

# SAFETY DATA SHEET



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

### 1.1 Product identifier

<b>Product name</b>	<b>Jet A</b>
<b>Other means of identification</b>	Aviation Kerosine, Aviation Turbine Fuel Turbine Fuel, Aviation Kerosine Type: Containing Fuel System Icing Inhibitor
<b>Proper shipping name</b>	MARPOL Annex 1 rules apply for bulk shipments by sea. Category: Kerosene
<b>SDS no.</b>	SAV2105
<b>Product type</b>	Liquid.

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

Identified uses
<input checked="" type="checkbox"/> Manufacture of substance <input type="checkbox"/> Distribution of substance <input type="checkbox"/> Formulation and (re)packing of substances and mixtures <input type="checkbox"/> Use in fuel - Consumer <input type="checkbox"/> Use in fuel - Industrial <input type="checkbox"/> Use in fuel - Professional <input type="checkbox"/> Use as an intermediate

<b>Use of the substance/mixture</b>	Jet fuel, do not use for other purposes. For specific application advice see appropriate Technical Data Sheet or consult our company representative.
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### 1.3 Details of the supplier of the safety data sheet

<b>Supplier</b>	BP OIL UK Ltd Chertsey Road Sunbury-on-Thames Middlesex TW16 7BP United Kingdom (UK)
<b>E-mail address</b>	MSDSadvice@bp.com

### 1.4 Emergency telephone number

<b>EMERGENCY TELEPHONE NUMBER</b>	Carechem + 44 (0) 1865 407333 ( 24/7)
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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

<b>Product definition</b>	Mixture
<b><u>Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]</u></b>	
Flam. Liq. 3, H226	
Skin Irrit. 2, H315	
STOT SE 3, H336	
Asp. Tox. 1, H304	
Aquatic Chronic 2, H411	

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

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

### 2.2 Label elements

#### Hazard pictograms



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**SECTION 2: Hazards identification**

<b>Signal word</b>	Danger
<b>Hazard statements</b>	H226 - Flammable liquid and vapour. H315 - Causes skin irritation. H304 - May be fatal if swallowed and enters airways. H336 - May cause drowsiness or dizziness. H411 - Toxic to aquatic life with long lasting effects.
<b>Precautionary statements</b>	
<b>Prevention</b>	P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P273 - Avoid release to the environment.
<b>Response</b>	P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. P331 - Do NOT induce vomiting.
<b>Storage</b>	P403 + P235 - Store in a well-ventilated place. Keep cool.
<b>Disposal</b>	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Hazardous ingredients</b>	Kerosene
<b>Supplemental label elements</b>	Not applicable.

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

<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	Not applicable.
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**Special packaging requirements**

<b>Containers to be fitted with child-resistant fastenings</b>	Yes, applicable.
<b>Tactile warning of danger</b>	Yes, applicable.

**2.3 Other hazards**

<b>Results of PBT and vPvB assessment</b>	Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.
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**SECTION 3: Composition/information on ingredients****3.2 Mixtures**

<b>Product definition</b>	Mixture
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A mixture of kerosine streams. May also contain small quantities of proprietary performance additives. Contains small amounts of diethyleneglycol monomethyl ether (DEGME, 2-(2-methoxyethoxy)ethanol ) as a fuel icing inhibitor. May contain Tracer A (LDTA-A).

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Kerosine (petroleum), hydrosulfurised	REACH #: 01-2119462828-25 EC: 265-184-9 CAS: 64742-81-0 Index: 649-423-00-8	0 - 100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1]
Kerosine (petroleum)	REACH #: 01-2119485517-27 EC: 232-366-4 CAS: 8008-20-6 Index: 649-404-00-4	0 - 100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1]
Kerosine (petroleum), sweetened	REACH #: 01-2119502385-46 EC: 294-799-5 CAS: 91770-15-9 Index: 649-427-00-X	0 - 100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1]

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**SECTION 3: Composition/information on ingredients**

2-(2-methoxyethoxy)ethanol	EC: 203-906-6 CAS: 111-77-3 Index: 603-107-00-6	≤0.15	Repr. 2, H361d (Unborn child)	[1] [2]
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See Section 16 for the full text of the H statements declared above.

Type

- [1] Substance classified with a health or environmental hazard  
 [2] Substance with a workplace exposure limit  
 [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII  
 [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII  
 [5] Substance of equivalent concern  
 [6] Additional disclosure due to company policy

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

**SECTION 4: First aid measures****4.1 Description of first aid measures**

<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
<b>Skin contact</b>	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Drench contaminated clothing with water before removing. This is necessary to avoid the risk of sparks from static electricity that could ignite contaminated clothing. Contaminated clothing is a fire hazard. Contaminated leather, particularly footwear, must be discarded. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention.
<b>Inhalation</b>	If inhaled, remove to fresh air. Get medical attention.  If exposure to vapour, mists or fumes causes drowsiness, headache, blurred vision or irritation of the eyes, nose or throat, remove immediately to fresh air. Keep patient warm and at rest. If any symptoms persist obtain medical advice.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Aspiration hazard if swallowed. Can enter lungs and cause damage. Get medical attention immediately.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

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

Potential acute health effects

<b>Inhalation</b>	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
<b>Ingestion</b>	Irritating to mouth, throat and stomach. Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.
<b>Skin contact</b>	Causes skin irritation.
<b>Eye contact</b>	No known significant effects or critical hazards.

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

<b>Inhalation</b>	May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs. Vapour, mist or fume may irritate the nose, mouth and respiratory tract.
<b>Ingestion</b>	If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.
<b>Skin contact</b>	Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.
<b>Eye contact</b>	Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

**4.3 Indication of any immediate medical attention and special treatment needed**

<b>Notes to physician</b>	Treatment should in general be symptomatic and directed to relieving any effects. Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.
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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

In case of fire, use water fog, foam, dry chemical or carbon dioxide extinguisher or spray.

#### Unsuitable extinguishing media

Do not use water jet. The use of a water jet may cause the fire to spread by splashing the burning product.

### 5.2 Special hazards arising from the substance or mixture

#### Hazards from the substance or mixture

Flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. Vapours can form explosive mixtures with air. Vapours are heavier than air and can spread along the ground or float on water surfaces to remote ignition sources. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Liquid will float and may reignite on surface of water.

#### Hazardous combustion products

Combustion products may include the following:  
carbon oxides (CO, CO<sub>2</sub>) (carbon monoxide, carbon dioxide)

### 5.3 Advice for firefighters

#### Special precautions for fire-fighters

No action shall be taken involving any personal risk or without suitable training. 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. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

#### Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Eliminate all ignition sources. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Floors may be slippery; use care to avoid falling. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.

#### For emergency responders

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. 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. In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. If possible, large spillages in open waters should be contained with floating barriers or other mechanical means. If this is not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities. Collect recovered product and other contaminated materials in suitable tanks or containers for recycle, recovery or safe disposal.

### 6.3 Methods and material for containment and cleaning up

#### Small spill

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres.

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## SECTION 6: Accidental release measures

### Large spill

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Dike spill area and do not allow product to reach sewage system and surface or ground water. 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. Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilt product. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres. Dispose of via a licensed waste disposal contractor.

### 6.4 Reference to other sections

See Section 1 for emergency contact information.  
See Section 5 for firefighting measures.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 12 for environmental precautions.  
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. Do not swallow. Aspiration hazard if swallowed. Can enter lungs and cause damage. Never siphon by mouth. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid contact of spilt material and runoff with soil and surface waterways. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Do not reuse container. Empty containers retain product residue and can be hazardous.

#### Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Keep away from heat and direct sunlight. 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. Store and use only in equipment/containers designed for use with this product. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Light hydrocarbon vapours can build up in the headspace of tanks. These can cause flammability/explosion hazards even at temperatures below the normal flash point (note: flash point must not be regarded as a reliable indicator of the potential flammability of vapour in tank headspaces). Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electrical discharge and all ignition sources during filling, ullaging and sampling from storage tanks. Do not enter storage tanks. If entry to vessels is necessary, follow permit to work procedures. Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. When the product is pumped (e.g. during filling, discharge or ullaging) and when sampling, there is a risk of static discharge. Ensure equipment used is properly earthed or bonded to the tank structure. Electrical equipment should not be used unless it is intrinsically safe (i.e. will not produce sparks). Explosive air/vapour mixtures may form at ambient temperature. If product comes into contact with hot surfaces, or leaks occur from pressurised fuel pipes, the vapour or mists generated will create a flammability or explosion hazard. Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

### 7.3 Specific end use(s)

#### Recommendations

See section 1.2 and Exposure scenarios in annex, if applicable.

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**SECTION 8: Exposure controls/personal protection**

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).

**8.1 Control parameters****Occupational exposure limits****Product/ingredient name****Exposure limit values**

2-(2-methoxyethoxy)ethanol

**EH40/2005 WELs (United Kingdom (UK)). Absorbed through skin.**

TWA: 50.1 mg/m<sup>3</sup> 8 hours. Issued/Revised: 10/2007

TWA: 10 ppm 8 hours. Issued/Revised: 10/2007

Whilst specific OELs for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

**Recommended monitoring procedures**

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Derived No Effect Level**

Product/ingredient name	Type	Exposure	Value	Population	Effects
Kerosene	DNEL	Long term Oral 24 hours TWA	19 mg/kg bw/day	Consumers	Systemic

**Predicted No Effect Concentration**

No PNECs available

**8.2 Exposure controls****Appropriate engineering controls**

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

**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. Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory protection**

If local exhaust ventilation or other methods of ventilation are not possible or are insufficient, wear suitable respiratory protective devices. Wear suitable respiratory protective devices if there is a risk of exposure limits being exceeded. The choice of suitable respiratory device will depend upon a risk assessment of the workplace environment and the task being carried out. If required, the respiratory device must be certified as safe in defined explosive atmospheres (EX Label). Respiratory protective devices must be checked to ensure they fit correctly each time they are worn. Please consult European standard EN 529 for further guidance on the selection, use, care and maintenance of respiratory protective devices.

Suitable breathing apparatus (independent of ambient atmosphere) must be worn if any of the following situations apply.

- When the workplace atmosphere is considered to be immediately dangerous to life and health.
- When there is a risk of the workplace atmosphere being oxygen deficient.
- When the workplace atmosphere is uncontrolled.
- When the workplace atmosphere is unknown.
- When there is a risk of loss of consciousness or asphyxiation
- When entry into a confined space is required.
- When there is a risk of gases being released that could be a fire or explosion hazard.

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SECTION 8: Exposure controls/personal protection

- When the concentration of contaminants in the atmosphere exceeds the level of protection (maximum allowed concentration) given by a filtering device
- When the contaminants have a low odour that would not be tasted or smelt by the wearer of a filtering device if the filter became exhausted or saturated.
- When there is a risk of hydrogen sulphide exposure limits being exceeded.

Use with adequate ventilation.

If there is a requirement for the use of a respiratory protective device, but the use of breathing apparatus (independent of ambient atmosphere) is not required, then a suitable filtering device must be worn.

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product.

**Recommended:** Gas filter suitable for gases and vapours. Filter type: A  
 Combined filter suitable for gases, vapours and particles (dust, smoke, mist, aerosol). Filter type: AP

Chemical splash goggles.

Eye/face protection  
 Skin protection  
 Hand protection

General Information:

Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures).

Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions.

Wear chemical resistant gloves.

Do not re-use gloves.

Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis.

Protective gloves must give suitable protection against mechanical risks (i.e. abrasion, blade cut and puncture).

The frequency of replacement will depend upon the circumstances of use.

Breakthrough time:

Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type. Our recommendations on the selection of gloves are as follows:

Continuous contact:

Gloves with a minimum breakthrough time of 240 minutes, or >480 minutes if suitable gloves can be obtained.

If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to.

Short-term / splash protection:

Recommended breakthrough times as above.

It is recognised that for short-term, transient exposures, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.

Glove Thickness:

For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

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**SECTION 8: Exposure controls/personal protection**

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

**Skin and body**

**Recommended:** Nitrile gloves.

Wear suitable protective clothing.

Footwear highly resistant to chemicals.

When there is a risk of ignition wear inherently fire resistant protective clothes and gloves.

Refer to standard: ISO 11612

When there is a risk of ignition from static electricity, wear anti-static protective clothing. For greatest effectiveness against static electricity, overalls, boots and gloves should all be anti-static.

Refer to standard: EN 1149

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination.

When the risk of skin exposure is high (from experience this could apply to the following tasks: cleaning work, maintenance and service, filling and transfer, taking samples and cleaning up spillages) then a chemical protective suit and boots will be required.

Work clothing / overalls should be laundered on a regular basis. Laundering of contaminated work clothing should only be done by professional cleaners who have been told about the hazards of the contamination. Always keep contaminated work clothing away from uncontaminated work clothing and uncontaminated personal clothes.

**Refer to standards:**

Respiratory protection: EN 529

Gloves: EN 420, EN 374

Eye protection: EN 166

Filtering half-mask: EN 149

Filtering half-mask with valve: EN 405

Half-mask: EN 140 plus filter

Full-face mask: EN 136 plus filter

Particulate filters: EN 143

Gas/combined filters: EN 14387

**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****9.1 Information on basic physical and chemical properties****Appearance**

**Physical state**

Liquid.

**Colour**

☒ Clear, Colourless to light yellow.

**Odour**

Hydrocarbon.

**Odour threshold**

☒ 1 ppm (Based on Kerosene)

**pH**

☒ Not applicable. Based on Solubility in Water (Very slightly soluble in water)

**Melting point/freezing point**

☒ -40°C (<-40°F)

**Initial boiling point and boiling range**

140 to 280°C (284 to 536°F)

**Flash point**

Closed cup: ≥38°C (≥100.4°F) [Pensky-Martens.]

**Evaporation rate**

☒ Not relevant/applicable due to nature of the product. Based on low volatility

**Flammability (solid, gas)**

☒ Not applicable. Based on physical state.

**Upper/lower flammability or explosive limits**

☒ Lower: 0.6%  
Upper: 6%

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**SECTION 9: Physical and chemical properties**

<b>Vapour pressure</b>	☑ to 3.7 kPa (7.52 to 27.75 mm Hg) [37.8°C (100°F)] (Based on Concawe Category: kerosenes)
<b>Vapour density</b>	>1 [Air = 1]
<b>Relative density</b>	Not available.
<b>Density</b>	775 to 840 kg/m <sup>3</sup> (0.775 to 0.84 g/cm <sup>3</sup> ) at 15°C
<b>Solubility(ies)</b>	Very slightly soluble in water.
<b>Partition coefficient: n-octanol/water</b>	☒ Not applicable. Based on Kerosene - Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.
<b>Auto-ignition temperature</b>	☑ 220°C (>428°F)
<b>Decomposition temperature</b>	☒ Not observed to decompose by final boiling point: >280°C (>536°F)
<b>Viscosity</b>	Kinematic: <7 mm <sup>2</sup> /s (<7 cSt) at 40°C Kinematic: 1 to 8 mm <sup>2</sup> /s (1 to 8 cSt) at -20°C
<b>Explosive properties</b>	☑ Based on Kerosene - Not considered explosive based on structural and oxygen balance considerations.
<b>Oxidising properties</b>	☑ Based on Kerosene - Not considered oxidizing based on structural considerations.

**9.2 Other information**

No additional information.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
<b>10.2 Chemical stability</b>	The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
<b>10.4 Conditions to avoid</b>	Avoid all possible sources of ignition (spark or flame). Avoid excessive heat.
<b>10.5 Incompatible materials</b>	Reactive or incompatible with the following materials: oxidising materials.
<b>10.6 Hazardous decomposition products</b>	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	Result / Route	Test authority / Number	Species	Dose	Exposure	Remarks
☑ Kerosene	LC50 Inhalation Vapour	Equivalent to OECD 403	Rat	>5.28 mg/l Mortality and Systemic Effects	4 hours	Based on Straight run kerosine
	LD50 Dermal	EPA 798.1100	Rabbit	>2000 mg/kg Mortality and Systemic Effects	-	Based on Thermocracked kerosine
	LD50 Oral	EPA 798.1175	Rat	>5000 mg/kg	-	Based on Thermocracked kerosine
2-(2-methoxyethoxy) ethanol	LD50 Dermal	-	-	Rabbit 6540 mg/kg	-	-

Acute toxicity estimates

Route	ATE value
Not available.	

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**SECTION 11: Toxicological information**Irritation/Corrosion

Product/ingredient name	Test authority / Test number	Species	Route / Result	Test concentration	Remarks
Kerosene	OECD 404	Rabbit	Skin - Non-irritant to skin.	100 %	Based on Kerosene
	EPA -	Rabbit	Skin - Irritation	100%	Based on Heating Oil.
	EPA 798-4500	Rabbit	Eyes - Non-irritating to the eyes.	100%	Based on Thermocracked kerosine

Sensitiser

Product/ingredient name	Route	Test authority / Test number	Species	Result	Remarks
Kerosene	skin	EPA 798.4100	Guinea pig	Not sensitising	Based on Thermocracked kerosine

GERM CELL MUTAGENICITY

Product/ingredient name	Test authority / Test number	Cell	Type	Result	Remarks
Kerosene	Equivalent to OECD 476	-	Experiment: In vitro	Negative	Based on Hydrodesulphurised kerosine
	Equivalent to OECD 476	-	Experiment: In vitro	Negative	Based on Hydrodesulphurised kerosine
	Equivalent to OECD 471	-	Experiment: In vitro	Negative	Based on Hydrodesulphurised kerosine
	Equivalent to OECD 475	Cell: Germ	Experiment: In vivo	Negative	Based on Straight run kerosine
	Equivalent to OECD 478	Cell: Germ	Experiment: In vivo	Negative	Based on Straight run kerosine

Conclusion/Summary

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

Carcinogenicity

Product/ingredient name	Test authority / Test number	Species	Route	Exposure	Result	Remarks
Kerosene	Equivalent to OECD 451	Mouse	Dermal	2 years	Positive	Based on Jet Fuel
	Equivalent to OECD 451	Mouse	Dermal	2 years	Negative	Based on Hydrotreated Kerosine

Conclusion/Summary

Based on available data, the classification criteria are not met. Mechanistic understanding suggests tumors observed in animal models are not relevant to man.

Reproductive toxicity

Product/ingredient name	Test authority / Test number	Species	Route	Exposure	Developmental	Maternal toxicity	Fertility	Remarks
Kerosene	Equivalent to OECD 421	Rat	Dermal	34 days	-	-	Negative	Based on Hydrodesulphurised kerosine
	not guideline	Rat	Oral	90 days	-	-	Negative	Based on Jet Fuel
	Equivalent to OECD 414	Rat	Oral	10 days	Negative	-	-	Based on Jet Fuel

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**SECTION 11: Toxicological information**

Equivalent to OECD	414	Rat	Inhalation	10 days	Negative	-	-	Based on Kerosene
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**Conclusion/Summary**

Development: Based on available data, the classification criteria are not met.  
 Fertility: Based on available data, the classification criteria are not met.  
 Effects on or via lactation: Based on available data, the classification criteria are not met.

**Specific target organ toxicity**

Product/ ingredient name	Hazard	Test authority / Test number	Species	Route	Type	Dose	Exposure	Target organs	Remarks	
Kerosene	STOT - RE	Equivalent to OECD	410	Rat	Dermal	NOAEL	>200 mg/ kg bw/day	4 weeks	-	Based on Straight run kerosine
	STOT - RE	not guideline	-	Rat	Oral	NOAEL	>100 mg/ kg bw/day	90 days	-	Based on Jet Fuel
	STOT - RE	Equivalent to OECD	412	Rat	Inhalation	NOAEC	>1 mg/l /6 hours	90 days	Central Nervous System (CNS)	Based on Jet Fuel

**Conclusion/Summary**

STOT - RE: Based on available data, the classification criteria are not met.  
 STOT - SE: May cause drowsiness or dizziness. Target Organs: Central Nervous System (CNS)  
 Routes of entry anticipated: Dermal, Inhalation.

**Information on likely routes of exposure****Potential acute health effects****Inhalation**

Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

**Ingestion**

Irritating to mouth, throat and stomach. Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.

**Skin contact**

Causes skin irritation.

**Eye contact**

No known significant effects or critical hazards.

**Symptoms related to the physical, chemical and toxicological characteristics****Inhalation**

Adverse symptoms may include the following:  
 nausea or vomiting  
 headache  
 drowsiness/fatigue  
 dizziness/vertigo  
 unconsciousness

**Ingestion**

Adverse symptoms may include the following:  
 nausea or vomiting

**Skin contact**

Adverse symptoms may include the following:  
 irritation  
 redness

**Eye contact**

Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness

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

May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs. Vapour, mist or fume may irritate the nose, mouth and respiratory tract.

**Ingestion**

If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.

**Skin contact**

Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

**Eye contact**

Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

**Potential chronic health effects****General**

No known significant effects or critical hazards.

**Carcinogenicity**

No known significant effects or critical hazards.

**Mutagenicity**

No known significant effects or critical hazards.

**Developmental effects**

No known significant effects or critical hazards.

**Fertility effects**

No known significant effects or critical hazards.

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**SECTION 12: Ecological information****12.1 Toxicity**

Product/ingredient name	Test authority / Test number		Species	Type / Result	Exposure	Effects	Remarks
Kerosene	OECD	201	Algae	EL50 1 to 3 mg/l Nominal Fresh water	72 hours	cell number	Based on Solvent naphtha (petroleum), heavy aromatic
	OECD	-	Micro-organism	LL50 677.9 mg/l Nominal Fresh water	72 hours	growth inhibition	Based on Kerosene
	OECD	201	Algae	LOEL 1 mg/l Nominal Fresh water	72 hours	cell number	Based on Solvent naphtha (petroleum), heavy aromatic
	OECD	201	Algae	NOEL 1 mg/l Nominal Fresh water	24 hours	cell number	Based on Solvent naphtha (petroleum), heavy aromatic
	OECD	201	Algae	NOEL 1 mg/l Nominal Fresh water	48 hours	cell number	Based on Solvent naphtha (petroleum), heavy aromatic
	Modelled data	-	Micro-organism	NOEL 1.641 mg/l Nominal Fresh water	72 hours	growth inhibition	Based on Kerosene
	OECD	202	Daphnia	Acute EL50 1.4 mg/l Nominal Fresh water	48 hours	Mobility	Based on Kerosine (petroleum), hydrosulfurised
	OECD	203	Fish	Acute LL50 2 to 5 mg/l Fresh water	96 hours	Mortality	Based on Heavy aromatic solvent naphtha
	OECD	202	Daphnia	Acute NOEL 0.3 mg/l Nominal Fresh water	48 hours	Mobility	Based on Kerosine (petroleum), hydrosulfurised
	OECD	203	Fish	Acute NOEL 2 mg/l Fresh water	96 hours	Mortality	Based on Solvent naphtha (petroleum), heavy aromatic
	Equivalent to OECD	211	Daphnia	Chronic EL50 0.89 mg/l Fresh water	21 days	Reproduction	Based on Kerosine (petroleum), hydrosulfurised
	Equivalent to OECD	211	Daphnia	Chronic EL50 0.81 mg/l Fresh water	21 days	Immobilisation	Based on Kerosine (petroleum), hydrosulfurised
	Equivalent	211	Daphnia	Chronic LOEL 1.2 mg/l	21 days	Reproduction	Based on

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**SECTION 12: Ecological information**

	to OECD			Fresh water				Kerosine (petroleum), hydrodesulfurised
	Equivalent to OECD	211	Daphnia	Chronic LOEL 0.48 mg/l Fresh water	21 days	Adult Length		Based on Kerosine (petroleum), hydrodesulfurised
	Equivalent to OECD	211	Daphnia	Chronic NOEL 0.48 mg/l Fresh water	21 days	Reproduction		Based on Kerosine (petroleum), hydrodesulfurised
	Equivalent to OECD	211	Daphnia	Chronic NOEL 1.2 mg/l Fresh water	21 days	Adult Length		Based on Kerosine (petroleum), hydrodesulfurised
	Modelled data	-	Fish	Chronic NOEL 0.098 mg/l I Nominal Fresh water	28 days	Mortality		Based on Kerosene

**Environmental hazards** Toxic to aquatic life with long lasting effects.


**12.2 Persistence and degradability**

 Expected to be biodegradable. Non-persistent per IMO criteria

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
 (2-methoxyethoxy)ethanol	-	-	Readily

**12.3 Bioaccumulative potential**

This product is not expected to bioaccumulate through food chains in the environment.

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
 (2-methoxyethoxy)ethanol	-0.47	0.18	low

**12.4 Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** Not available.

**Mobility** Spillages may penetrate the soil causing ground water contamination.

**12.5 Results of PBT and vPvB assessment**

 Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

**12.6 Other adverse effects**

**Other ecological information** Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

**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** Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

**Hazardous waste** Yes.

**European waste catalogue (EWC)**

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

However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

**Packaging**

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**SECTION 13: Disposal considerations****Methods of disposal**

Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.











**Special precautions**

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Empty packages may contain some remaining product. Hazard warning labels are a guide to the safe handling of empty packaging and should not be removed.

**References**

Commission 2014/955/EU  
Directive 2008/98/EC

**SECTION 14: Transport information**

	ADR/RID	ADN	IMDG	IATA
<b>14.1 UN number</b>	UN1863	UN1863	UN1863	UN1863
<b>14.2 UN proper shipping name</b>	FUEL, AVIATION, TURBINE ENGINE	FUEL, AVIATION, TURBINE ENGINE	FUEL, AVIATION, TURBINE ENGINE. Marine pollutant	FUEL, AVIATION, TURBINE ENGINE
<b>14.3 Transport hazard class(es)</b>	3  	3  	3  	3 
<b>14.4 Packing group</b>	III	III	III	III
<b>14.5 Environmental hazards</b>	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.
<b>Additional information</b>	 The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. <b>Hazard identification number</b> 30 <b>Tunnel code</b> D/E	 The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. <b>Remarks</b> Table: C. Danger: 3+(N2, F)	 The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. <b>Emergency schedules</b> F-E, S-E	The environmentally hazardous substance mark may appear if required by other transportation regulations.

**14.6 Special precautions for user**

Not available.

**UK Emergency Action Code:**

3Y

**ADR/RID Classification code:**

F1

**ADN Classification code:**

F1

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code****Proper shipping name**

MARPOL Annex 1 rules apply for bulk shipments by sea.  
Category: Kerosene

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU Regulation (EC) No. 1907/2006 (REACH)****Annex XIV - List of substances subject to authorisation****Annex XIV**

None of the components are listed.

**Substances of very high concern**

None of the components are listed.

**Other regulations**

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**SECTION 15: Regulatory information**

<b>REACH Status</b>	The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.
<b>United States inventory (TSCA 8b)</b>	Not determined.
<b>Australia inventory (AICS)</b>	Not determined.
<b>Canada inventory</b>	Not determined.
<b>China inventory (IECSC)</b>	Not determined.
<b>Japan inventory (ENCS)</b>	Not determined.
<b>Korea inventory (KECI)</b>	All components are listed or exempted.
<b>Philippines inventory (PICCS)</b>	Not determined.
<b>Taiwan Chemical Substances Inventory (TCSI)</b>	Not determined.

**Ozone depleting substances (1005/2009/EU)**

Not listed.

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

Not listed.

**Seveso Directive**

This product is controlled under the Seveso Directive.

**Named substances**

<b>Name</b>
Petroleum products and alternative fuels (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)
<b>Danger criteria</b>
<b>Category</b>
5c E2

**15.2 Chemical safety assessment**

A Chemical Safety Assessment has been carried out for one or more of substances within this mixture. A Chemical Safety Assessment has not been carried out for the mixture itself.

**SECTION 16: Other information****Abbreviations and acronyms**

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 CAS = Chemical Abstracts Service  
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
 CSA = Chemical Safety Assessment  
 CSR = Chemical Safety Report  
 DMEL = Derived Minimal Effect Level  
 DNEL = Derived No Effect Level  
 EINECS = European Inventory of Existing Commercial chemical Substances  
 ES = Exposure Scenario  
 EUH statement = CLP-specific Hazard statement  
 EWC = European Waste Catalogue  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

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**SECTION 16: Other information**

OECD = Organisation for Economic Co-operation and Development  
PBT = Persistent, Bioaccumulative and Toxic  
PNEC = Predicted No Effect Concentration  
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]  
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
RRN = REACH Registration Number  
SADT = Self-Accelerating Decomposition Temperature  
SVHC = Substances of Very High Concern  
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure  
STOT-SE = Specific Target Organ Toxicity - Single Exposure  
TWA = Time weighted average  
UN = United Nations  
UVCB = Complex hydrocarbon substance  
VOC = Volatile Organic Compound  
vPvB = Very Persistent and Very Bioaccumulative  
Varies = may contain one or more of the following 64741-88-4 / RRN 01-2119488706-23, 64741-89-5 / RRN 01-2119487067-30, 64741-95-3 / RRN 01-2119487081-40, 64741-96-4 / RRN 01-2119483621-38, 64742-01-4 / RRN 01-2119488707-21, 64742-44-5 / RRN 01-2119985177-24, 64742-45-6, 64742-52-5 / RRN 01-2119467170-45, 64742-53-6 / RRN 01-2119480375-34, 64742-54-7 / RRN 01-2119484627-25, 64742-55-8 / RRN 01-2119487077-29, 64742-56-9 / RRN 01-2119480132-48, 64742-57-0 / RRN 01-2119489287-22, 64742-58-1, 64742-62-7 / RRN 01-2119480472-38, 64742-63-8, 64742-65-0 / RRN 01-2119471299-27, 64742-70-7 / RRN 01-2119487080-42, 72623-85-9 / RRN 01-2119555262-43, 72623-86-0 / RRN 01-2119474878-16, 72623-87-1 / RRN 01-2119474889-13

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

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

**Full text of abbreviated H 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.  
H361d Suspected of damaging the unborn child.  
H411 Toxic to aquatic life with long lasting effects.

**Full text of classifications [CLP/GHS]**

Aquatic Chronic 2, H411 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2  
Asp. Tox. 1, H304 ASPIRATION HAZARD - Category 1  
Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3  
Repr. 2, H361d REPRODUCTIVE TOXICITY (Unborn child) - Category 2  
Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2  
STOT SE 3, H336 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3

**History**

**Date of issue/ Date of revision** 22/02/2019.

**Date of previous issue** 08/06/2017.

**Prepared by** Product Stewardship

Indicates information that has changed from previously issued version.

**Notice to reader**

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The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

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SECTION 16: Other information



## Annex to the extended Safety Data Sheet (eSDS)

Consumer

### Identification of the substance or mixture

Product definition	Mixture
Code	SAV2105
Product name	Jet A

### Section 1: Title

Short title of the exposure scenario	Use in fuel - Consumer
List of use descriptors	<b>Identified use name:</b> Use in fuel - Consumer <b>Subsequent service life relevant for that use:</b> No. <b>Environmental Release Category:</b> ERC09a, ERC09b <b>Market sector by type of chemical product:</b> PC13 <b>Specific Environmental Release Category:</b> ESVOC SpERC 9.12c.v1

Processes and activities covered by the exposure scenario	Covers consumer uses in liquid fuels.
Assessment Method	See Section 3

### Section 2: Operational conditions and risk management measures

#### Section 2.1: Control of consumer exposure

Concentration of substance in mixture or article	Covers concentrations up to 100% Unless otherwise stated.
Physical state:	Liquid, vapour pressure > 10 Pa (Standard Temperature and Pressure)
Amounts used:	Covers use up to 50000g. Covers skin contact area up to 420 cm <sup>2</sup> . Unless otherwise stated.
Frequency and duration of use:	Covers use up to 0.143 times per day. Covers exposure up to 2 hours per event. Unless otherwise stated.
Other given operational conditions affecting consumers exposure:	Unless otherwise stated. Covers use at ambient temperatures. Covers use in room size of 20m <sup>3</sup> . assumes use with typical ventilation

#### Contributing scenarios: Operational conditions and risk management measures

Product category(ies) 13: Fuels Liquid: automotive refuelling  
Operations Conditions (consumer): Covers concentrations up to 100% Covers use up to 52 days per year Covers use up to 1 time/on day of use Covers skin contact area up to 210.00cm<sup>2</sup> For each use event, covers use amounts up to 50000g Covers outdoor use. Covers use in room size of 100 m<sup>3</sup> Covers exposure up to 0.05 hours per event  
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 13: Fuels Liquid: home space heater fuel  
Operations Conditions (consumer): Covers concentrations up to 100% Covers use up to 365 days per year Covers use up to 1 time/on day of use Covers skin contact area up to 210.00 cm<sup>2</sup> For each use event, covers use amounts up to 1500 g Covers use under typical household ventilation. Covers use in room size of 20 m<sup>3</sup> Covers exposure up to 0.03 hours per event  
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 13: Fuels Liquid: garden equipment - use  
Operations Conditions (consumer): Covers concentrations up to 100% Covers use up to 26 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 1000 g Covers outdoor use. Covers use in room size of 100 m<sup>3</sup> Covers exposure up to 2.00 hours per event  
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 13: Fuels Liquid: garden equipment - refuelling  
Operations Conditions (consumer): Covers concentrations up to 100% Covers use up to 26 days per year Covers use up to 1 time/on day of use Covers skin contact area up to 420.00 cm<sup>2</sup> For each use event, covers use amounts up to 1000 g Covers use in a one car garage (34 m<sup>3</sup>) under typical ventilation. Covers use in room size of 34 m<sup>3</sup> Covers exposure up to 0.03 hours per event  
Risk management measures (RMM): No specific risk management measure identified beyond those operational

Jet A

Use in fuel - Consumer

**Section 2.2: Control of environmental exposure**

<b>Product characteristics:</b>	Substance is complex UVCB. Predominantly hydrophobic
<b>Frequency and duration of use:</b>	Continuous release
<b>Conditions and measures related to sewage treatment plant:</b>	Not applicable as there is no release to wastewater.
<b>Conditions and measures related to external treatment of waste for disposal:</b>	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
<b>Conditions and measures related to external recovery of waste:</b>	This substance is consumed during use and no waste from the substance is generated.
<b>RCR - Air Compartment Driven:</b>	EC number ... Value 232-366-4 ... 1.4E-04 265-184-9 ... 6.1E-05 294-799-5 ... 5.8E-05 309-881-9 ... 4.0E-05
<b>RCR - Water Compartment Driven:</b>	EC number ... Value 232-366-4 ... 1.1E-02 265-184-9 ... 5.6E-03 294-799-5 ... 3.0E-03 309-881-9 ... 2.1E-04

**Section 3 Exposure estimation and reference to its source****Exposure estimation and reference to its source - Environment**

<b>Exposure assessment (environment):</b>	Hydrocarbon Block Method (Petrorisk)
<b>Exposure estimation and reference to its source</b>	Not available.

**Exposure estimation and reference to its source - Consumers**

<b>Exposure assessment (human):</b>	The ECETOC TRA tool has been used to estimate consumer exposure, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TDG. Where exposure determinants differ to these sources, then they are indicated.
<b>Exposure estimation and reference to its source</b>	Not available.

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

<b>Environment</b>	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.
<b>Health</b>	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.



## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition	Mixture
Code	SAV2105
Product name	Jet A

### Section 1: Title

Short title of the exposure scenario	Distribution
List of use descriptors	<b>Identified use name:</b> Distribution of substance <b>Process Category:</b> PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15 <b>Subsequent service life relevant for that use:</b> No. <b>Environmental Release Category:</b> ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07 <b>Specific Environmental Release Category:</b> ESVOC SpERC 1.1b.v1

Processes and activities covered by the exposure scenario	Bulk 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, maintenance and associated laboratory activities. Excludes emissions during transport.
Assessment Method	See Section 3

### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

Physical state:	Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently).
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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#### Contributing scenarios: Operational conditions and risk management measures

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.

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

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

Process sampling: No other specific measures identified.

Laboratory activities: No other specific measures identified.

Bulk transfers: No other specific measures identified.

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

Equipment cleaning and maintenance: No other specific measures identified.

Bulk product storage: No other specific measures identified.



## Section 2.2: Control of environmental exposure

<b>Product characteristics:</b>	Substance is complex UVCB. Predominantly hydrophobic.
<b>Frequency and duration of use:</b>	Continuous release
<b>Emission days</b>	EC number ... days per year 232-366-4 ... 300 265-184-9 ... 100 294-799-5 ... 100 309-881-9 ... 20
<b>Environment factors not influenced by risk management:</b>	
<b>Local freshwater dilution factor</b>	10
<b>Local marine water dilution factor</b>	100
<b>Release fraction to air from process (initial release prior to RMM)</b>	1.0E-03
<b>Release fraction to soil from process (initial release prior to RMM)</b>	1.0E-05
<b>Release fraction to wastewater from process (initial release prior to RMM)</b>	1.0E-05
<b>Technical conditions and measures at process level (source) to prevent release:</b>	Common practices vary across sites thus conservative process release estimates used.
<b>Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:</b>	EC number 265-184-9; 294-799-5; 309-881-9: Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required.
<b>Treat air emission to provide a typical removal efficiency of</b>	EC number 232-366-4: Risk from environmental exposure is driven by freshwater secondary poisoning. If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. 90 %
<b>Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of</b>	EC number ... % 232-366-4 ... 40.3 265-184-9 ... 0.0 294-799-5 ... 0.0 309-881-9 ... 0.0
<b>If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of</b>	0 %
<b>Organisational measures to prevent/limit release from site:</b>	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed
<b>Conditions and measures related to sewage treatment plant:</b>	Not applicable as there is no release to wastewater.
<b>Estimated substance removal from wastewater via on-site sewage treatment</b>	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
<b>Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs</b>	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
<b>Maximum allowable site tonnage (<math>M_{\text{Safe}}</math>) based on release following total wastewater treatment removal</b>	EC number ... kg/day 232-366-4 ... 4.1E+05 265-184-9 ... 2.4E+06 294-799-5 ... 2.1E+06 309-881-9 ... 1.2E+06
<b>Assumed on-site sewage treatment plant flow</b>	2.0E+03 (m3/d)
<b>Conditions and measures related to external treatment of waste for disposal:</b>	External treatment and disposal of waste should comply with applicable local and/or national regulations.
<b>Conditions and measures related to external recovery of waste:</b>	External recovery and recycling of waste should comply with applicable local and/or national regulations.
<b>RCR - Air Compartment Driven:</b>	EC number ... Value 232-366-4 ... 1.2E-04 265-184-9 ... 3.2E-04 294-799-5 ... 2.3E-04 309-881-9 ... 5.1E-06

**RCR - Water Compartment Driven:**

EC number ... Value  
232-366-4 ... 1.8E-02  
265-184-9 ... 2.0E-02  
294-799-5 ... 1.3E-02  
309-881-9 ... 3.2E-03

**Section 3: Exposure estimation and reference to its source****Exposure estimation and reference to its source - Environment**

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

**Exposure estimation and reference to its source - Workers**

**Exposure assessment (human):** The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

**Section 4: Guidance to check compliance with the exposure scenario****Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.

**Health**

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation.

Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition	Mixture
Code	SAV2105
Product name	Jet A

### Section 1: Title

Short title of the exposure scenario	Formulation and (re)packing of substances and mixtures
List of use descriptors	<b>Identified use name:</b> Formulation and (re)packing of substances and mixtures <b>Process Category:</b> PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15 <b>Subsequent service life relevant for that use:</b> No. <b>Environmental Release Category:</b> ERC02 <b>Specific Environmental Release Category:</b> ESVOC SpERC 2.2.v1

Processes and activities covered by the exposure scenario	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Assessment Method	See Section 3

### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

Physical state:	Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented

##### Contributing scenarios: Operational conditions and risk management measures

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.

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

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

Process sampling: No other specific measures identified.

Laboratory activities: No other specific measures identified.

Bulk transfers: No other specific measures identified.

Mixing operations (open systems): No other specific measures identified.

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

Drum/batch transfers: No other specific measures identified.

Tableting, compression, extrusion or pelletisation: No other specific measures identified.

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

Equipment cleaning and maintenance: No other specific measures identified.

Bulk product storage: No other specific measures identified.

**Jet A**

**Formulation and (re)packing of substances and mixtures**

## Section 2.2: Control of environmental exposure

Product characteristics:	Substance is complex UVCB. Predominantly hydrophobic
Frequency and duration of use:	Continuous release
Emission days	300 days per year
Environment factors not influenced by risk management:	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process (initial release prior to RMM)	EC number ... Value 232-366-4 ... 2.5E-02 265-184-9 ... 2.5E-02 294-799-5 ... 2.5E-02 309-881-9 ... 1.0E-02
Release fraction to soil from process (initial release prior to RMM)	1.0E-04
Release fraction to wastewater from process (initial release prior to RMM)	2.0E-04
Technical conditions and measures at process level (source) to prevent release:	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.  EC number 232-366-4; 265-184-9; 294-799-5: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.  EC number 309-881-9: If discharging to domestic sewage treatment plant, additional onsite wastewater treatment required.
Treat air emission to provide a typical removal efficiency of	0.0 %
Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of	EC number ... % 232-366-4 ... 93.3 265-184-9 ... 94.2 294-799-5 ... 94.8 309-881-9 ... 97.1
If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of	EC number ... % 232-366-4 ... 0.0 265-184-9 ... 0.0 294-799-5 ... 0.0 309-881-9 ... 40.4
Organisational measures to prevent/limit release from site:	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed
Conditions and measures related to sewage treatment plant:	Not applicable as there is no release to wastewater.
Estimated substance removal from wastewater via on-site sewage treatment	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 97.1
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total wastewater treatment removal	EC number ... kg/day 232-366-4 ... 1.4E+05 265-184-9 ... 1.2E+05 294-799-5 ... 1.0E+05 309-881-9 ... 1.0E+05
Assumed on-site sewage treatment plant flow	2.0E+03 (m3/d)
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.

**RCR - Air Compartment Driven:**

EC number ... Value  
232-366-4 ... 1.2E-02  
265-184-9 ... 1.3E-02  
294-799-5 ... 1.6E-02  
309-881-9 ... 8.0E-03

**RCR - Water Compartment Driven:**

EC number ... Value  
232-366-4 ... 7.3E-01  
265-184-9 ... 8.4E-01  
294-799-5 ... 9.7E-01  
309-881-9 ... 9.1E-01

**Section 3: Exposure estimation and reference to its source****Exposure estimation and reference to its source - Environment**

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

**Exposure estimation and reference to its source - Workers**

**Exposure assessment (human):** The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

**Section 4: Guidance to check compliance with the exposure scenario****Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.

**Health**

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation.

Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition	Mixture
Code	SAV2105
Product name	Jet A

### Section 1: Title

Short title of the exposure scenario	Manufacture
List of use descriptors	<b>Identified use name:</b> Manufacture of substance <b>Process Category:</b> PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 <b>Subsequent service life relevant for that use:</b> No. <b>Environmental Release Category:</b> ERC01 <b>Specific Environmental Release Category:</b> ESVOC SpERC 1.1.v1

Processes and activities covered by the exposure scenario	Manufacture of substance. Includes material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/ barge, road/rail car and bulk container).
Assessment Method	See Section 3

### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

Physical state:	Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
-----------------	---

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

Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
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Other conditions affecting workers exposure:	Operation is carried out at elevated temperature (> 20°C above ambient temperature) Assumes a good basic standard of occupational hygiene is implemented
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#### Contributing scenarios: Operational conditions and risk management measures

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.

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

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

Bulk transfers: No other specific measures identified.

Process sampling: No other specific measures identified.

Laboratory activities: No other specific measures identified.

Equipment cleaning and maintenance: No other specific measures identified.

Bulk product storage: No other specific measures identified.



## Section 2.2: Control of environmental exposure

<b>Product characteristics:</b>	Substance is complex UVCB. Predominantly hydrophobic
<b>Frequency and duration of use:</b>	Continuous release
<b>Emission days</b>	300 days per year
<b>Environment factors not influenced by risk management:</b>	
<b>Local freshwater dilution factor</b>	10
<b>Local marine water dilution factor</b>	100
<b>Release fraction to air from process (initial release prior to RMM)</b>	EC number ... Value 232-366-4 ... 5.0E-02 265-184-9 ... 5.0E-02 294-799-5 ... 5.0E-02 309-881-9 ... 1.0E-02
<b>Release fraction to soil from process (initial release prior to RMM)</b>	1.0E-04
<b>Release fraction to wastewater from process (initial release prior to RMM)</b>	EC number ... Value 232-366-4 ... 3.0E-04 265-184-9 ... 5.4E-05 294-799-5 ... 4.7E-05 309-881-9 ... 3.0E-04
<b>Technical conditions and measures at process level (source) to prevent release:</b>	Common practices vary across sites thus conservative process release estimates used.
<b>Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:</b>	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.  EC number 232-366-4; 265-184-9; 294-799-5: If discharging to domestic sewage treatment plant, additional onsite wastewater treatment required.  EC number 309-881-9: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.
<b>Treat air emission to provide a typical removal efficiency of</b>	90%
<b>Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of</b>	EC number ... % 232-366-4 ... 98.9 265-184-9 ... 98.2 294-799-5 ... 97.6 309-881-9 ... 92.5
<b>If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of</b>	EC number ... % 232-366-4 ... 77.3 265-184-9 ... 62.6 294-799-5 ... 51.7 309-881-9 ... 0.0
<b>Organisational measures to prevent/limit release from site:</b>	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
<b>Conditions and measures related to sewage treatment plant:</b>	Not applicable as there is no release to wastewater.
<b>Estimated substance removal from wastewater via on-site sewage treatment</b>	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
<b>Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs</b>	EC number ... % 232-366-4 ... 98.9 265-184-9 ... 98.2 294-799-5 ... 97.6 309-881-9 ... 95.2
<b>Maximum allowable site tonnage (M<sub>Safe</sub>) based on release following total wastewater treatment removal</b>	EC number ... kg/day 232-366-4 ... 2.0E+06 265-184-9 ... 5.9E+06 294-799-5 ... 4.6E+06 309-881-9 ... 2.0E+05
<b>Assumed on-site sewage treatment plant flow</b>	1.0E+04 (m3/d)
<b>Conditions and measures related to external treatment of waste for disposal:</b>	During manufacturing, no waste of the substance is generated.
<b>Conditions and measures related to external recovery of waste:</b>	During manufacturing, no waste of the substance is generated.

**RCR - Air Compartment Driven:**

EC number ... Value  
232-366-4 ... 4.8E-02  
265-184-9 ... 1.6E-01  
294-799-5 ... 1.4E-01  
309-881-9 ... 1.1E-03

**RCR - Water Compartment Driven:**

EC number ... Value  
232-366-4 ... 9.1E-01  
265-184-9 ... 9.1E-01  
294-799-5 ... 9.1E-01  
309-881-9 ... 6.4E-01

**Section 3: Exposure estimation and reference to its source****Exposure estimation and reference to its source - Environment**

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

**Exposure estimation and reference to its source - Workers**

**Exposure assessment (human):** The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

**Section 4: Guidance to check compliance with the exposure scenario****Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.

**Health**

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation.

Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition	Mixture
Code	SAV2105
Product name	Jet A

### Section 1: Title

Short title of the exposure scenario	Use in fuel - Industrial
List of use descriptors	<b>Identified use name:</b> Use in fuel - Industrial <b>Process Category:</b> PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16 <b>Subsequent service life relevant for that use:</b> No. <b>Environmental Release Category:</b> ERC07 <b>Specific Environmental Release Category:</b> ESVOC SpERC 7.12a.v1

Processes and activities covered by the exposure scenario	Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Assessment Method	See Section 3

### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

Physical state:	Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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##### Contributing scenarios: Operational conditions and risk management measures

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.

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

Use in fuel closed systems: No other specific measures identified.

Bulk transfers: No other specific measures identified.

Drum/batch transfers: No other specific measures identified.

Equipment cleaning and maintenance: No other specific measures identified.

Bulk product storage: No other specific measures identified.

## Section 2.2: Control of environmental exposure

Product characteristics:	Substance is complex UVCB. Predominantly hydrophobic
Frequency and duration of use:	Continuous release
Emission days	EC number ... days per year 232-366-4 ... 300 265-184-9 ... 300 294-799-5 ... 300 309-881-9 ... 20
Environment factors not influenced by risk management:	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process (initial release prior to RMM)	EC number ... Value 232-366-4 ... 5.0E-02 265-184-9 ... 5.0E-02 294-799-5 ... 5.0E-02 309-881-9 ... 5.0E-03
Release fraction to soil from process (initial release prior to RMM)	0.0
Release fraction to wastewater from process (initial release prior to RMM)	1.0E-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:	Risk from environmental exposure is driven by freshwater sediment. EC number 232-366-4; 265-184-9; 294-799-5: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. EC number 309-881-9: No wastewater treatment required.
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	EC number ... % 232-366-4 ... 93.9 265-184-9 ... 90.7 294-799-5 ... 94.4 309-881-9 ... 0.0
If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of	0 %
Organisational measures to prevent/limit release from site:	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed
Conditions and measures related to sewage treatment plant:	Not applicable as there is no release to wastewater.
Estimated substance removal from wastewater via on-site sewage treatment	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal	EC number ... kg/day 232-366-4 ... 2.7E+06 265-184-9 ... 2.4E+06 294-799-5 ... 2.1E+06 309-881-9 ... 1.2E+06
Assumed on-site sewage treatment plant flow	2.0E+03 (m3/d)
Conditions and measures related to external treatment of waste for disposal:	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	This substance is consumed during use and no waste from the substance is generated.
RCR - Air Compartment Driven:	EC number ... Value 232-366-4 ... 2.6E-02 265-184-9 ... 1.7E-02 294-799-5 ... 2.9E-02 309-881-9 ... 5.4E-06

**RCR - Water Compartment Driven:**

EC number ... Value  
232-366-4 ... 8.0E-01  
265-184-9 ... 5.2E-01  
294-799-5 ... 9.0E-01  
309-881-9 ... 2.5E-02

**Section 3: Exposure estimation and reference to its source****Exposure estimation and reference to its source - Environment**

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

**Exposure estimation and reference to its source - Workers**

**Exposure assessment (human):** The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

**Section 4: Guidance to check compliance with the exposure scenario****Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.

**Health**

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation.

Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the extended Safety Data Sheet (eSDS)

Professional

### Identification of the substance or mixture

Product definition	Mixture
Code	SAV2105
Product name	Jet A

### Section 1: Title

Short title of the exposure scenario	Use in fuel - Professional
List of use descriptors	<b>Identified use name:</b> Use in fuel - Professional <b>Process Category:</b> PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16 <b>Subsequent service life relevant for that use:</b> No. <b>Environmental Release Category:</b> ERC09a, ERC09b <b>Specific Environmental Release Category:</b> ESVOC SpERC 9.12b.v1

Processes and activities covered by the exposure scenario	Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Assessment Method	See Section 3

### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

Physical state:	Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
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Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
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Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
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Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented
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##### Contributing scenarios: Operational conditions and risk management measures

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.

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

Use in fuel closed systems: No other specific measures identified.

Bulk transfers: No other specific measures identified.

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

Equipment cleaning and maintenance: No other specific measures identified.

Bulk product storage: No other specific measures identified.



## Section 2.2: Control of environmental exposure

Product characteristics:	Substance is complex UVCB. Predominantly hydrophobic.
Frequency and duration of use:	Continuous release
Emission days	365 days per year
Environment factors not influenced by risk management:	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process (initial release prior to RMM)	1.0E-3
Release fraction to soil from process (initial release prior to RMM)	1.0E-05
Release fraction to wastewater from process (initial release prior to RMM)	1.0E-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:	Risk from environmental exposure is driven by freshwater. No wastewater treatment required.
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	0.0 %
If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of	≥ 0.0%
Organisational measures to prevent/limit release from site:	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed
Conditions and measures related to sewage treatment plant:	Not applicable as there is no release to wastewater.
Estimated substance removal from wastewater via on-site sewage treatment	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0 309-881-9 ... 95.2
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total wastewater treatment removal	EC number ... kg/day 232-366-4 ... 2.6E+05 265-184-9 ... 3.5E+05 294-799-5 ... 2.9E+05 309-881-9 ... 3.2E+04
Assumed on-site sewage treatment plant flow	2.0E+03 (m3/d)
Conditions and measures related to external treatment of waste for disposal:	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	This substance is consumed during use and no waste from the substance is generated.
RCR - Air Compartment Driven:	EC number ... Value 232-366-4 ... 1.2E-03 265-184-9 ... 9.2E-04 294-799-5 ... 4.4E-04 309-881-9 ... 8.3E-06
RCR - Water Compartment Driven:	EC number ... Value 232-366-4 ... 1.2E-02 265-184-9 ... 6.4E-03 294-799-5 ... 3.4E-03 309-881-9 ... 1.8E-04

Section 3: Exposure estimation and reference to its source

<b>Exposure estimation and reference to its source - Environment</b>	
<b>Exposure assessment (environment):</b>	Hydrocarbon Block Method (Petrorisk)
<b>Exposure estimation and reference to its source - Workers</b>	
<b>Exposure assessment (human):</b>	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

<b>Environment</b>	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/ offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.
<b>Health</b>	<p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation.</p> <p>Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.</p> <p>Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>



## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition	Mixture
Code	SAV2105
Product name	Jet A

### Section 1: Title

Short title of the exposure scenario	Use as an intermediate
List of use descriptors	<b>Identified use name:</b> Use as an intermediate <b>Process Category:</b> PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15 <b>Sector of end use:</b> SU08, SU09 <b>Subsequent service life relevant for that use:</b> No. <b>Environmental Release Category:</b> ERC06a <b>Specific Environmental Release Category:</b> ESVOC SpERC 6.1a.v1

Processes and activities covered by the exposure scenario	Use as an intermediate. Includes material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Assessment Method	See Section 3

### Section 2 Operational conditions and risk management measures

#### Section 2.1 Control of worker exposure

##### Product characteristics:

Physical state:	Liquid, vapour pressure 0.5 - 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure:	Operation is carried out at elevated temperature (> 20°C above ambient temperature) Assumes a good basic standard of occupational hygiene is implemented

##### Contributing scenarios: Operational conditions and risk management measures

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.

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

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

Bulk transfers: No other specific measures identified.

Process sampling: No other specific measures identified.

Laboratory activities: No other specific measures identified.

Equipment cleaning and maintenance: No other specific measures identified.

Bulk product storage: No other specific measures identified.

## Section 2.2: Control of environmental exposure

<b>Product characteristics:</b>	Substance is complex UVCB. Predominantly hydrophobic.
<b>Frequency and duration of use:</b>	Continuous release
<b>Emission days</b>	EC number 232-366-4; 265-184-9: 300 days per year
	EC number 294-799-5: 100 days per year
<b>Environment factors not influenced by risk management:</b>	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process (initial release prior to RMM)	1.0E-02
Release fraction to soil from process (initial release prior to RMM)	1.0E-03
Release fraction to wastewater from process (initial release prior to RMM)	3.0E-04
<b>Technical conditions and measures at process level (source) to prevent release:</b>	Common practices vary across sites thus conservative process release estimates used.
<b>Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:</b>	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.
Treat air emission to provide a typical removal efficiency of	80 %
Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of	EC number ... % 232-366-4 ... 91.1 265-184-9 ... 92.3 294-799-5 ... 82.0
If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of	0.0 %
<b>Organisational measures to prevent/limit release from site:</b>	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed
<b>Conditions and measures related to sewage treatment plant:</b>	Not applicable as there is no release to wastewater.
Estimated substance removal from wastewater via on-site sewage treatment	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0
Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs	EC number ... % 232-366-4 ... 95.1 265-184-9 ... 95.1 294-799-5 ... 95.0
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal	EC number ... kg/day 232-366-4 ... 9.1E+04 265-184-9 ... 7.9E+04 294-799-5 ... 6.9E+04
Assumed on-site sewage treatment plant flow	2.0E+03 (m3/d)
<b>Conditions and measures related to external treatment of waste for disposal:</b>	This substance is consumed during use and no waste from the substance is generated.
<b>Conditions and measures related to external recovery of waste:</b>	This substance is consumed during use and no waste from the substance is generated.
<b>RCR - Air Compartment Driven:</b>	EC number ... Value 232-366-4 ... 5.6E-04 265-184-9 ... 6.1E-04 294-799-5 ... 2.4E-04
<b>RCR - Water Compartment Driven:</b>	EC number ... Value 232-366-4 ... 5.5E-01 265-184-9 ... 6.3E-01 294-799-5 ... 2.8E-01

Section 3: Exposure estimation and reference to its source

<b>Exposure estimation and reference to its source - Environment</b>	
<b>Exposure assessment (environment):</b>	Hydrocarbon Block Method (Petrorisk)
<b>Exposure estimation and reference to its source - Workers</b>	
<b>Exposure assessment (human):</b>	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

<b>Environment</b>	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/ offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.
<b>Health</b>	<p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation.</p> <p>Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.</p> <p>Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>

<b>Product name</b> Jet A		<b>Product code</b> SAV2105	<b>Page:</b> 38/38
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