Valsts toksikoloģijas centrs: (+371) 6704 2473
Sweden	När det är akut: 112, begär giftinformation. I mindre akuta fall 010-456 6700, Giftinformationscentralens direktnummer

SECTION 2: Hazards identification

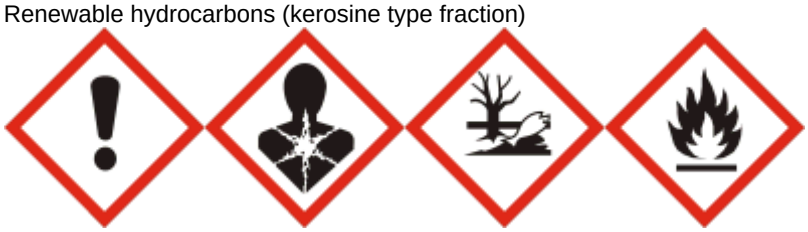
2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Flammable liquids	Category 3 - (H226)
Skin corrosion/irritation	Category 2 - (H315)
Carcinogenicity	Category 1B - (H350)
Specific target organ toxicity — single exposure	Category 3 - (H336)
Category 3 Narcotic effects	
Aspiration hazard	Category 1 - (H304)
Chronic aquatic toxicity	Category 2 - (H411)

2.2. Label elements

Contains Distillates (petroleum), hydrotreated light, Kerosine (petroleum), hydrodesulfurized, Kerosine (petroleum), sweetened, Renewable hydrocarbons (kerosine type fraction)



Signal word
Danger

Hazard statements
H226 - Flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H350 - May cause cancer
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P331 - Do NOT induce vomiting

2.3. Other hazards

Evaporates slowly. May irritate eyes. Vapours may irritate throat and respiratory system. Risk of soil and ground water contamination.

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

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Kerosine (petroleum), sweetened 91770-15-9	0 - 100%	01-2119502385-46	294-799-5	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Aq. Chronic 2 (H411)	-	-	-
Kerosine (petroleum), hydrodesulfurized 64742-81-0	0 - 100%	01-2119462828-25	265-184-9	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Aq. Chronic 2 (H411)	-	-	-
Distillates (petroleum), hydrotreated light 64742-47-8	0 - 100%	01-2119484819-18	265-149-8	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Aq. Chronic 2 (H411)	-	-	-
Renewable hydrocarbons (kerosine type fraction) -	0 - 50%	01-2119850115-46	931-082-4	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304)	-	-	-

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

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

Additional information
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 %.

NOTE: One or more of the fossil components may contain more than 0.1% cumene (CAS 98-82-8), a class 1B (H350) carcinogen.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, (trained personnel should) give oxygen. Get medical attention immediately if symptoms occur.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions see a doctor.

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

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

Symptoms 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

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

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

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Flammable liquid and vapour. Containers may explode when heated.

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

5.3. Advice for firefighters

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

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Do not breathe vapour or mist. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

For emergency responders Prevent unauthorized access. Keep people away from and upwind of spill/leak.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharges. Vapours may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.).

6.2. Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Avoid release to the environment. 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 containment Stop leak if you can do it without risk. Keep out of drains, sewers, ditches and waterways.

Methods for cleaning up Take up with sand, earth or other non-combustible absorbent material. Keep in suitable,

closed containers for disposal. Immediately start clean-up of the liquid and contaminated soil. Large spills should be collected mechanically (remove by pumping) for disposal. Pay attention to the fire and health hazards caused by the product.

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

6.4. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof. The product contains volatile substances which may spread in the atmosphere.

Avoid breathing vapours or mists. Avoid contact with skin, eyes or clothing. Use only outdoors or in a well-ventilated area. Try to avoid product volatilization during handling and transferring. Use personal protective equipment and/or local ventilation when needed. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

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

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Flammable liquid storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in accordance with local regulations. Keep in properly labelled containers. Protect from direct sunlight. Store in a demarcated bunded area to prevent release to drains and/or watercourses.

7.3. Specific end use(s)

Risk Management Methods (RMM) Not applicable.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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

Cumene: 10 ppm (8h), 50 mg/m³ (8h), 50 ppm (15 min), 250 mg/m³ (15min), EU OELV (EC 2019/1831), HTP 2020/FIN (skin).

Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Distillates (petroleum), hydrotreated light 64742-47-8	-	-	-	TWA: 5 mg/kg STEL: 500 mg/m³	-
Chemical name	**France**	**Germany TRGS**	**Germany DFG**	**Greece**	**Hungary**

Distillates (petroleum), hydrotreated light 64742-47-8	-	TWA:	TWA: 5 mg/m³ TWA: 50 ppm TWA: 350 mg/m³ Peak: 20 mg/m³ Peak: 100 ppm Peak: 700 mg/m³	-	-
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Kerosine (petroleum), hydrodesulfurized 64742-81-0	-	-	TWA: 200 mg/m³ cute*	-	-
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Kerosine (petroleum), hydrodesulfurized 64742-81-0	TWA: 200 ppm Cutânea*	-	-	-	-

Chemical name	Sweden	Switzerland	United Kingdom
Distillates (petroleum), hydrotreated light 64742-47-8	-	TWA: 50 ppm TWA: 350 mg/m³ TWA: 5 mg/m³ STEL: 100 ppm STEL: 700 mg/m³	-

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Kerosine (petroleum), hydrodesulfurized 64742-81-0	-	7.7 mg/kg bw/day [4] [6]	50 mg/m³ [4] [6] 250 mg/m³ [5] [7]
Renewable hydrocarbons (kerosine type fraction) -	-	42 mg/kg/day [4] [6]	147 mg/m³ [4] [6]

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
Distillates (petroleum), hydrotreated light 64742-47-8	18.75 mg/kg bw/day [4] [6]	-	-
Kerosine (petroleum), hydrodesulfurized 64742-81-0	5 mg/kg bw/day [4] [6]	1.64 mg/kg bw/day [4] [6]	10.66 mg/m³ [4] [6]

[4] Systemic health effects.
[5] Local health effects.
[6] Long term.
[7] Short term.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering controls Use only in well-ventilated areas. Use personal protective equipment and/or local ventilation when needed. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

Personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Hand protection	Wear protective gloves. It is recommended that gloves are made of the following material:. Nitrile rubber. Neoprene. Polyvinyl chloride (PVC). Wear suitable gloves tested to EN 374. Change protective gloves regularly. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.
Skin and body protection	Wear suitable protective clothing. Wear anti-static protective clothing if there is a risk of ignition from static electricity.
Respiratory protection	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. A2. Filter must be changed often enough. Gas and combination filter cartridges must comply with EN 14387.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Clear up spills immediately and dispose of waste safely.
Environmental exposure controls	Store in a demarcated bunded area to prevent release to drains and/or watercourses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Liquid
Colour	clear
Odour	Hydrocarbons.
Odour threshold	-

Property	**Values**	**Remarks • Method**
Melting point / freezing point	<= -47 °C	ASTM D2386, D5972, IP 529
Initial boiling point and boiling range	130 - 300 °C	ASTM D 86
Flammability	H226	
Flammability Limit in Air		
Upper flammability or explosive limits	6 %	
Lower flammability or explosive limits	0.6 %	
Flash point	>= 38 °C	IP 170
Autoignition temperature	~ 250 °C	
Decomposition temperature	-	
pH	No data available	
pH (as aqueous solution)	No data available	
Kinematic viscosity	< 7 mm2/s @ 40°C	
Dynamic viscosity	-	
Water solubility	The product has poor water-solubility < 50 mg/l @ 20°C	
Solubility(ies)		
Partition coefficient	log Kow: > 3	
Vapour pressure	~ 2 kPa @ 38°C	None known
Relative density	0,775 - 0,840 @ 15°C	ASTM D4052
Bulk density	-	

Liquid Density	-
Relative vapour density	> 3 (Air = 1.0)
Particle characteristics	
Particle Size	-
Particle Size Distribution	-

9.2. Other information

9.2.1. Information with regards to physical hazard classes

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

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

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

10.2. Chemical stability

Stability Stable under normal conditions.

Sensitivity to static discharge Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None known.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Incompatible materials Oxidising agent.

10.6. Hazardous decomposition products

Hazardous decomposition products None under normal use conditions.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Acute toxicity Based on available data, the classification criteria are not met

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Kerosine (petroleum), sweetened	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Kerosine (petroleum), hydrodesulfurized	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5200 mg/m³ (Rat) 4 h
Distillates (petroleum), hydrotreated light	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Renewable hydrocarbons (kerosine type fraction)	> 2000 mg/kg, Rat (EC B1 tris)	> 2000 mg/kg, Rat (EC B3)	-

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

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

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

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

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity May cause cancer. Contains a known or suspected carcinogen.

Reproductive toxicity Based on available data, the classification criteria are not met.

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

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

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

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

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

11.2.2. Other information

Other adverse effects None known.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Kerosine (petroleum), sweetened	EL50, 72 h: 1-3 mg/L, Pseudokirchneriella subcapitata WAF (OECD 201) NOEL, 24 hours: 1 mg/l, Pseudokirchneriella subcapitata WAF (OECD 201)	LL_{50}, 24 hours: 5-17 mg/l, Oncorhynchus mykiss (Rainbow trout) WAF (OECD 203) LL_{50}, 48 hours: 2-5 mg/l, Oncorhynchus mykiss (Rainbow trout) WAF (OECD 203) NOEL, 28 days: 0,1 mg/l, Oncorhynchus mykiss (Rainbow trout) (QSAR)	-	EL50, 24 hours: 4,6 mg/l, Daphnia magna WAF (OECD 202) EL50, 48 hours: 1,4 mg/l, Daphnia magna WAF (OECD 202) NOEL, 48 hours: 0,3 mg/l, Daphnia magna WAF (OECD 202) EL50, 21 days: 0.81 mg/l, Daphnia magna WAF (OECD 211) NOEL, 21 days: 0,48 mg/l, Daphnia magna WAF (OECD 211)
Kerosine (petroleum), hydrodesulfurized	EL50, 72 h: 1-3 mg/L, Pseudokirchneriella subcapitata WAF (OECD 201) NOEL, 24 hours: 1 mg/l, Pseudokirchneriella subcapitata WAF (OECD 201)	LL_{50}, 24 hours: 5-17 mg/l, Oncorhynchus mykiss (Rainbow trout) WAF (OECD 203) LL_{50}, 48 hours: 2-5 mg/l, Oncorhynchus mykiss (Rainbow trout) WAF (OECD 203) NOEL, 28 days: 0,1 mg/l, Oncorhynchus mykiss (Rainbow trout) (QSAR)	-	EL50, 24 hours: 4,6 mg/l, Daphnia magna WAF (OECD 202) EL50, 48 hours: 1,4 mg/l, Daphnia magna WAF (OECD 202) NOEL, 48 hours: 0,3 mg/l, Daphnia magna WAF (OECD 202) EL50, 21 days: 0.81 mg/l, Daphnia magna WAF (OECD 211) NOEL, 21 days: 0,48 mg/l, Daphnia magna WAF (OECD 211)
Distillates (petroleum), hydrotreated light	EL50, 72 h: 1-3 mg/L, Pseudokirchneriella subcapitata WAF (OECD 201) NOEL, 24 hours: 1 mg/l, Pseudokirchneriella subcapitata WAF (OECD 201)	LL_{50}, 24 hours: 5-17 mg/l, Oncorhynchus mykiss (Rainbow trout) WAF (OECD 203) LL_{50}, 48 hours: 2-5 mg/l, Oncorhynchus mykiss (Rainbow trout) WAF (OECD 203) NOEL, 28 days: 0,1 mg/l, Oncorhynchus mykiss (Rainbow trout) (QSAR)	-	EL50, 24 hours: 4,6 mg/l, Daphnia magna WAF (OECD 202) EL50, 48 hours: 1,4 mg/l, Daphnia magna WAF (OECD 202) NOEL, 48 hours: 0,3 mg/l, Daphnia magna WAF (OECD 202) EL50, 21 days: 0.81 mg/l, Daphnia magna WAF

				(OECD 211) NOEL, 21 days: 0,48 mg/l, Daphnia magna WAF (OECD 211)
Renewable hydrocarbons (kerosine type fraction)	EL50, 72 h: > 100 mg/l, WAF (OECD 201)	LL50, 96 h: > 1000 mg/l, WAF (OECD 203)	EC50, 3 h: > 1000 mg/l, Micro-organisms (wastewater sludge)(OECD 209)	EL50, 48 hours: > 100 mg/l,WAF (OECD 202) NOEC, 21 days: 1 mg/l, LOEC, 21 days: 3,2 mg/l, Daphnia magnaWAF (OECD 211) NOEC, 10 days: 373 mg/kg, LC_{50}, 10 days: 1200 mg/kg, Sediment organisms(OSPAR Protocols, Part A: Sediment Bioassay, 2005)

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.

No significant reaction in water.

Kerosine (petroleum), sweetened (91770-15-9)

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

Kerosine (petroleum), hydrodesulfurized (64742-81-0)

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

Distillates (petroleum), hydrotreated light (64742-47-8)

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

Renewable hydrocarbons (kerosine type fraction) (-)

Method	Exposure time	Value	Results
OECD Test No. 301B: Ready Biodegradability: CO2 Evolution Test (TG 301 B)			Rapidly biodegradable

12.3. Bioaccumulative potential

Bioaccumulation Possibly bioaccumulative.
log Kow: > 3.

Component Information

12.4. Mobility in soil

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

12.5. Results of PBT and vPvB assessment

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

12.6. Endocrine disrupting properties

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

12.7. Other adverse effects

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

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. When handling waste, the safety precautions applying to handling of the product should be considered. Do not allow into any sewer, on the ground or into any body of water.

Contaminated packaging Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Product residues retained in emptied containers can be hazardous.

Waste codes / waste designations according to EWC Waste codes should be assigned by the user based on the application for which the product was used.
For example:. 13 07 03 other fuels (including mixtures).

SECTION 14: Transport information

IATA

14.1 UN number or ID number 1863
14.2 UN proper shipping name Fuel, aviation, turbine engine
14.3 Transport hazard class(es) 3
14.4 Packing group III
14.5 Environmental hazards Yes
14.6 Special precautions for user -

IMDG

14.1 UN number or ID number 1863
14.2 UN proper shipping name Fuel, aviation, turbine engine
14.3 Transport hazard class(es) 3
14.4 Packing group III
14.5 Environmental hazard Marine pollutant
14.6 Special precautions for user -
14.7 Maritime transport in bulk according to IMO instruments MARPOL Annex I (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)

RID

14.1 UN number or ID number	1863
14.2 UN proper shipping name	Fuel, aviation, turbine engine
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	-

ADR

14.1 UN number or ID number	1863
14.2 UN proper shipping name	Fuel, aviation, turbine engine
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	
Classification code	30
Tunnel restriction code	D/E

-

ADN

UN number or ID number	1863
UN proper shipping name	Fuel, aviation, turbine engine
Transport hazard class(es)	3
Subsidiary hazard class	N2 + CMR
Packing group	III

SECTION 15: Regulatory information

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

National regulations

European Union

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

Authorisations and/or restrictions on use:

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

Persistent Organic Pollutants

Not applicable

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

P5a - FLAMMABLE LIQUIDS
P5b - FLAMMABLE LIQUIDS
P5c - FLAMMABLE LIQUIDS
E2 - Hazardous to the Aquatic Environment in Category Chronic 2

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

EU - Water Framework Directive (2000/60/EC)

EU - Environmental Quality Standards (2008/105/EC)

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

15.2. Chemical safety assessment

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

SECTION 16: Other information

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

Full text of H-Statements referred to under section 3
H225 - Highly flammable liquid and vapour
H226 - Flammable liquid and vapour
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H340 - May cause genetic defects
H350 - May cause cancer
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H411 - Toxic to aquatic life with long lasting effects

Legend
SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

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

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

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

Supercedes date 15/08/2022

Revision date 29/10/2024

Reason for revision Change in the mixture classification
(new SDS software has been introduced)

Restrictions on use For professional use only

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)
Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

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.

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

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, tabletting, 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

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

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)

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.

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

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

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.

Environment

Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12b.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 4,600,000 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 2300 tonnes
Maximum daily site tonnage: 6.4 tonnes

Frequency and duration of use

Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

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