

SAFETY DATA SHEET

Aviation Fuel Jet A-1



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

1.1 Product identifier

Product name : Aviation Fuel Jet A-1
Viscosity or Type : Aviation Fuel Jet F35
UFI : 8C60-K0MA-R00V-S5P4

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

Material uses : Aviation turbine fuel

Identified uses	
Formulation and (re)packing of substances and mixtures; Industrial Use in fuel; Industrial Use in fuel; Professional	
Uses advised against	Reason
Use in coatings; Professional	-
Use in cleaning agents; Professional	-
Lubricants; Professional (Low environmental release)	-
Lubricants; Professional (High environmental release)	-
Metal working fluids/Rolling oils; Professional	-
Use in binder and release agents; Professional	-
Use in agrochemicals; Professional	-
Use in road and construction products; Professional	-
Use in explosives; Professional	-
Use in coatings; Consumer	-
Use in cleaning agents; Consumer	-
Lubricants; Consumer (Low environmental release)	-
Lubricants; Consumer (High environmental release)	-
Use in agrochemicals; Consumer	-

1.3 Details of the supplier of the safety data sheet

Supplier : Kuwait Petroleum Aviation Netherlands B.V.
Schenkkade 50, 2595 AR THE HAGUE
Tel. +31(0)70 315 22 00 / Tel. +44(0)1483737154

e-mail address of person responsible for this SDS : SDSinfo@Q8.com, communication preferably in English only.

PCN Information contact : PCNinfo@Q8.com, communication preferably in English only.

1.4 Emergency telephone number

Netherlands : +31 10 713 8195
Europe : +44 (0) 1235 239 670
Global (English only) : +44 (0) 1865 407 333



National advisory body/Poison Center

Netherlands : Nationaal Vergiftigingen Informatie Centrum, Utrecht +31 (0)88 755 8000
(Only for the purpose of informing medical personnel in cases of acute intoxications.)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

FLAMMABLE LIQUIDS	Category 3	H226
SKIN CORROSION/IRRITATION	Category 2	H315
CARCINOGENICITY	Category 1B	H350
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects)	Category 3	H336
ASPIRATION HAZARD	Category 1	H304
AQUATIC HAZARD (LONG-TERM)	Category 2	H411

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown toxicity : None.

Ingredients of unknown ecotoxicity : None.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 - Flammable liquid and vapor.
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

Prevention : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapor.
P264 - Wash thoroughly after handling.

Response : P391 - Collect spillage.
P308 + P313 - IF exposed or concerned: Get medical advice or attention.
P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P302 + P352 - IF ON SKIN: Wash with plenty of water.

Storage : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients : Kerosine (petroleum), sweetened
Kerosine (petroleum), hydrodesulfurized
Kerosine (petroleum)
Hydrocarbons, C11-C16, n-alkanes, isoalkanes, < 2% aromatics
Renewable hydrocarbons (kerosene type fraction)

Supplemental label elements : Not applicable.

SECTION 2: Hazards identification

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : Hazardous concentrations of hydrogen sulphide (H₂S) gas may accumulate in the vapour space of storage vessels. Standard procedures for opening or entering tanks, vessels or other containers must strictly be followed to avoid inhalation of this acutely toxic gas.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Kerosine (petroleum), sweetened	EC: 294-799-5 CAS: 91770-15-9 Index: 649-427-00-X	≤100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Carc. 1B, H350 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1]
Kerosine (petroleum), hydrodesulfurized	EC: 265-184-9 CAS: 64742-81-0 Index: 649-423-00-8	≤100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Carc. 1B, H350 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1]
Kerosine (petroleum)	EC: 232-366-4 CAS: 8008-20-6 Index: 649-404-00-4	≤100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Carc. 1B, H350 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1]
Hydrocarbons, C11-C16, n-alkanes, isoalkanes, < 2% aromatics	REACH #: 01-2120085325-55 EC: 942-085-5	≤50	Flam. Liq. 3, H226 Asp. Tox. 1, H304 EUH066	-	[1]
Renewable hydrocarbons (kerosene type fraction)	REACH #: 01-2119850115-46 EC: 931-082-4	≤50	Flam. Liq. 3, H226 Asp. Tox. 1, H304 EUH066	-	[1]

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SECTION 3: Composition/information on ingredients

Contains: cumene (Constituent)	EC: 202-704-5 CAS: 98-82-8 Index: 601-024-00-X	<1	Flam. Liq. 3, H226 Carc. 1B, H350 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 See Section 16 for the full text of the H statements declared above.	-	[1] [2]
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If exposure to hydrogen sulphide is suspected or cannot be excluded, obtain medical attention IMMEDIATELY. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness

SECTION 4: First aid measures

- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides
Hydrogen sulphide

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

SECTION 6: Accidental release measures

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not swallow. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Hazardous concentrations of hydrogen sulphide (H₂S) gas may accumulate in the vapour space of storage vessels. Standard procedures for opening or entering tanks, vessels or other containers must strictly be followed to avoid inhalation of this acutely toxic gas.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

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SECTION 7: Handling and storage

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Provide adequate ventilation. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c E2	5000 tonne 200 tonne	50000 tonne 500 tonne

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Contains: cumene (Constituent)	<p>Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). Absorbed through skin.</p> <p>OEL, 8-h TWA: 50 mg/m³ 8 hours. STEL, 15-min: 250 mg/m³ 15 minutes. OEL, 8-h TWA: 10 ppm 8 hours. STEL, 15-min: 50 ppm 15 minutes.</p> <p>EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values</p> <p>TWA: 10 ppm 8 hours. TWA: 50 mg/m³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 250 mg/m³ 15 minutes.</p>

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure	Value	Population	Effects
Renewable hydrocarbons (kerosene type fraction) Contains: cumene (Constituent)	DNEL	Long term Dermal	42 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	147 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	1.2 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	15.4 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	16.6 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	100 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	250 mg/m ³	Workers	Local

PNECs

No PNECs available.

8.2 Exposure controls

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment. Product may release hydrogen sulphide: a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water and unintentional releases should be made to help determine controls appropriate to local circumstances.

Individual protection measures

Hygiene measures

: Do not ingest. If swallowed then seek immediate medical assistance.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Wear suitable gloves tested to EN374. Recommended: < 1 hour (breakthrough time): nitrile rubber 0.17 mm.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

SECTION 8: Exposure controls/personal protection

- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Boiling point > 65 °C: A1; Boiling point < 65 °C: AX1; Hot material: A1P2.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid.
- Appearance** : Clear.
- Color** : Colorless to light yellow.
- Odor** : Characteristic.
- Odor threshold** : Not applicable.
- Melting point/freezing point** : <-45°C (<-49°F) [ASTM D 97]
- Initial boiling point and boiling range** : 150 to 300°C (302 to 572°F) [ASTM D 86]
- Flammability** : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
- Lower and upper explosion limit** : Lower: 0.6%
Upper: 6%
- Flash point** : Closed cup: >38°C (>100.4°F) [ISO 2719]
- Auto-ignition temperature** : >220°C (>428°F)
- Decomposition temperature** : Not available.
- pH** : Not applicable.
- Viscosity** : Dynamic (room temperature): Not applicable.
Kinematic (40°C (104°F)): 1 to 2.5 mm²/s (1 to 2.5 cSt) [ASTM D 445]
- Solubility(ies)** :

Media	Result
cold water	Not soluble
hot water	Not soluble

- Solubility in water** : Not applicable.
- Partition coefficient: n-octanol/ water** : >2
- Vapor pressure** : <0.5 kPa (<3.76 mm Hg)
- Density** : 0.775 to 0.84 g/cm³ [15°C (59°F)] [ASTM D 4052]
- Vapor density** : Not available.
- Explosive properties** : Not applicable.
- Oxidizing properties** : Not applicable.
- Particle characteristics**
- Median particle size** : Not applicable.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

- Explosive properties** : Not applicable.

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SECTION 9: Physical and chemical properties

Oxidizing properties : Not applicable.

9.2.2 Other safety characteristics

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

10.6 Hazardous decomposition products : Decomposition products may include the following materials: sulfur oxides
Hydrogen sulphide

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Kerosine (petroleum), hydrodesulfurized	LD50 Oral	Rat	>5000 mg/kg	-
Kerosine (petroleum) Contains: cumene (Constituent)	LD50 Oral	Rat	15 g/kg	-
	LC50 Inhalation Vapor	Rat	39000 mg/m ³	4 hours
	LD50 Oral	Rat	1400 mg/kg	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Kerosine (petroleum) Contains: cumene (Constituent)	15000 N/A	N/A N/A	N/A N/A	N/A 39	N/A N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Kerosine (petroleum), sweetened	Eyes - Edema of the conjunctivae	Rabbit	0	72 hours	-
	Skin - Edema	Rabbit	0	4 hours	7 days
Kerosine (petroleum), hydrodesulfurized	Eyes - Edema of the conjunctivae	Rabbit	0	72 hours	-
	Skin - Edema	Rabbit	0	4 hours	7 days
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
Kerosine (petroleum)	Eyes - Edema of the conjunctivae	Rabbit	0	72 hours	-
	Skin - Edema	Rabbit	0	4 hours	7 days
	Skin - Moderate irritant	Rabbit	-	0.5 MI	-

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SECTION 11: Toxicological information

Contains: cumene (Constituent)	Skin - Moderate irritant	Rabbit	-	24 hours 100 %	-
	Skin - Severe irritant	Rabbit	-	500 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Mild irritant	Rabbit	-	86 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 10 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 100 mg	-

Conclusion/Summary

Skin : Irritating to skin.
Eyes : Non-irritating to the eyes.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Kerosine (petroleum), sweetened	skin	Guinea pig	Not sensitizing
Kerosine (petroleum), hydrodesulfurized	skin	Guinea pig	Not sensitizing
Kerosine (petroleum)	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : Not sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Kerosine (petroleum), sweetened	-	Experiment: In vitro Subject: Bacteria	Negative
	-	Experiment: In vivo Subject: Mammalian-Animal	Negative
Kerosine (petroleum), hydrodesulfurized	-	Experiment: In vitro Subject: Bacteria	Negative
	-	Experiment: In vivo Subject: Mammalian-Animal	Negative
Kerosine (petroleum)	-	Experiment: In vitro Subject: Bacteria	Negative
	-	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/Summary : No mutagenic effect.

Carcinogenicity

Conclusion/Summary : Carcinogenic.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Kerosine (petroleum), sweetened	Negative	-	Negative	Rat - Male, Female	Dermal: 494 mg/kg	14 days; 7 days per week
Kerosine (petroleum), hydrodesulfurized	Negative	-	Negative	Rat - Male, Female	Dermal: 494 mg/kg	14 days; 7 days per week
Kerosine (petroleum)	Negative	-	Negative	Rat - Male, Female	Dermal: 494 mg/kg	14 days; 7 days per week

Conclusion/Summary : Not considered to be toxic to the reproductive system.

Teratogenicity

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SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Kerosine (petroleum), sweetened	Negative - Oral	Rat	1000 mg/kg	10 days; 7 days per week
Kerosine (petroleum), hydrodesulfurized	Negative - Oral	Rat	1000 mg/kg	10 days; 7 days per week
Kerosine (petroleum)	Negative - Oral	Rat	1000 mg/kg	10 days; 7 days per week

Conclusion/Summary : No teratogenic effect.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Kerosine (petroleum), sweetened	Category 3	-	Narcotic effects
Kerosine (petroleum), hydrodesulfurized	Category 3	-	Narcotic effects
Kerosine (petroleum)	Category 3	-	Narcotic effects
Contains: cumene (Constituent)	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Product/ingredient name	Result
Kerosine (petroleum), sweetened	ASPIRATION HAZARD - Category 1
Kerosine (petroleum), hydrodesulfurized	ASPIRATION HAZARD - Category 1
Kerosine (petroleum)	ASPIRATION HAZARD - Category 1
Hydrocarbons, C11-C16, n-alkanes, isoalkanes, < 2% aromatics	ASPIRATION HAZARD - Category 1
Renewable hydrocarbons (kerosene type fraction)	ASPIRATION HAZARD - Category 1
Contains: cumene (Constituent)	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
irritation
redness

SECTION 11: Toxicological information

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Kerosine (petroleum), sweetened	Sub-acute NOAEL Dermal	Rat - Male, Female	≥0.5 mg/kg	28 days; 5 days per week
	Sub-chronic NOAEL Oral	Rat - Female	750 mg/kg	21 weeks; 7 days per week
	Sub-acute NOAEL Inhalation Vapor	Rat - Male, Female	≥24 mg/m ³	28 days; 5 days per week
Kerosine (petroleum), hydrodesulfurized	Sub-acute NOAEL Dermal	Rat - Male, Female	≥0.5 mg/kg	28 days; 5 days per week
	Sub-chronic NOAEL Oral	Rat - Female	750 mg/kg	21 weeks; 7 days per week
	Sub-acute NOAEL Inhalation Vapor	Rat - Male, Female	≥24 mg/m ³	28 days; 5 days per week
Kerosine (petroleum)	Sub-acute NOAEL Dermal	Rat - Male, Female	≥0.5 mg/kg	28 days; 5 days per week
	Sub-chronic NOAEL Oral	Rat - Female	750 mg/kg	21 weeks; 7 days per week
	Sub-acute NOAEL Inhalation Vapor	Rat - Male, Female	≥24 mg/m ³	28 days; 5 days per week

Conclusion/Summary : Based on available data, the classification criteria are not met.

General : No known significant effects or critical hazards.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not applicable.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Aviation Fuel Jet A-1

SECTION 12: Ecological information

Product/ingredient name	Result	Species	Exposure
Kerosine (petroleum), sweetened	Acute EC50 1 to 3 mg/l Fresh water	Algae	72 hours
	Acute EC50 1.4 mg/l Fresh water	Daphnia	48 hours
Kerosine (petroleum), hydrodesulfurized	Acute LC50 2 to 5 mg/l Fresh water	Fish	96 hours
	Acute EC50 1 to 3 mg/l Fresh water	Algae	72 hours
Kerosine (petroleum)	Acute EC50 1.4 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 2 to 5 mg/l Fresh water	Fish	96 hours
Contains: cumene (Constituent)	Acute EC50 1 to 3 mg/l Fresh water	Algae	72 hours
	Acute EC50 1.4 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 2 to 5 mg/l Fresh water	Fish	96 hours
	Acute EC50 7.4 mg/l Marine water	Crustaceans - <i>Artemia sp.</i> - Nauplii	48 hours
	Acute EC50 10.6 mg/l Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	48 hours
	Acute LC50 2700 µg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Kerosine (petroleum), sweetened	301F Ready Biodegradability - Manometric Respirometry Test	58.6 % - Inherent - 28 days	-	-
Kerosine (petroleum), hydrodesulfurized	301F Ready Biodegradability - Manometric Respirometry Test	58.6 % - Inherent - 28 days	-	-
Kerosine (petroleum)	301F Ready Biodegradability - Manometric Respirometry Test	58.6 % - Inherent - 28 days	-	-

Conclusion/Summary : This product is inherently biodegradable.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Aviation Fuel Jet A-1	-	-	Inherent
Kerosine (petroleum), sweetened	-	-	Inherent
Kerosine (petroleum), hydrodesulfurized	-	-	Inherent
Kerosine (petroleum)	-	-	Inherent

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Aviation Fuel Jet A-1	>2	-	Low
Kerosine (petroleum), sweetened	3 to 6	-	High
Kerosine (petroleum), hydrodesulfurized	3 to 6	-	High
Kerosine (petroleum)	3 to 6	-	High
Contains: cumene (Constituent)	3.55	35.48	Low

Aviation Fuel Jet A-1

SECTION 12: Ecological information

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
13 07 01*	fuel oil and diesel

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.





Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN1863	UN1863	UN1863	UN1863
14.2 UN proper shipping name	FUEL, AVIATION, TURBINE ENGINE	FUEL, AVIATION, TURBINE ENGINE	FUEL, AVIATION, TURBINE ENGINE	Fuel, aviation, turbine engine

Aviation Fuel Jet A-1

SECTION 14: Transport information

14.3 Transport hazard class(es)	3 	3 	3 	3 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID

: The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Hazard identification number 30

Limited quantity 5 L

Special provisions 664

Tunnel code (D/E)

ADN

: The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IMDG

: The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Emergency schedules F-E, S-E

Special provisions 223

IATA

: The environmentally hazardous substance mark may appear if required by other transportation regulations.

Quantity limitation Passenger and Cargo Aircraft: 60 L. Packaging instructions: 355. Cargo Aircraft Only: 220 L. Packaging instructions: 366. Limited Quantities - Passenger Aircraft: 10 L. Packaging instructions: Y344.

Special provisions A3

14.6 Special precautions for user

: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments

: Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Aviation Fuel Jet A-1

SECTION 15: Regulatory information

Product/ingredient name	%	Designation [Usage]
Aviation Fuel Jet A-1	≥90	3 28
Kerosine (petroleum), sweetened	≤100	28
Kerosine (petroleum), hydrodesulfurized	≤100	28
Kerosine (petroleum)	≤100	28
Contains: cumene (Constituent)	<1	28

Labeling : Restricted to professional users.

Other EU regulations

Industrial emissions : Not listed

(integrated pollution prevention and control) - Air

Industrial emissions : Not listed

(integrated pollution prevention and control) - Water

Explosive precursors : Not applicable.

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P5c E2

National regulations

Germany

Hazard class for water (WGK) : 2

Netherlands

Ministry of Social Affairs and Employment (SZW) - Carcinogenic substances and processes, mutagenic or reprotoxic substances

Ingredient name	Carcinogen	Mutagen	Reproductive toxicity - Fertility	Reproductive toxicity - Development	Harmful via breastfeeding
complexe derivatives of oil and charcoal	Listed	-	-	-	-
complexe derivatives of oil and charcoal	Listed	-	-	-	-
cumeen	Listed	-	-	-	-

Water Discharge Policy (ABM) : Z(1) Non biodegradable substances with hazardous properties for humans and the environment (carcinogenicity/ mutagenicity/ reprotoxicity/ bioacumulative potential/ toxicity or persistence). Decontamination effort: Z

Switzerland

VOC content : VOC (w/w): 100%

SECTION 15: Regulatory information

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Eurasian Economic Union	: Russian Federation inventory : All components are listed or exempted.
Japan	: Japan inventory (CSCL) : Not determined. Japan inventory (ISHL) : Not determined.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: Not determined.
Thailand	: Not determined.
Turkey	: Not determined.
United States of America	: Not determined.
Viet Nam	: Not determined.

15.2 Chemical Safety Assessment : Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

🔍 Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ASTM = American Society for Testing and Materials
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DIN = German Institute for Standardization
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EC = European Commission
EC50 = Half maximal effective concentration
EN = European Standard (Norm)
EUH statement = CLP-specific Hazard statement
GHS - Globally Harmonized System of Classification and Labeling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container

SECTION 16: Other information

IC50 = Half maximal inhibitory concentration
 IMDG = International Maritime Dangerous Goods
 IMO = International Maritime Organisation
 ISO = International Organization for Standardization
 LC50 = Median lethal concentration
 LD50 = Median lethal dose
 LOAEL / LOAEC = Lowest Observed Adverse Effect Level / Concentration
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available
 NOAEL / NOAEC = No Observed Adverse Effect Level / Concentration
 NOEL / NOEC = No Observed Effect Level / Concentration
 OECD = Organisation for Economic Co-operation and Development
 OEL = Occupational Exposure Limit
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
 SDS = Safety Data Sheet
 SVHC = Substances of Very High Concern
 STEL = Short Term Exposure Limit
 TLV = Threshold Limit Value
 TWA = Time Weighted Average
 UFI = Unique Formula Identifier
 UN = United Nations
 VOC = Volatile Organic Compound
 vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 3, H226 Skin Irrit. 2, H315 Carc. 1B, H350 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements

H226	Flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM) - Category 2
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 1B	CARCINOGENICITY - Category 1B
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

Training advice : Ensure operatives are trained to minimise exposures.

Date of printing : 06-12-2023

Date of issue/ Date of revision : 06-12-2023

Date of previous issue : 21-03-2023

Aviation Fuel Jet A-1

SECTION 16: Other information

Version : 2

Prepared by : Kuwait Petroleum Research & Technology B.V., The Netherlands

Notice to reader

The information in this SDS is based on the present state of our knowledge and on current laws. The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions. It is always the responsibility of the user to take all necessary steps to fulfill the demands set out in the local rules and legislation. The information in this SDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Product name : Aviation Fuel Jet A-1

Section 1 - Title

Short title of the exposure scenario : Formulation and (re)packing of substances and mixtures; Industrial (Lead substance EC: 265-184-9)
List of use descriptors : **Identified use name:** Formulation and (re)packing of substances and mixtures; Industrial
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC09, PROC15, PROC28
Substance supplied to that use in form of: As such
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02, ESVOC SPERC 2.2.v1
Article category related to subsequent service life: Not applicable.

Processes and activities covered by the exposure scenario	: 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.
Additional information	: See section 3.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1:	
Product characteristics	: Substance is complex UVCB.. Predominantly hydrophobic
Amounts used	: Fraction of EU tonnage used in region: 1.0 Regional use tonnage (tonnes/year): 6.2E+07 Fraction of regional tonnage used locally: 4.9E-04 Annual site tonnage (tonnes/year): 3.0E+04 Maximum daily site tonnage (kg/day): 1.0E+02
Frequency and duration of use	: Continuous release Emission days (days per year): 300
Environment factors not influenced by risk management	: Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other conditions affecting environmental exposure	: Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): 1.0E+00 Release fraction to wastewater from process (initial release prior to RMM): 2.0E-02 Release fraction to soil from process (initial release prior to RMM): 0.01
Technical conditions and measures at process level (source) to prevent release	: Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%): 0.0E+00 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%): 98.3 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of >= (%): 98.3

Aviation Fuel Jet A-1

Organizational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Not applicable as there is no release to wastewater. Estimated substance removal from wastewater via municipal sewage treatment (%): 0.0 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%): 0.0 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d): 1.0E+05 Assumed municipal sewage treatment plant flow: (m ³ /d): 2.0E+03
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2:

General measures (carcinogens): Consider technical advances and process upgrades (including automation) for the elimination of releases.

Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation.

Drain down systems and clear transfer lines prior to breaking containment.

Clean/flush equipment, where possible, prior to maintenance.

Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and dispose of wastes safely.

Ensure safe systems of work or equivalent arrangements are in place to manage risks.

Regularly inspect, test and maintain all control measures.

Consider the need for risk-based health surveillance.

General measures (skin irritants): Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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. For further specification, refer to section 8 of the SDS.

General measures (flammability): For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.

General measures (aspiration): Do not ingest. If swallowed then seek immediate medical assistance.

General measures applicable to all activities (PROC_1, PROC_9, PROC_28, PROC_15, PROC_8b, PROC_8a, PROC_2, PROC_3): Covers indoor and outdoor use. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %. (unless stated differently)

Physical state : Liquid

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

Other conditions affecting workers exposure : Store substance within a closed system.
Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1:

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human): : Not available.

Exposure estimation and reference to its source : Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>: 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.</p> <p>Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p> <p>Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.</p> <p>Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).</p> <p>Maximum Risk Characterization Ratios for air emissions (RCR_{air}): 9.6E-04</p> <p>Maximum Risk Characterization Ratios for waste water emissions (RCR_{water}): 2.4E-01</p>
Health	<p>: Risk management measures are based on qualitative risk characterisation.</p> <p>Available hazard data do not enable the derivation of a DNEL for aspiration effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p>

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Product name : Aviation Fuel Jet A-1

Section 1 - Title

Short title of the exposure scenario : Use in fuel; Industrial (Lead substance EC: 265-184-9)
List of use descriptors : **Identified use name:** Use in fuel; Industrial
Process Category: PROC01, PROC02, PROC08a, PROC08b, PROC16, PROC28
Substance supplied to that use in form of: As such
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07, ESVOC SPERC 7.12a.v1
Article category related to subsequent service life: Not applicable.

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Additional information : See section 3.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1:

Product characteristics : Substance is complex UVCB.. Predominantly hydrophobic
Amounts used : Fraction of EU tonnage used in region: 1.0
Regional use tonnage (tonnes/year): 3.8E+06
Fraction of regional tonnage used locally: 3.9E-01
Annual site tonnage (tonnes/year): 1.5E+06
Maximum daily site tonnage (kg/day): 5.0E+03
Frequency and duration of use : Continuous release
Emission days (days per year): 300
Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Other conditions affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 5.0E-01
Release fraction to wastewater from process (initial release prior to RMM): 1.0E-03
Release fraction to soil from process (initial release prior to RMM): 0
Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Risk from environmental exposure is driven by freshwater.
No wastewater treatment required.
Treat air emission to provide a typical removal efficiency of (%): 7.9E+01
Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%): 99.3
If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of >= (%): 99.3
Organizational measures to prevent/limit release from site : Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Aviation Fuel Jet A-1

Conditions and measures related to sewage treatment plant	: Not applicable as there is no release to wastewater. Estimated substance removal from wastewater via municipal sewage treatment (%): 0.0 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%): 0.0 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d): 5.5E+06 Assumed municipal sewage treatment plant flow: (m ³ /d): 2.0E+03
Conditions and measures related to external treatment of waste for disposal	: Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2:

General measures (carcinogens): Consider technical advances and process upgrades (including automation) for the elimination of releases.

Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation.

Drain down systems and clear transfer lines prior to breaking containment.

Clean/flush equipment, where possible, prior to maintenance.

Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and dispose of wastes safely.

Ensure safe systems of work or equivalent arrangements are in place to manage risks.

Regularly inspect, test and maintain all control measures.

Consider the need for risk-based health surveillance.

General measures (skin irritants): Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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. For further specification, refer to section 8 of the SDS.

General measures (flammability): For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.

General measures (aspiration): Do not ingest. If swallowed then seek immediate medical assistance.

General measures applicable to all activities (PROC_1, PROC_28, PROC_8b, PROC_8a, PROC_2): Covers indoor and outdoor use. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %. (unless stated differently)

Physical state : Liquid

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

Other conditions affecting workers exposure : Store substance within a closed system.
Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1:

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human): : Not available.

Exposure estimation and reference to its source : Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>: 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.</p> <p>Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p> <p>Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.</p> <p>Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).</p> <p>Maximum Risk Characterization Ratios for air emissions (RCR_{air}): 2.0E-04</p> <p>Maximum Risk Characterization Ratios for waste water emissions (RCR_{water}): 1.6E-02</p>
Health	<p>: Risk management measures are based on qualitative risk characterisation.</p> <p>Available hazard data do not enable the derivation of a DNEL for aspiration effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p>

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture
Product name : Aviation Fuel Jet A-1

Section 1 - Title

Short title of the exposure scenario : Use of Kerosine as a Fuel - Professional (Lead substance EC: 265-184-9)
List of use descriptors : **Identified use name:** Use in fuel; Professional
Process Category: PROC01, PROC02, PROC08a, PROC08b, PROC16, PROC28
Substance supplied to that use in form of: As such
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b, ESVOC SPERC 9.12b.v1
Article category related to subsequent service life: Not applicable.

Processes and activities covered by the exposure scenario	: Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Additional information	: See section 3.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1:	
Product characteristics	: Substance is complex UVCB.. Predominantly hydrophobic
Amounts used	: Fraction of EU tonnage used in region: 0.1 Regional use tonnage (tonnes/year): 1.4E+06 Fraction of regional tonnage used locally: 5.0E-04 Annual site tonnage (tonnes/year): 6.9E+02 Maximum daily site tonnage (kg/day): 1.9E+00
Frequency and duration of use	: Continuous release Emission days (days per year): 365
Environment factors not influenced by risk management	: Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other conditions affecting environmental exposure	: Release fraction to air from wide dispersive use (regional only): 5.0E-01 Release fraction to wastewater from wide dispersive use: 1.0E-04 Release fraction to soil from wide dispersive use (regional only): 0.025
Technical conditions and measures at process level (source) to prevent release	: Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%): 0.0E+00 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%): 0.0 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of >= (%): 0.0
Organizational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Aviation Fuel Jet A-1

Conditions and measures related to sewage treatment plant	: Not applicable as there is no release to wastewater. Estimated substance removal from wastewater via municipal sewage treatment (%): 95.6 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%): 95.6 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d): $5.7E+04$ Assumed municipal sewage treatment plant flow: (m^3/d): $2.0E+03$
Conditions and measures related to external treatment of waste for disposal	: Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2:

General measures (carcinogens): Consider technical advances and process upgrades (including automation) for the elimination of releases.

Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation.

Drain down systems and clear transfer lines prior to breaking containment.

Clean/flush equipment, where possible, prior to maintenance.

Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and dispose of wastes safely.

Ensure safe systems of work or equivalent arrangements are in place to manage risks.

Regularly inspect, test and maintain all control measures.

Consider the need for risk-based health surveillance.

General measures (skin irritants): Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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. For further specification, refer to section 8 of the SDS.

General measures (flammability): For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.

General measures (aspiration): Do not ingest. If swallowed then seek immediate medical assistance.

General measures applicable to all activities (PROC_1, PROC_28, PROC_8b, PROC_8a, PROC2): Covers indoor and outdoor use. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %. (unless stated differently)

Physical state : Liquid

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

Other conditions affecting workers exposure : Store substance within a closed system.
Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1:

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human): : Not available.

Exposure estimation and reference to its source : Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>: 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.</p> <p>Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p> <p>Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.</p> <p>Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).</p> <p>Maximum Risk Characterization Ratios for air emissions (RCR_{air}): 7.2E-04</p> <p>Maximum Risk Characterization Ratios for waste water emissions (RCR_{water}): 1.0E-02</p>
Health	<p>: Risk management measures are based on qualitative risk characterisation.</p> <p>Available hazard data do not enable the derivation of a DNEL for aspiration effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p>