SAFETY DATA SHEET

ExxonMobil

AVIATION TURBINE FUEL

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

1.1 Product identifier

Product name : AVIATION TURBINE FUEL

UFI : P15P-823C-8001-5YWX

Product description : Hydrocarbons and Additives

Other means of identification : JET A-1 WITH FSII

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

Intended Use : Aviation fuel

Identified uses
Manufacture of substance
Use as a fuel - Industrial
Functional fluids - Industrial
Use as an intermediate
Formulation and (re)packing of substances and mixtures
Use in coatings - Industrial
Use in cleaning agents - Industrial
Lubricants - Industrial
Metal working fluids / Rolling oils - Industrial
Use in binder and release agents - Industrial
Use in coatings - Professional
Use in coatings - Consumer
Use in cleaning agents - Professional
Lubricants - Professional (Low release)
Lubricants - Professional (high release)
Metal working fluids / Rolling oils - Professional
Use in binder and release agents - Professional
Use in cleaning agents - Consumer
Use as a fuel - Professional
Use in road and construction products
Lubricants - Consumer (Low release)
Lubricants - Consumer (high release)
Use as a fuel - Consumer
Distribution of substance
Manufacture and use of slurry explosives

Uses advised against

Not applicable.

1.3 Details of the supplier of the safety data sheet

Supplier : Esso Petroleum Company Ltd.
Ermyn Way
Ermyn House
KT22 8UX LEATHERHEAD, SURREY
Great Britain

Supplier General Contact : (UK) (+44) (0) 1372 222 000

e-mail address of person responsible for this SDS : SDS-DS@exxonmobil.com

SDS Internet Address : www.sds.exxonmobil.com

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

1.4 Emergency telephone number

National advisory body/ Poison Centre : (UK) 111

24 Hour Emergency Telephone : +44 20 3807 3798 / +1-703-527-3887 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to UK CLP/GHS

Flam. Liq. 3, H226
Skin Irrit. 2, H315
Carc. 1B, H350
STOT SE 3, H336
Asp. Tox. 1, H304
Aquatic Chronic 2, H411

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

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 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

Prevention :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P261 - Avoid breathing vapour.
P264 - Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.

Response :
P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P312, P340 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Remove person to fresh air and keep comfortable for breathing.
P308 + P313 - IF exposed or concerned: Get medical advice or attention.

SECTION 2: Hazards identification

P332 + P313 - If skin irritation occurs: Get medical advice/attention.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
P391 - Collect spillage.

Storage : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 - Keep cool.
P405 - Store locked up.

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

Hazardous ingredients : kerosine (petroleum) and cumene

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : 54, 3

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 : None known.

Nota : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
kerosine (petroleum)	EC: 232-366-4 CAS: 8008-20-6	>99	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Carc. 1B, H350 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1] [2]
naphthalene	REACH #: 01-2119561346-37 EC: 202-049-5 CAS: 91-20-3	<1	Flam. Sol. 2, H228 Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1] [2]
cumene	EC: 202-704-5 CAS: 98-82-8	≤0.4	Flam. Liq. 3, H226 Carc. 1B, H350 STOT SE 3, H335	[1] [2]

SECTION 3: Composition/information on ingredients

2-(2-methoxyethoxy)ethanol	REACH #: 01-2119475100-52 EC: 203-906-6 CAS: 111-77-3	≥0.1 - ≤1	Asp. Tox. 1, H304 Aquatic Chronic 2, H411 Repr. 1B, H360D **See Section 16 for the full text of the H statements declared above.**	[1] [2]

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 physical, 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 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 clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Get medical attention.

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.

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 : If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

Specific treatments : No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical : Flammable liquid and vapour. 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 : Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, sulfur oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

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.

SECTION 6: Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

6.1 Personal precautions, protective equipment and emergency procedures

SECTION 6: Accidental release measures

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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

For emergency responders : If specialised 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 spilt 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 material 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. Eliminate all ignition sources. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. Seek the advice of a specialist before using dispersants. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

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 vapour 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.

SECTION 7: Handling and storage

Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container. It is dangerous and/or unlawful to put petrol into unapproved containers. Do not fill container while it is in or on a vehicle. Static electricity may ignite vapour and cause fire. Place container on ground when filling and keep nozzle in contact with container. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers or other electronic devices, etc.) during safety critical tasks, such as bulk fuel loading or unloading operations, or in storage areas where vapours may be present, unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. For use as a motor fuel only. Do not siphon by mouth.

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.

Static Accumulator : This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

7.2 Conditions for safe storage, including any incompatibilities

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 oxidising 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. 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

8.1 Control parameters

Occupational exposure limits

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Exposure limit values
AVIATION TURBINE FUEL	**ExxonMobil (Company).** TWA: 100 ppm 8 hours. Form: Vapour and aerosol. TWA: 500 mg/m³ 8 hours. Form: Vapour and aerosol.
kerosine (petroleum)	**ACGIH TLV (United States, 1/2023). [Kerosene] Absorbed through skin.** TWA: 200 mg/m³, (as total hydrocarbon vapor) 8 hours. **ExxonMobil (Company). Absorbed through skin.** TWA: 5 mg/m³ 8 hours. Form: Stable Aerosol. TWA: 200 mg/m³ 8 hours. Form: Vapour.
naphthalene	**EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values** TWA: 10 ppm 8 hours. TWA: 50 mg/m³ 8 hours. **ACGIH TLV (United States, 1/2023). Absorbed through skin.** TWA: 10 ppm 8 hours. TWA: 52 mg/m³ 8 hours.
cumene	**EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.** STEL: 250 mg/m³ 15 minutes. STEL: 50 ppm 15 minutes. TWA: 25 ppm 8 hours. TWA: 125 mg/m³ 8 hours. **EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values** TWA: 10 ppm 8 hours. TWA: 50 mg/m³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 250 mg/m³ 15 minutes. **ACGIH TLV (United States, 1/2023).** TWA: 5 ppm 8 hours. **ExxonMobil (Company). Absorbed through skin.** TWA: 5 ppm 8 hours.
2-(2-methoxyethoxy)ethanol	**EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.** TWA: 10 ppm 8 hours. TWA: 50.1 mg/m³ 8 hours. **EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values** TWA: 50.1 mg/m³ 8 hours. TWA: 10 ppm 8 hours.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

Biological exposure indices

Product/ingredient name	Exposure indices
naphthalene	**EH40/2005 BMGVs (United Kingdom (UK), 8/2018) [Polycyclic aromatic hydrocarbons]** BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
kerosine (petroleum)	DNEL	Long term Oral	19 mg/kg bw/day	General population	Systemic

PNECs

SECTION 8: Exposure controls/personal protection

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, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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. > 8 hours (breakthrough time): Nitrile, minimum 0.38 mm thickness or comparable protective barrier material

CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.

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.

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.

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: organic vapour (Type A) and particulate filter

European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.

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 and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

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. [Clear]
Colour	:	Colourless
Odour	:	Petroleum/Solvent
Odour threshold	:	Not available.
pH	:	Not applicable.
Melting point/freezing point	:	Not available.
Boiling point, initial boiling point, and boiling range	:	>93°C (>199.4°F)
Flash point	:	Closed cup: >38°C (>100.4°F) [ASTM D-93]
Evaporation rate	:	Not available.
Flammability	:	Flammable liquids - Category 3
Lower and upper explosive (flammable) limits	:	Lower: 0.7% Upper: 5%
Vapour pressure	:	<1 mm Hg [20 °C] [EN 13016-1]
Relative vapour density	:	Not available.
Relative density	:	0.795
Density	:	0.75 to 0.86 g/cm³ [15°C (59°F)]
Solubility in water	:	Negligible
Partition coefficient: n-octanol/water	:	>3.5
Auto-ignition temperature	:	250°C (482°F)
Decomposition temperature	:	Not available.
Viscosity	:	1.1 cSt [40 °C]
Particle characteristics		
Median particle size	:	Not applicable.
Pour point	:	-47°C

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 pressurise, 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:,oxidising materials,Halogens, strong acids, Alkalies, Strong oxidisers

SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Species	Result	Duration
AVIATION TURBINE FUEL	LC50 Inhalation Vapour	Rat	>5000 mg/m³	4 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
naphthalene	LC50 Inhalation Vapour	Rat	>0.4 mg/l	4 hours
	LD50 Oral	Mouse	533 mg/kg	-

Conclusion/Summary

Inhalation : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403

Dermal : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 402

Oral : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 420

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
naphthalene	500	N/A	N/A	N/A	N/A

Irritation/Corrosion

Conclusion/Summary

Skin : Irritating to the skin. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 404

Eyes : May cause mild, short-lasting discomfort to eyes. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405

Respiratory : Negligible hazard at ambient/normal handling temperatures. No end point data for material. Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.

Sensitisation

Conclusion/Summary

Skin : Not expected to be a skin sensitizer. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406

Respiratory : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Conclusion/Summary : Not expected to be a germ cell mutagen. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 475 476 478 479

Carcinogenicity

Conclusion/Summary : May cause cancer. No end point data for material. Based on assessment of the components.

Reproductive toxicity

Conclusion/Summary : Not expected to be a reproductive toxicant. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 414 421

Specific target organ toxicity (single exposure)

Not available.

Conclusion/Summary : May cause drowsiness or dizziness. No end point data for material.

SECTION 11: Toxicological information

Specific target organ toxicity (repeated exposure)

Not available.

Conclusion/Summary : Not expected to cause organ damage from prolonged or repeated exposure. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 410 412

Aspiration hazard

AVIATION TURBINE FUEL — Category 1

Conclusion/Summary : May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material. Data available.

Information on likely routes of exposure : Not available.

Other information

Contains : NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain. Kerosene: Carcinogenic in animal tests. Lifetime skin painting tests produced tumours, but the mechanism is due to repeated cycles of skin damage and restorative hyperplasia. This mechanism is considered unlikely in humans where such prolonged skin irritation would not be tolerated. Did not cause mutations in-vitro. Inhalation of vapours did not result in reproductive or developmental effects in laboratory animals. Inhalation of high concentrations in animals resulted in respiratory tract irritation, lung changes and some reduction in lung function. Non-sensitizing in animal tests. ETHYLBENZENE: Caused cancer in laboratory animal studies. The relevance of these findings to humans is uncertain.

Product : Repeated co-exposure to monoaromatic hydrocarbons contained in this product in excess of recognized occupational exposure limits and noise levels in excess of 85 dB(A) may increase the risk of hearing impairment. Vapour/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, may cause headaches, dizziness, anaesthesia, drowsiness, unconsciousness and other central nervous system effects including death. Jet fuel: Some jet fuels have potential in mice to suppress indicators of immune system functionality. The relevance of these effects to humans is uncertain. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
PD JET A-1 WITH FSII (EU)	Acute EL50 1 to 100 mg/l data for similar materials	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EL50 1 to 100 mg/l data for similar materials	daphnia - Daphnia magna	48 hours
	Acute LL50 1 to 100 mg/l data for similar materials	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEL 1 to 10 mg/l data for similar materials	Algae - Pseudokirchneriella subcapitata	72 hours
	Chronic NOEL 0.48 mg/l data for similar materials	daphnia - Daphnia magna	21 days

Conclusion/Summary

Acute toxicity : Toxic to aquatic life.

Chronic toxicity : Toxic to aquatic life with long lasting effects.

Section 12. Ecological information

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
PD JET A-1 WITH FSII (EU)	Ready Biodegradability	<60 % - 28 days	data for similar materials	water

Biodegradability : Material -- Expected to be inherently biodegradable

Atmospheric Oxidation : Majority of components -- Expected to degrade rapidly in air

12.3 Bioaccumulative potential

Conclusion/Summary : Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

12.4 Mobility in soil

Mobility : Majority of components -- Highly volatile, will partition rapidly to air. Low potential to migrate through soil. Not expected to partition to sediment and wastewater solids.

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 Other adverse effects

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 minimised 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.

Waste catalogue

Waste code	Waste designation
13 07 03*	other fuels (including mixtures)

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

Packaging

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

Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 13: Disposal considerations

Special precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN 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
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.

F, N2

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

Flash point >38 °C C.C.

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.

SECTION 14: Transport information

14.7 Transport in bulk according to IMO instruments : Not applicable.

SECTION 15: Regulatory information

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

UK (GB)/REACH

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Annex	Ingredient name	Status
Annex III	Polycyclic aromatic hydrocarbons	Listed

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : 54, 3

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P5c E2

EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Not listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

Inventory list

Australia inventory (AIIC) : All components are listed or exempted.

Canada inventory (DSL-NDSL) : All components are listed or exempted.

China inventory (IECSC) : All components are listed or exempted.

Japan inventory (CSCL) : All components are listed or exempted.

Japan inventory (Industrial Safety and Health Act) : All components are listed or exempted.

New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.

SECTION 15: Regulatory information

Philippines inventory (PICCS) : All components are listed or exempted.

Korea inventory (KECI) : All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI) : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are active or exempted.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = GB CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification

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

Full text of abbreviated H statements

H226	Flammable liquid and vapour.
H228	Flammable solid.
H302	Harmful if swallowed.
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.
H351	Suspected of causing cancer.
H360D	May damage the unborn child.
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.

Full text of classifications

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 1B	CARCINOGENICITY - Category 1B
Carc. 2	CARCINOGENICITY - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Flam. Sol. 2	FLAMMABLE SOLIDS - Category 2
Repr. 1B	REPRODUCTIVE TOXICITY - Category 1B

SECTION 16: Other information

Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

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Product code : 1145731

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Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Manufacture of substance
List of use descriptors	:	**Identified use name:** Manufacture of substance **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 **Sector of end use:** SU03, SU08, SU09, SU10 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC01
Environmental contributing scenarios	:	**General exposures -** ERC01
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Processes and activities covered by the exposure scenario	:	Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (ncluding marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 600 000 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.094 Maximum daily site tonnage (kg/day): 2 000 000 kg/day Regional use tonnage (tonnes/year): 6 400 000 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 300 days per year
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): 0.01 Release fraction to soil from process (initial release prior to RMM): 0.0001 Release fraction to wastewater from process (initial release prior to RMM): 0.0003
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	:	If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 92.6 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 90 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 99.6 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 10 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 2 000 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 99.6 %
Conditions and measures related to external treatment of waste for disposal	:	During manufacturing, no waste of the substance is generated.
Conditions and measures related to external recovery of waste	:	During manufacturing, no waste of the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	No exposure assessment presented for human health. Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 1.1.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use as a fuel - Industrial
List of use descriptors	:	**Identified use name:** Use as a fuel - Industrial **Process Category:** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16 **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC07
Environmental contributing scenarios	:	**General exposures -** ERC07
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
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.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 1 500 000 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.96 Maximum daily site tonnage (kg/day): 5 000 000 kg/day Regional use tonnage (tonnes/year): 1 600 000 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 300 days per year
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): 0.005 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.00001
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	:	No secondary wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 82.3 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 95 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 99.1 %
Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 5 000 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 99.1 %
Conditions and measures related to external treatment of waste for disposal	:	Combustion emissions considered in regional exposure assessment. Combustion emissions limited by required exhaust emission controls. 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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 7.12a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Functional fluids - Industrial
List of use descriptors	:	**Identified use name:** Functional fluids - Industrial **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09 **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC07
Environmental contributing scenarios	:	**General exposures -** ERC07
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09
Processes and activities covered by the exposure scenario	:	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 10 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.094 Maximum daily site tonnage (kg/day): 500 kg/day Regional use tonnage (tonnes/year): 110 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 20 days per year
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): 0.005 Release fraction to soil from process (initial release prior to RMM): 0.001 Release fraction to wastewater from process (initial release prior to RMM): 0.00003
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 0 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=22.4 %

Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 7 700 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 7.13a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use as an intermediate
List of use descriptors	:	**Identified use name:** Use as an intermediate **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 **Sector of end use:** SU03, SU08, SU09 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC06a
Environmental contributing scenarios	:	**General measures applicable to all activities -** ERC06a
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Processes and activities covered by the exposure scenario	:	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General measures applicable to all activities

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 15 000 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0078 Maximum daily site tonnage (kg/day): 50 000 kg/day Regional use tonnage (tonnes/year): 1 900 000 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 300 days per year
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): 0.001 Release fraction to soil from process (initial release prior to RMM): 0.001 Release fraction to wastewater from process (initial release prior to RMM): 0.0003
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	:	No secondary wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 41.1 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 80 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 97 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 50 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 97 %
Conditions and measures related to external treatment of waste for disposal	:	This substance is consumed during use and no waste from the substance is generated.
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature) No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General measures applicable to all activities

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 6.1a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Formulation and (re)packing of substances and mixtures
List of use descriptors	:	**Identified use name:** Formulation and (re)packing of substances and mixtures **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15 **Sector of end use:** SU10, SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC02
Environmental contributing scenarios	:	**General exposures -** ERC02
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15
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, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 30 000 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0044 Maximum daily site tonnage (kg/day): 100 000 kg/day Regional use tonnage (tonnes/year): 6 800 000 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 300 days per year
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): 0.01 Release fraction to soil from process (initial release prior to RMM): 0.0001 Release fraction to wastewater from process (initial release prior to RMM): 0.0002
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	:	If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 55.8 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 0 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 97.8 %

Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 100 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 97.8 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

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: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use in coatings - Industrial
List of use descriptors	:	**Identified use name:** Use in coatings - Industrial **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC15 **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC04
Environmental contributing scenarios	:	**General exposures -** ERC04
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC15
Processes and activities covered by the exposure scenario	:	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 500 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 1 Maximum daily site tonnage (kg/day): 25 000 kg/day Regional use tonnage (tonnes/year): 500 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 20 days per year
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): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.0007
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 49.7 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 90 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 97.5 %

Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 25 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 97.5 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.3a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use in cleaning agents - Industrial
List of use descriptors	:	**Identified use name:** Use in cleaning agents - Industrial **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC10, PROC13 **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC04
Environmental contributing scenarios	:	**General exposures -** ERC04
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC10, PROC13
Processes and activities covered by the exposure scenario	:	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 100 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.097 Maximum daily site tonnage (kg/day): 5 000 kg/day Regional use tonnage (tonnes/year): 1 000 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 20 days per year
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): 1 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.000003
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 0 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 70 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 22.4 %

Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 77 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.4a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Lubricants - Industrial
List of use descriptors	:	**Identified use name:** Lubricants - Industrial **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18 **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC04, ERC07
Environmental contributing scenarios	:	**General exposures -** ERC04, ERC07
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18
Processes and activities covered by the exposure scenario	:	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 550 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 1 Maximum daily site tonnage (kg/day): 2 700 kg/day Regional use tonnage (tonnes/year): 550 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 20 days per year
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): 0.005 Release fraction to soil from process (initial release prior to RMM): 0.001 Release fraction to wastewater from process (initial release prior to RMM): 0.00003
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 70 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=29.2 %

Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 38 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.6a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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. Not applicable for wide dispersive uses. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Metal working fluids / Rolling oils - Industrial
List of use descriptors	:	**Identified use name:** Metal working fluids / Rolling oils - Industrial **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17 **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC04
Environmental contributing scenarios	:	**General exposures -** ERC04
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17
Processes and activities covered by the exposure scenario	:	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 27 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 1 Maximum daily site tonnage (kg/day): 1 400 kg/day Regional use tonnage (tonnes/year): 27 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 20 days per year
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): 0.02 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.00003
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 0 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 70 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 25.1 %

Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 20 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.7a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use in binder and release agents - Industrial
List of use descriptors	:	**Identified use name:** Use in binder and release agents - Industrial **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC06, PROC07, PROC08b, PROC10, PROC13, PROC14 **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC04
Environmental contributing scenarios	:	**General measures applicable to all activities -** ERC04
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC06, PROC07, PROC08b, PROC10, PROC13, PROC14
Processes and activities covered by the exposure scenario	:	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General measures applicable to all activities

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 51 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 1 Maximum daily site tonnage (kg/day): 2 600 kg/day Regional use tonnage (tonnes/year): 51 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 20 days per year
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): 1 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.000003
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 80 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=21.5 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 40 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General measures applicable to all activities

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.10a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use in coatings - Professional
List of use descriptors	:	**Identified use name:** Use in coatings - Professional **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC15, PROC19 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC08a, ERC08d
Environmental contributing scenarios	:	**General exposures -** ERC08a, ERC08d
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC15, PROC19
Processes and activities covered by the exposure scenario	:	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.07 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.2 kg/day Regional use tonnage (tonnes/year): 140 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.98 Release fraction to soil from wide dispersive use (regional only): 0.01 Release fraction to wastewater from wide dispersive use: 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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 20.9 %

Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 3.1 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.3b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use in cleaning agents - Professional
List of use descriptors	:	**Identified use name:** Use in cleaning agents - Professional **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC10, PROC11, PROC13 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC08a, ERC08d
Environmental contributing scenarios	:	**General exposures -** ERC08a, ERC08d
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC10, PROC11, PROC13
Processes and activities covered by the exposure scenario	:	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 1.3 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 3.7 kg/day Regional use tonnage (tonnes/year): 2 700 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.02 Release fraction to soil from wide dispersive use (regional only): 0 Release fraction to wastewater from wide dispersive use: 0.000001
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 20.6 %

Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 58 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.4b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Lubricants - Professional (Low release)
List of use descriptors	:	**Identified use name:** Lubricants - Professional (Low release) **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC09a, ERC09b
Environmental contributing scenarios	:	**General exposures -** ERC09a, ERC09b
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20
Processes and activities covered by the exposure scenario	:	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.015 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.042 kg/day Regional use tonnage (tonnes/year): 31 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.01 Release fraction to soil from wide dispersive use (regional only): 0.01 Release fraction to wastewater from wide dispersive use: 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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=20.7 %

Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.66 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 9.6b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Lubricants - Professional (high release)
List of use descriptors	:	**Identified use name:** Lubricants - Professional (high release) **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC08a, ERC08d
Environmental contributing scenarios	:	**General exposures -** ERC08a, ERC08d
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC17, PROC18, PROC20
Processes and activities covered by the exposure scenario	:	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.0013 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.0034 kg/day Regional use tonnage (tonnes/year): 2.5 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.15 Release fraction to soil from wide dispersive use (regional only): 0.05 Release fraction to wastewater from wide dispersive use: 0.05
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 20.7 %

Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.054 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

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: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Metal working fluids / Rolling oils - Professional
List of use descriptors	:	**Identified use name:** Metal working fluids / Rolling oils - Professional **Process Category:** PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC08a, ERC08d
Environmental contributing scenarios	:	**General exposures -** ERC08a, ERC08d
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17
Processes and activities covered by the exposure scenario	:	Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/ reject articles, and disposal of waste oils.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.018 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.049 kg/day Regional use tonnage (tonnes/year): 36 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.15 Release fraction to soil from wide dispersive use (regional only): 0.05 Release fraction to wastewater from wide dispersive use: 0.05
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=20.9 %

Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.78 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.7c.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use in binder and release agents - Professional
List of use descriptors	:	**Identified use name:** Use in binder and release agents - Professional **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC06, PROC08a, PROC08b, PROC10, PROC11, PROC14 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC08a, ERC08d
Environmental contributing scenarios	:	**General exposures -** ERC08a, ERC08d
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC06, PROC08a, PROC08b, PROC10, PROC11, PROC14
Processes and activities covered by the exposure scenario	:	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.0014 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.0038 kg/day Regional use tonnage (tonnes/year): 2.8 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.95 Release fraction to soil from wide dispersive use (regional only): 0.025 Release from article is neither intended nor promoted by use conditions.: 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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=20.7 %
Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.061 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.10b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use as a fuel - Professional
List of use descriptors	:	**Identified use name:** Use as a fuel - Professional **Process Category:** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC09a, ERC09b
Environmental contributing scenarios	:	**General exposures -** ERC09a, ERC09b
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
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.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 2 300 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 6 400 kg/day Regional use tonnage (tonnes/year): 4 600 000 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.0001 Release fraction to soil from wide dispersive use (regional only): 0.00001 Release fraction to wastewater from wide dispersive use: 0.00001
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=27.5 %
Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 92 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
Conditions and measures related to external treatment of waste for disposal	:	Combustion emissions considered in regional exposure assessment. Combustion emissions limited by required exhaust emission controls. 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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 9.12b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Use in road and construction products
List of use descriptors	:	**Identified use name:** Use in road and construction products **Process Category:** PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13 **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC08d, ERC08f
Environmental contributing scenarios	:	**General exposures -** ERC08d, ERC08f
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13
Processes and activities covered by the exposure scenario	:	Bulk loading (including marine vessel/barge, rail/road car and IBC loading)

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.0045 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.012 kg/day Regional use tonnage (tonnes/year): 9 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.95 Release fraction to soil from wide dispersive use (regional only): 0.04 Release fraction to wastewater from wide dispersive use: 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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: >=0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: >=20.7 %
Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.19 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.15.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Distribution of substance
List of use descriptors	:	**Identified use name:** Distribution of substance **Process Category:** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15 **Sector of end use:** SU03, SU08, SU09 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC04, ERC05, ERC06b, ERC06c, ERC06d, ERC07, ERC06a
Environmental contributing scenarios	:	**General exposures -** ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
Processes and activities covered by the exposure scenario	:	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.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 17 000 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.002 Maximum daily site tonnage (kg/day): 58 000 kg/day Regional use tonnage (tonnes/year): 8 700 000 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 300 days per year
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): 0.001 Release fraction to soil from process (initial release prior to RMM): 0.00001 Release fraction to wastewater from process (initial release prior to RMM): 0.00001
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 0 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of =: 90 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 23.8 %

Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 880 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.3b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	1145731
Product name	:	AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario	:	Manufacture and use of slurry explosives
List of use descriptors	:	**Identified use name:** Manufacture and use of slurry explosives **Process Category:** PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b **Sector of end use:** SU22 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC08e
Environmental contributing scenarios	:	**General exposures -** ERC08e
Health Contributing scenarios	:	**General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b
Processes and activities covered by the exposure scenario	:	Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.0025 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.0068 kg/day Regional use tonnage (tonnes/year): 5 tonnes/year
Frequency and duration of use	:	Continuous release. Emission days (days per year): 365 days per year
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): 0.001 Release fraction to soil from wide dispersive use (regional only): 0.01 Release fraction to wastewater from wide dispersive use: 0.02
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	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of =: 0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of =: 20.7 %
Organisational 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	:	Assumed domestic sewage treatment plant flow: 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.11 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 95 %
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 applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards/EU regulations/national regulations. Review SDS for additional advice..

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.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperaure. No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	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: General exposures

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: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : 1145731

Product name : AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario : Use in coatings - Consumer

List of use descriptors : **Identified use name:** Use in coatings - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d
Market sector by type of chemical product: PC01, PC04, PC09a, PC09b, PC09c, PC15, PC18, PC23, PC24, PC31, PC34

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PC01, PC04, PC09a, PC09b, PC09c, PC15, PC18, PC23, PC24, PC31, PC34
Glues, hobby use - PC01
Glues DIY-use (carpet glue, tile glue, wood parquet glue) - PC01
Glue from spray - PC01
Sealants - PC01
Washing car window - PC04
Pouring into radiator - PC04
Lock de-icer - PC04
Water-borne latex wall paint - PC09a
Solvent-rich, high-solid, water-borne paint - PC09a
Aerosol spray can - PC09a
Removers (paint-, glue-, wall paper-, sealant-remover) - PC09a
Fillers and putty - PC09b
Plasters and floor equalisers - PC09b
Modelling clay - PC09b
Finger paints - PC09c
Non-metal-surface treatment products: Waterborne latex wall paint - PC15
Non-metal-surface treatment products: waterborne paint - PC15
Non-metal-surface treatment products: aerosol sprays - PC15
Non-metal-surface treatment products: Removers - PC15
Ink and toners - PC18
Polishes, wax/cream (floor, furniture, shoes) - PC23
Polishes, spray (furniture, shoes) - PC23
Liquids - PC24
Pastes - PC24
Sprays - PC24
Polishes, wax / cream (floor, furniture, shoes) - PC31
Polishes, spray (furniture, shoes) - PC31
Textile dyes and impregnating products - PC34

Processes and activities covered by the exposure scenario : Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.006 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.016 kg/day Regional use tonnage (tonnes/year): 12 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.985 Release fraction to soil from wide dispersive use (regional only): 0.005 Release fraction to wastewater from wide dispersive use: 0.01
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.26 kg/day
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 consumer exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use only with adequate ventilation. Keep away from sources of ignition - No smoking. Review SDS for additional advice.

Product characteristics	:	Liquid
Amounts used	:	Not applicable.
Frequency and duration of use/exposure	:	Not applicable.
Other given operational conditions affecting consumers exposure	:	Not applicable.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 3: Glues, hobby use

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm² For each use event, covers use amounts up to 9 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. Covers exposure up to 4 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure No exposure assessment presented for human health.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 110 cm² For each use event, covers use amounts up to 6 390 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 1 days per year Covers use under typical household ventilation. Covers exposure up to 6 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 5: Glue from spray

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm² For each use event, covers use amounts up to 85.05 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 6 days per year Covers use under typical household ventilation. Covers exposure up to 4 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 6: Sealants

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm^2 For each use event, covers use amounts up to 75 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 55 days per year Covers use under typical household ventilation. Covers exposure up to 1 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 7: Washing car window

Anti-freeze and de-icing products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 1 %
Amounts used	:	Covers skin contact area up to 857.5 cm^2 For each use event, covers use amounts up to 0.5 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use in a one car garage (34 m^3) under typical ventilation. Covers exposure up to 0.02 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 8: Pouring into radiator

Anti-freeze and de-icing products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	Covers skin contact area up to 428 cm^2 For each use event, covers use amounts up to 2 000 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use in a one car garage (34 m^3) under typical ventilation. Covers exposure up to 0.17 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 9: Lock de-icer

Anti-freeze and de-icing products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 214.4 cm^2 For each use event, covers use amounts up to 4 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use in a one car garage (34 m^3) under typical ventilation. Covers exposure up to 0.25 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 10: Water-borne latex wall paint

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Amounts used	:	Covers skin contact area up to 428.75 cm^2 For each use event, covers use amounts up to 2 760 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 4 days per year Covers use under typical household ventilation. Covers exposure up to 2.2 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 11: Solvent-rich, high-solid, water-borne paint

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 428.75 cm^2 For each use event, covers use amounts up to 744 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 6 days per year Covers use under typical household ventilation. Covers exposure up to 2.2 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 12: Aerosol spray can

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 857.5 cm^2 For each use event, covers use amounts up to 215 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 2 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.33 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 13: Removers (paint-, glue-, wall paper-, sealant-remover)

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 90 %
Amounts used	:	Covers skin contact area up to 857.5 cm^2 For each use event, covers use amounts up to 491 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 3 days per year Covers use under typical household ventilation. Covers exposure up to 2 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 14: Fillers and putty

Fillers, putties, plasters, modelling clay

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	Covers skin contact area up to 35.73 cm^2 For each use event, covers use amounts up to 85 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 12 days per year Covers use under typical household ventilation. Covers exposure up to 4 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 15: Plasters and floor equalisers

Fillers, putties, plasters, modelling clay

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 3 %

Amounts used : Covers skin contact area up to 857.5 cm²
For each use event, covers use amounts up to 13 800 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 12 days per year
Covers use under typical household ventilation.
Covers exposure up to 2 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 16: Modelling clay

Fillers, putties, plasters, modelling clay

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 10 %

Amounts used : Covers skin contact area up to 254.4 cm²
For each use event, assumes swallowed amount of 1 g
For each use event, covers use amounts up to 13 800 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 365 days per year
Covers use under typical household ventilation.
Covers exposure up to 6 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 17: Finger paints

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 10 %

Amounts used : Covers skin contact area up to 254.4 cm²
For each use event, assumes swallowed amount of 1.35 g
For each use event, covers use amounts up to 13 800 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 365 days per year
Covers use under typical household ventilation.
Covers exposure up to 6 hour(s)

Other given operational conditions affecting consumers exposure : Covers use under typical household ventilation.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 18: Non-metal-surface treatment products: Waterborne latex wall paint

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 1.5 %

Amounts used : Covers skin contact area up to 428.75 cm^2
For each use event, covers use amounts up to 2 760 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 4 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 2.2 hour(s)

Other given operational conditions affecting consumers exposure : Covers use under typical household ventilation.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 19: Non-metal-surface treatment products: waterborne paint

Solvent-rich, high-solid, water-borne paint

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 428.75 cm^2
For each use event, covers use amounts up to 744 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 6 days per year
Covers use under typical household ventilation.
Covers exposure up to 2.2 hour(s)

Other given operational conditions affecting consumers exposure : Covers use under typical household ventilation.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 20: Non-metal-surface treatment products: aerosol sprays

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 857.5 cm²
For each use event, covers use amounts up to 215 g
Covers use in room size of 34 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 2 days per year
Covers use in a one car garage (34 m³) under typical ventilation. 1.5 ach (air changes per hour)
Covers exposure up to 0.33 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 21: Non-metal-surface treatment products: Removers

Removers (paint-, glue-, wall paper-, sealant-remover)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 90 %

Amounts used : Covers skin contact area up to 857.5 cm²
For each use event, covers use amounts up to 491 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 3 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 2 hour(s)

Other given operational conditions affecting consumers exposure : Covers use under typical household ventilation.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 22: Ink and toners

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 10 %

Amounts used : Covers skin contact area up to 35.7 cm²
For each use event, covers use amounts up to 20 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 365 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 2.2 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 23: Polishes, wax/cream (floor, furniture, shoes)

Leather treatment products / Impregnation agent / Tanning of leather. / Leather finishing.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 56 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 29 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 1.23 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 24: Polishes, spray (furniture, shoes)

Leather treatment products / Impregnation agent / Tanning of leather. / Leather finishing.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 56 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 8 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.33 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 25: Liquids

Lubricants, greases, release products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 100 %
Amounts used	:	Covers skin contact area up to 468 cm^2 For each use event, covers use amounts up to 2 200 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 4 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.17 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 26: Pastes

Lubricants, greases, release products

Product characteristics	:	Pastes
Concentration of substance in mixture or article	:	Covers concentrations up to 20 %
Amounts used	:	Covers skin contact area up to 468 cm^2 For each use event, covers use amounts up to 34 g
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 10 days per year Covers use under typical household ventilation. Covers exposure up to 6 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 27: Sprays

Lubricants, greases, release products

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 428.75 cm^2 For each use event, covers use amounts up to 73 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 6 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.17 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 28: Polishes, wax / cream (floor, furniture, shoes)

Polishes and wax blends

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 142 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 29 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 1.23 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 29: Polishes, spray (furniture, shoes)

Polishes and wax blends

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 35 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 8 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.33 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 30: Textile dyes and impregnating products

Other processing aids

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	Covers skin contact area up to 857.5 cm^2 For each use event, covers use amounts up to 115 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 55 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 1 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

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

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.3c.v1

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA, consumer
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Consumers: 3: Glues, hobby use

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 5: Glue from spray

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 6: Sealants

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 7: Washing car window

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 8: Pouring into radiator

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 9: Lock de-icer

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 10: Water-borne latex wall paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 11: Solvent-rich, high-solid, water-borne paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 12: Aerosol spray can

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 13: Removers (paint-, glue-, wall paper-, sealant-remover)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 14: Fillers and putty

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 15: Plasters and floor equalisers

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 16: Modelling clay

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 17: Finger paints

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 18: Non-metal-surface treatment products: Waterborne latex wall paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 19: Non-metal-surface treatment products: waterborne paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 20: Non-metal-surface treatment products: aerosol sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 21: Non-metal-surface treatment products: Removers

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 22: Ink and toners

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 23: Polishes, wax/cream (floor, furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 24: Polishes, spray (furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 25: Liquids

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 26: Pastes

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 27: Sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 28: Polishes, wax / cream (floor, furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 29: Polishes, spray (furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 30: Textile dyes and impregnating products

Exposure assessment (human): : ECETOC TRA, consumer

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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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.
Health	:	Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : 1145731

Product name : AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario : Use in cleaning agents - Consumer

List of use descriptors :
Identified use name: Use in cleaning agents - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d
Market sector by type of chemical product: PC03, PC04, PC08, PC09a, PC24, PC35, PC38

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios :
General measures applicable to all activities - PC03, PC04, PC08, PC09a, PC24, PC35, PC38
Air care, instant action (aerosol sprays) - PC03
Air care, continuous action (solid and liquid) - PC03
Washing car window - PC04
Pouring into radiator - PC04
Lock de-icer - PC04
Laundry and dish-washing products - PC08
Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) - PC08
Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) - PC08
Water-borne latex wall paint - PC09a
Solvent-rich, high-solid, water-borne paint - PC09a
Aerosol spray can - PC09a
Removers (paint-, glue-, wall paper-, sealant-remover) - PC09a
Liquids - PC24
Pastes - PC24
Sprays - PC24
Laundry and dish washing products - PC35
Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) - PC35
Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) - PC35
Welding and soldering products, flux products - PC38

Processes and activities covered by the exposure scenario : Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air-care products.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	:	Predominantly hydrophobic Substance is complex UVCB.
Amounts used	:	Annual site tonnage (tonnes/year): 0.016 tonnes/year Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used locally: 0.0005 Maximum daily site tonnage (kg/day): 0.042 kg/day Regional use tonnage (tonnes/year): 31 tonnes/year
Frequency and duration of use	:	Continuous release Emission days (days per year): 365 days per year
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): 0.95 Release fraction to soil from wide dispersive use (regional only): 0.025 Release fraction to wastewater from wide dispersive use: 0.025
Conditions and measures related to sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 95 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.67 kg/day
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 consumer exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use only with adequate ventilation. Keep away from sources of ignition - No smoking. Review SDS for additional advice.

Product characteristics	:	Liquid
Amounts used	:	Not applicable.
Frequency and duration of use/exposure	:	Not applicable.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 3: Air care, instant action (aerosol sprays)

Air care products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	For each use event, covers use amounts up to 0.1 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 4 times per day Covers use up to 365 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.25 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure No exposure assessment presented for human health.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 4: Air care, continuous action (solid and liquid)

Air care products

Product characteristics	:	Solid & Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	Covers skin contact area up to 35.7 cm^3 For each use event, covers use amounts up to 0.48 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 8 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 5: Washing car window

Anti-freeze and de-icing products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Amounts used	:	For each use event, covers use amounts up to 0.5 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.02 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 6: Pouring into radiator

Anti-freeze and de-icing products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	Covers skin contact area up to 428 cm^2 For each use event, covers use amounts up to 2 000 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.17 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 7: Lock de-icer

Anti-freeze and de-icing products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 214.4 cm^2 For each use event, covers use amounts up to 4 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.25 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 8: Laundry and dish-washing products

Biocidal products (Pest control, disinfectants)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 60 %
Amounts used	:	Covers skin contact area up to 857.5 cm^2 For each use event, covers use amounts up to 15 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.5 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 9: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Biocidal products (Pest control, disinfectants)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 857.5 cm²
For each use event, covers use amounts up to 27 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 128 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 0.33 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 10: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Biocidal products (Pest control, disinfectants)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 20 %

Amounts used : Covers skin contact area up to 214.4 cm²
For each use event, covers use amounts up to 35 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 128 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 0.17 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 11: Water-borne latex wall paint

Coatings and paints, thinners, paint removers

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 1.5 %

Amounts used : Covers skin contact area up to 428.75 cm²
For each use event, covers use amounts up to 2 760 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 4 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 2.2 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 12: Solvent-rich, high-solid, water-borne paint

Coatings and paints, thinners, paint removers

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 428.75 cm^2
For each use event, covers use amounts up to 744 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 6 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 2.2 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 13: Aerosol spray can

Coatings and paints, thinners, paint removers

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 10 %

Amounts used : Covers skin contact area up to 857.5 cm^2
For each use event, covers use amounts up to 215 g
Covers use in room size of 34 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 2 days per year
Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour)
Covers exposure up to 0.33 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 14: Removers (paint-, glue-, wall paper-, sealant-remover)

Coatings and paints, thinners, paint removers

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 90 %

Amounts used : Covers skin contact area up to 857.5 cm^2
For each use event, covers use amounts up to 491 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 3 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 2 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 15: Liquids

Lubricants, greases, release products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 468 cm^2 For each use event, covers use amounts up to 2 200 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 4 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.17 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 16: Pastes

Lubricants, greases, release products

Product characteristics	:	Pastes
Concentration of substance in mixture or article	:	Covers concentrations up to 20 %
Amounts used	:	Covers skin contact area up to 468 cm^2 For each use event, covers use amounts up to 34 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 10 days per year Covers use under typical household ventilation. Covers exposure up to 6 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 17: Sprays

Lubricants, greases, release products

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 428.75 cm^2 For each use event, covers use amounts up to 73 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 6 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.17 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 18: Laundry and dish washing products

Washing and cleaning products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 60 %
Amounts used	:	Covers skin contact area up to 857.5 cm^2 For each use event, covers use amounts up to 15 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.5 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 19: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Washing and cleaning products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 857.5 cm^2 For each use event, covers use amounts up to 27 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 128 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.33 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 20: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Washing and cleaning products

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 15 %

Amounts used : Covers skin contact area up to 428 cm^2
For each use event, covers use amounts up to 35 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 1 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 0.17 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 21: Welding and soldering products, flux products

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 20 %

Amounts used : Covers skin contact area up to 857.5 cm^2
For each use event, covers use amounts up to 12 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 365 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 1 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

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

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

Exposure estimation and reference to its source : ESVOC SPERC 8.4c.v1

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 3: Air care, instant action (aerosol sprays)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 4: Air care, continuous action (solid and liquid)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 5: Washing car window

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 6: Pouring into radiator

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 7: Lock de-icer

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 8: Laundry and dish-washing products

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 9: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 10: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 11: Water-borne latex wall paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 12: Solvent-rich, high-solid, water-borne paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 13: Aerosol spray can

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 14: Removers (paint-, glue-, wall paper-, sealant-remover)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 15: Liquids

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 16: Pastes

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 17: Sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 18: Laundry and dish washing products

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 19: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 20: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 21: Welding and soldering products, flux products

Exposure assessment (human): : ECETOC TRA, consumer

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	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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.
Health	:	Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

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Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : 1145731

Product name : AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario : Lubricants - Consumer (Low release)

List of use descriptors : **Identified use name:** Lubricants - Consumer (Low release)
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Market sector by type of chemical product: PC01, PC24, PC31

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PC01, PC24, PC31
Glues, hobby use - PC01
Glue from spray - PC01
Sealants - PC01
Liquids - PC24
Pastes - PC24
Sprays - PC24
Polishes, wax/cream (floor, furniture, shoes) - PC31
Polishes, spray (furniture, shoes) - PC31

Processes and activities covered by the exposure scenario : Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 0.0035 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 0.0096 kg/day
Regional use tonnage (tonnes/year): 7 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 365 days per year

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): 0.01
Release fraction to soil from wide dispersive use (regional only): 0.01
Release fraction to wastewater from wide dispersive use: 0.01

Conditions and measures related to sewage treatment plant : Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day
Estimated substance removal from wastewater via municipal sewage treatment: 95 %
Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.15 kg/day

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 consumer exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use only with adequate ventilation. Keep away from sources of ignition - No smoking. Review SDS for additional advice..

Product characteristics	:	Liquid
Amounts used	:	Not applicable.
Frequency and duration of use/exposure	:	Not applicable.
Other given operational conditions affecting consumers exposure	:	Not applicable.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 3: Glues, hobby use

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm^2 For each use event, covers use amounts up to 9 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 4 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 4: Glue from spray

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm² For each use event, covers use amounts up to 85.05 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 6 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 4 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 5: Sealants

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Avoid using at a product concentration greater than 25 %
Amounts used	:	Covers skin contact area up to 35.73 cm² For each use event, covers use amounts up to 75 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 1 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure Avoid using when windows closed.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 6: Liquids

Lubricants, greases, release products

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 100 %
Amounts used	:	Covers skin contact area up to 468 cm² For each use event, covers use amounts up to 2 200 g Covers use in room size of 34 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 4 days per year Covers use in a one car garage (34 m³) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.17 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 7: Pastes

Lubricants, greases, release products

Product characteristics : Pastes

Concentration of substance in mixture or article : Covers concentrations up to 20 %

Amounts used : Covers skin contact area up to 468 cm^2
For each use event, covers use amounts up to 34 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 10 days per year
Covers use under typical household ventilation.
Covers exposure up to 0.17 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 8: Sprays

Lubricants, greases, release products

Product characteristics : Spray

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 428.75 cm^2
For each use event, covers use amounts up to 73 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 6 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 0.17 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 9: Polishes, wax/cream (floor, furniture, shoes)

Polishes and wax blends

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 430 cm^2
For each use event, covers use amounts up to 142 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 29 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 1.23 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not available.

Contributing scenario controlling consumer exposure for 10: Polishes, spray (furniture, shoes)

Polishes and wax blends

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers concentrations up to 50 %
Amounts used	: Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 35 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 8 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.33 hour(s)
Other given operational conditions affecting consumers exposure	: Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not available.

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.

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

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: ESVOC SPERC 9.6d.v1

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 3: Glues, hobby use

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 4: Glue from spray

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 5: Sealants

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 6: Liquids

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 7: Pastes

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 8: Sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 9: Polishes, wax/cream (floor, furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 10: Polishes, spray (furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

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 : Further details on scaling and control technologies are provided in SPERC factsheet. 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.

Health : Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

ExxonMobil

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : 1145731

Product name : AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario : Lubricants - Consumer (high release)

List of use descriptors : **Identified use name:** Lubricants - Consumer (high release)
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d
Market sector by type of chemical product: PC01, PC24, PC31

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PC01, PC24, PC31
Glues, hobby use - PC01
Glue from spray - PC01
Sealants - PC01
Liquids - PC24
Pastes - PC24
Sprays - PC24
Polishes, wax/cream (floor, furniture, shoes) - PC31
Polishes, spray (furniture, shoes) - PC31

Processes and activities covered by the exposure scenario : Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 0.00035 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 0.00096 kg/day
Regional use tonnage (tonnes/year): 0.7 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 365 days per year

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): 0.15
Release fraction to soil from wide dispersive use (regional only): 0.05
Release fraction to wastewater from wide dispersive use: 0.05

Conditions and measures related to sewage treatment plant : Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day
Estimated substance removal from wastewater via municipal sewage treatment: 95 %
Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 0.015 kg/day

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 consumer exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use only with adequate ventilation. Keep away from sources of ignition - No smoking. Review SDS for additional advice..

Product characteristics	:	Liquid
Amounts used	:	Not applicable.
Frequency and duration of use/exposure	:	Not applicable.
Other given operational conditions affecting consumers exposure	:	Not applicable.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 3: Glues, hobby use

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm^2 For each use event, covers use amounts up to 9 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 4 hour(s)
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not available.

Contributing scenario controlling consumer exposure for 4: Glue from spray

Adhesives, sealants

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 30 %

Amounts used : Covers skin contact area up to 35.73 cm²
For each use event, covers use amounts up to 85.05 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 6 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 4 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 5: Sealants

Adhesives, sealants

Product characteristics : Liquid

Concentration of substance in mixture or article : Avoid using at a product concentration greater than 25 %

Amounts used : Covers skin contact area up to 35.73 cm²
For each use event, covers use amounts up to 75 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 365 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 1 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
Avoid using when windows closed.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 6: Liquids

Lubricants, greases, release products

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 100 %

Amounts used : Covers skin contact area up to 468 cm²
For each use event, covers use amounts up to 2 200 g
Covers use in room size of 34 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 4 days per year
Covers use in a one car garage (34 m³) under typical ventilation. 1.5 ach (air changes per hour)
Covers exposure up to 0.17 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 7: Pastes

Lubricants, greases, release products

Product characteristics : Pastes

Concentration of substance in mixture or article : Covers concentrations up to 20 %

Amounts used : Covers skin contact area up to 468 cm^2
For each use event, covers use amounts up to 34 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 10 days per year
Covers use under typical household ventilation.
Covers exposure up to 0.17 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 8: Sprays

Lubricants, greases, release products

Product characteristics : Spray

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 428.75 cm^2
For each use event, covers use amounts up to 73 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 6 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 0.17 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 9: Polishes, wax/cream (floor, furniture, shoes)

Polishes and wax blends

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 430 cm^2
For each use event, covers use amounts up to 142 g
Covers use in room size of 20 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 29 days per year
Covers use under typical household ventilation. 0.6 ach (air changes per hour)
Covers exposure up to 1.23 hour(s)

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not available.

Contributing scenario controlling consumer exposure for 10: Polishes, spray (furniture, shoes)

Polishes and wax blends

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers concentrations up to 50 %
Amounts used	: Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 35 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 8 days per year Covers use under typical household ventilation. 0.6 ach (air changes per hour) Covers exposure up to 0.33 hour(s)
Other given operational conditions affecting consumers exposure	: Covers use at ambient temperatures. Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not available.

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.

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

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: ESVOC SPERC 8.6e.v1

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 3: Glues, hobby use

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 4: Glue from spray

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 5: Sealants

Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 6: Liquids

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 7: Pastes

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 8: Sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 9: Polishes, wax/cream (floor, furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 10: Polishes, spray (furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

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 : Further details on scaling and control technologies are provided in SPERC factsheet. 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.

Health : Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : 1145731

Product name : AVIATION TURBINE FUEL

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Consumer

List of use descriptors : **Identified use name:** Use as a fuel - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Market sector by type of chemical product: PC13

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PC13
Liquid: automotive refuelling - PC13
Liquid: garden equipment - use - PC13
Liquid: garden equipment - refuelling - PC13
Liquid: home space heater fuel - PC13

Processes and activities covered by the exposure scenario : Covers consumer uses in liquid fuels.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 230 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 620 kg/day
Regional use tonnage (tonnes/year): 450 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 365 days per year

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): 0.0001
Release fraction to soil from wide dispersive use (regional only): 0.00001
Release fraction to wastewater from wide dispersive use: 0.00001

Conditions and measures related to sewage treatment plant : Assumed domestic sewage treatment plant flow: 2 000 m³/day
Estimated substance removal from wastewater via municipal sewage treatment: 95 %
Not applicable as there is no release to wastewater.
Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 9 700 kg/day

Conditions and measures related to external treatment of waste for disposal : Combustion emissions considered in regional exposure assessment.
Combustion emissions limited by required exhaust emission controls.
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 consumer exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use only with adequate ventilation. Keep away from sources of ignition - No smoking. Review SDS for additional advice..

Product characteristics : Liquid

Amounts used : Not applicable.

Frequency and duration of use/exposure : Not applicable.

Other given operational conditions affecting consumers exposure : Not applicable.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 3: Liquid: automotive refuelling

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 100 %

Amounts used : Covers skin contact area up to 210 cm^2
For each use event, covers use amounts up to 50 000 g
Covers use in room size of 100 m^3

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 52 days per year
Covers outdoor use. 0.6 ach (air changes per hour)
Covers exposure up to 0.05 hour(s)

Other given operational conditions affecting consumers exposure : Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not available.

Contributing scenario controlling consumer exposure for 4: Liquid: garden equipment - use

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to: 100 %

Amounts used : Covers skin contact area up to 420 cm^2
For each use event, covers use amounts up to 750 g
Covers use in room size of 100 m^3

Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 26 days per year Covers outdoor use. 0.6 ach (air changes per hour) Covers exposure up to 2 hour(s)
Other given operational conditions affecting consumers exposure	: Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not available.

Contributing scenario controlling consumer exposure for 5: Liquid: garden equipment - refuelling

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers concentrations up to 100 %
Amounts used	: Covers skin contact area up to 420 cm^2 For each use event, covers use amounts up to 1 000 g Covers use in room size of 34 m^3
Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 26 days per year Covers use in a one car garage (34 m^3) under typical ventilation. 1.5 ach (air changes per hour) Covers exposure up to 0.03 hour(s)
Other given operational conditions affecting consumers exposure	: Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not available.

Contributing scenario controlling consumer exposure for 6: Liquid: home space heater fuel

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers concentrations up to 100 %
Amounts used	: Covers skin contact area up to 210 cm^2 For each use event, covers use amounts up to 1 500 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 365 days per year Covers use under typical household ventilation. Covers exposure up to 0.03 hour(s)
Other given operational conditions affecting consumers exposure	: Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure Covers use at ambient temperatures.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not available.

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.

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

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: ESVOC SPERC 9.12c.v1

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 3: Liquid: automotive refuelling

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 4: Liquid: garden equipment - use

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 5: Liquid: garden equipment - refuelling

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 6: Liquid: home space heater fuel

Exposure assessment (human): : ECETOC TRA, consumer

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 : Further details on scaling and control technologies are provided in SPERC factsheet. 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.

Health : Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.