



4 Silicon Road, Mariann  
Industrial Park, Pinetown, 4147  
PO Box 28460, Malvern, 4055

Tel: (031) 791 0710  
Fax: (031) 464 5170  
Email: info@jagpetroleum.co.za  
Website: www.jagpetroleum.com

## Section 1: Chemical Product and Company Identification

<b>Product Name</b>	:	Aviation Jet Fuel JET A-1
<b>Use</b>	:	Jet Fuel is a complex blend of hydrocarbons derived from various refinery streams. This product is intended for use as a fuel or for use in an engineered process. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.
<b>Company Identification</b>	:	4 Silicon Road, Mariann Industrial Park, Pinetown, 4147
<b>Health Emergency Telephone</b>	:	10111
<b>Contact Info</b>	:	info@jagpetroleum.co.za
<b>JAG Website</b>	:	www.jagpetroleum.com

## Section 2: Composition and Information on Ingredients

### 2.1. Classification of the substance or mixture

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

### 2.2. Label elements



<b>Signal word</b>	:	Danger.
<b>Hazard statements</b>	:	H226 Flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H411 Toxic to aquatic life with long lasting effects.
<b>Precautionary statements</b>	:	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P273 Avoid release to the environment. P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331 Do NOT induce vomiting. P261 Avoid breathing vapours.

Contains	:	P280 Wear protective gloves. Kerosine (petroleum), sweetened, Distillates (petroleum), hydrotreated light; Kerosine – unspecified.
2.3. Other hazards	:	Evaporates slowly. Vapours may irritate throat/respiratory System. Risk of soil and ground water contamination.

### Section 3: Hazards Identification

Distillates (petroleum), hydrotreated light; Kerosine - Unspecified CAS number: 64742-47-8      EC number: 265-149-8      REACH registration number: 01-2119484819-18-0004	0-100 %
Classification Flam. Liq. 3 - H226 Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411	
Kerosine (petroleum), sweetened CAS number: 91770-15-9      EC number: 294-799-5      REACH registration number: 01-2119502385-46-0024	0-100 %
Classification Flam. Liq. 3 - H226 Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Other information : Mixture of a petroleum product and additives. Total aromatics at maximum: ,26,5 %,Naphthalene (CAS 91-20-3) & toluene (CAS 108-88-3) < 1 %.,benzene,(CAS 71-43-2) < 0,1%

### Section 4: First Aid Measures

#### Inhalation

Remove person to fresh air and keep comfortable to for breathing.

#### Skin

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.

#### Eye

Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation persists after washing.

#### Ingestion

Do not induce vomiting. Get medical attention immediately.

#### General Information

Irritating to skin. May irritate eyes. Vapours in high concentrations are narcotic. May cause nausea, headache, dizziness and intoxication. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

#### Notes for the doctor

Treat symptomatically.

## Section 5: Fire-Fighting Measures

Suitable extinguishing media	:	Foam, carbon dioxide or dry powder.
Unsuitable extinguishing Media	:	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards	:	The product is flammable. Containers can burst violently or explode when heated, due to excessive pressure build-up.
Hazardous combustion Products	:	Carbon dioxide (CO <sub>2</sub> ). Carbon monoxide (CO).
Protective actions during Firefighting	:	Cool containers exposed to heat with water spray remove them from the fire area if it can be done without risk. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	:	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

## Section 6: Accidental Release Measures

Personal precautions	:	Avoid inhalation of vapours and contact with skin and eyes. Wear adequate protective equipment at all operations.
For emergency responders	:	Keep unnecessary and unprotected personnel away from the spillage. Eliminate all ignition sources if safe to do so.
Environmental precautions	:	Avoid release to the environment. Stop leak if safe to do so. Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with sand, earth or other suitable non-combustible material. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.
Methods for cleaning up	:	Immediately start clean-up of the liquid and contaminated soil. Small Spillages: Absorb spillage with sand or other inert absorbent. Pay attention to the fire and health hazards caused by the product.

## Section 7: Handling and Storage

Usage precautions	:	Keep away from heat, sparks and open flame. Take precautionary measures against static discharges. Use only in well-ventilated areas. Avoid inhalation of vapours and contact with skin and eyes. Use personal protective equipment and/or local ventilation when needed. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Do not eat, drink or smoke when using this product. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).
Storage precautions	:	Flammable liquid storage. Store in tightly-closed, original container. Only store in correctly labelled

containers. Store in a demarcated bunded area to prevent release to drains and/or watercourses.  
Not known.

Specific end use(s) :

## Section 8: Exposure Controls/Personal Protection

### Occupational exposure limits

Solvent naphtha, group 3: 100mg/m<sup>3</sup> (8h), HTP 2014/FIN.

The individual limit values can be applied for the hydrocarbons.

### benzene

Benzene: 1 ppm (8h), 3,25 mg/m<sup>3</sup>, VNa 716/2000/FIN (binding limit value).

May be absorbed through the skin.

### toluene

Toluene: 25 ppm (8h), 81 mg/m<sup>3</sup> (8h), 100ppm (15min), 380 mg/m<sup>3</sup> (15min), HTP 2014/FIN.

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

May be absorbed through the skin.

### naphthalene

Naphthalene: 1 ppm (8h), 5 mg/m<sup>3</sup> (8h), 2 ppm (15min), 10mg/m<sup>3</sup> (15min), HTP 2014/FIN.

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

DNEL Consumer - Oral; Long term systemic effects: 19 mg/kg/day

PNEC Not available.

Appropriate engineering Controls	:	All handling should only take place in well-ventilated areas. Use personal protective equipment and/or local ventilation when needed. Handle in accordance with good industrial hygiene and safety practice.
Eye/face protection	:	Tight-fitting safety glasses.
Hand protection	:	Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. Neoprene. Polyvinyl chloride (PVC). The selected gloves should have a breakthrough time of at least 8 hours. Protection class 6. Protective gloves according to standards EN 420 and EN 374. Change protective gloves regularly.
Other skin and body Protection	:	Protective clothing when needed. Wear anti-static protective clothing if there is a risk of ignition from static electricity.
Respiratory protection	:	Filter device/half mask Gas filter, type A2. Filter device could be used maximum 2 hours at a time. Filter devices must not be used in conditions where the oxygen level is low (< 19 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirators according to standards EN 140 and EN 141.
Environmental exposure Controls	:	Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations.

## Section 9: Physical and Chemical Properties

Colour	:	Clear
Physical State	:	Liquid.
Odour	:	Hydrocarbons.
Odour threshold	:	-
pH	:	-
Melting point	:	≤ -47°C (ASTM D2386, D5972, IP 529)
Initial boiling point and range	:	170 - 300°C (ASTM D 86)

Flash point	:	≥ 40°C (IP 170)
Upper/lower flammability or explosive limits	:	Upper flammable/explosive limit: 0,6 % Lower flammable/explosive limit: 6 %
Vapour pressure	:	~ 2 kPa @ 38°C.
Vapour density	:	> 3 (Air = 1.0)
Relative density	:	0,775 - 0,840 @ 15°C (ASTM D4052)
Solubility(ies)	:	The product has poor water-solubility. < 50 mg/l @ 20°C
Partition coefficient log Kow	:	> 3
Auto-ignition temperature	:	~ 250°C
Decomposition Temperature	:	-
Viscosity Kinematic viscosity	:	< 7 mm <sup>2</sup> /s @ 40°C
Explosive properties	:	Not considered to be explosive.
Oxidising properties	:	Does not meet the criteria for classification as Oxidising.

### Section 10: Stability and Reactivity Data

Stability	:	Stable at normal ambient temperatures and when used as recommended.
Reactivity with	:	There are no known reactivity hazards associated with this product.
Possibility of hazardous Reactions	:	No potentially hazardous reactions known.
Conditions to avoid	:	Keep away from heat, sparks and open flame.
Materials to avoid	:	Oxidising agents.
Hazardous decomposition Products	:	Does not decompose when used and stored as recommended.

### Section 11: Toxicological Information

Toxicological effects	:	Based on available data the classification criteria are not met.
Animal data	:	Irritating to skin. (EPA Guidelines in FR Vol. 44, No. 145, p. 44054-44093). The product irritates mucous membranes and may cause abdominal discomfort if swallowed. May cause respiratory irritation. Repeated exposure may cause skin dryness or cracking.
Serious eye damage/irritation	:	Based on available data the classification criteria are not met. (EPA OTS 798.4500).
Skin sensitisation	:	Based on available data the classification criteria are not met. (OECD 406, EPA OTS 798.4100).
Genotoxicity - in vitro	:	Based on available data the classification criteria are not met. (OECD 471, 476, modified Ames test).
Genotoxicity - in vivo	:	Based on available data the classification criteria are not met. (OECD 475, 478, 479).
Carcinogenicity	:	Based on available data the classification criteria are not met.
Reproductive toxicity - fertility	:	Based on available data the classification criteria are not met. (OECD 421).
Reproductive toxicity - Development	:	Based on available data the classification criteria are not met. (OECD 414).
STOT - single exposure	:	May cause nausea, headache, dizziness and intoxication. Anaesthetic in high concentrations.
STOT - repeated exposure	:	Based on available data the classification criteria are not met. (OECD 410, 412, 413).
Aspiration hazard	:	Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.
<u>Distillates (petroleum), hydrotreated light; Kerosine – unspecified</u>		
Notes (oral LD <sub>50</sub> )	:	LD <sub>50</sub> > 5000 mg/kg, Oral, Rat (OECD 420, EPA OTS

Notes (dermal LD <sub>50</sub> )	:	798.1175). LD <sub>50</sub> > 2000 mg/kg, Dermal, Rabbit (OECD 402, EPA OTS 798.1100).
Notes (inhalation LC <sub>50</sub> ) LC <sub>50</sub>	:	> 5,28 mg/l, Inhalation, Rat (4h) (OECD 403) <u>Kerosine (petroleum), sweetened</u>
Notes (oral LD <sub>50</sub> ) LD <sub>50</sub>	:	> 5000 mg/kg, Oral, Rat (OECD 420, EPA OTS 798.1175).
Notes (dermal LD <sub>50</sub> ) LD <sub>50</sub>	:	> 2000 mg/kg, Dermal, Rabbit (OECD 402, EPA OTS 798.1100).
Notes (inhalation LC <sub>50</sub> ) LC <sub>50</sub>	:	> 5,28 mg/l, Inhalation, Rat (4h) (OECD 403).

## Section 12: Ecological Information

Toxicity	:	Toxic to aquatic life with long lasting effects.
Acute toxicity - Microorganisms	:	Adsorbed hydrocarbon residues can be harmful to sediment organisms.

### Distillates (petroleum), hydrotreated light; Kerosine – unspecified

Acute toxicity - fish	:	LL <sub>50</sub> , 24 hours: 5-17 mg/l, LL <sub>50</sub> , 48 hours: 2-5 mg/l, WAF (OECD 203).
Acute toxicity – aquatic Invertebrates	:	EL50, 24 hours: 4,6 mg/l, EL50, 48 hours: 1,4 mg/l, NOEL, 48 hours: 0,3 mg/l, WAF (OECD 202).
Acute toxicity – aquatic Plants	:	EL50, 24 hours: 1-3 mg/l, NOEL, 24 hours: 1 mg/l, WAF (OECD 201).
Chronic toxicity – aquatic Invertebrates	:	EL50, 21 days: 0.81 mg/l, NOEL, 21 days: 0,48 mg/l, WAF (OECD 211).

### Kerosine (petroleum), sweetened

Acute toxicity - fish	:	LL <sub>50</sub> , 24 hours: 5-17 mg/l, LL <sub>50</sub> , 48 hours: 2-5 mg/l, WAF (OECD 203).
Acute toxicity – aquatic Invertebrates	:	EL50, 24 hours: 4,6 mg/l, EL50, 48 hours: 1,4 mg/l, NOEL, 48 hours: 0,3 mg/l, WAF (OECD 202).
Acute toxicity – aquatic Plants	:	EL50, 24 hours: 1-3 mg/l, NOEL, 24 hours: 1 mg/l, WAF (OECD 201).
Chronic toxicity – aquatic Invertebrates	:	EL50, 21 days: 0.81 mg/l, NOEL, 21 days: 0,48 mg/l, WAF (OECD 211).
Persistence and degradability	:	Degradable by atmospheric chemistry. Volatile substances are degraded in the atmosphere within a few days.
Stability (hydrolysis)	:	No significant reaction in water.
Biodegradation	:	Inherently biodegradable. (OECD 301F) The product has not proven to be degradable under anaerobic conditions.
Bioaccumulative potential	:	Possibly bio-accumulative.
Partition coefficient	:	log Kow: > 3.

Mobility	:	Evaporates slowly. The product has poor water-solubility. Product can penetrate soil until reaching the surface of ground water. The product contains substances which are bound to particulate matter and are retained in soil.
Results of PBT and vPvB Assessment	:	This product does not contain any substances classified as PBT or vPvB.
Other adverse effects	:	Product causes fouling, and direct contact produces harmful effects e.g. to birds and vegetation.

### Section 13: Disposable Considerations

<b>Disposal methods in Waste safety should handling</b>	:	<b>Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Disposal Authority. When handling waste, the precautions applying to handling of the product be considered. Care should be taken when emptied containers that have not been thoroughly cleaned or rinsed out.</b>
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### Section 14: Transport Information

UN No. (ADR/RID)	:	1863
Proper shipping name (ADR/RID)	:	UN 1863 FUEL, AVIATION, TURBINE ENGINE
ADR/RID class	:	3
ADR/RID packing group	:	III
Environmentally hazardous substance/marine pollutant MARINE POLLUTANT		
Tunnel restriction code	:	(D/E)
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	:	No

### Section 15: Other Regulatory Information

EU legislation	:	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
Chemical safety assessment	:	A chemical safety assessment has been carried out.

### Section 16: Other Information

Abbreviations and acronyms	:	DNEL = Derived No-Effect Level
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used in the safety data sheet

PNEC = Predicted No-Effect Concentration

WAF = Water Accommodated Fraction

Key literature references and sources for data :

Regulations, databases, literature, own research. Concawe Report No 11/10, 10/14. Chemical Safety Report 2010.

Training advice :

DO NOT SIPHON PRODUCT BY MOUTH SUCTION.

Revision comments :

This is first issue. (new SDS software has been introduced) Exposure scenarios.

Hazard statements in full :

H226 Flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.