



# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

### PRODUCT LABELS

LABELLING (standard or EU):

Concerned  
EC No. 265-184-9 - Kerosine (petroleum), hydrodesulphurised  
EC No. 294-799-5 - Kerosene (petroleum) sweetened

Symbol(s) :



Symbol(s) :

Xn Harmful N Dangerous for the environment.

Contains :

Kerosene (petroleum) sweetened  
Kerosine (petrol) hydrodesulfurized

R-phrases :

R-10 Flammable.  
R-65 Harmful: may cause lung damage if swallowed.  
R-38 Irritating to skin.  
R-51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases :

S-23 Do not breathe vapour.  
S-24 Avoid contact with skin.  
S-62 If swallowed, do not induce vomiting: seek medical advice immediately and show the container or label.  
S-61 Avoid release to the environment. Refer to special instructions/Safety Data Sheets.  
S-2 Keep out of reach of children.

TRANSPORT LABELLING:

Applicable (see section 14)

### 1. COMPANY INFORMATION

EMERGENCY TELEPHONE NUMBER (24 hrs)

PSO House Control Room: (021) 9203850

COMPANY CONTACT (business hours) :

Office Manager HSE: (021)9203866-85, Ext: 2338  
Mobile GM HSE & SS: 0345-8291377  
Mobile Manager HSE: 0345-8282930

ADDRESS:

PSO House Khyaban-e-Iqbal, Clifton, P.O.Box # 3983 Karachi 75600, Pakistan.  
<http://www.psopk.com>

SUPPLIERS:

ARL,PRL,NRL,PARCO,Imports

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE



# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

Chemical nature :

Kerosene (petroleum). A complex combination of hydrocarbons obtained either by subjecting a petroleum distillate to a sweetening process to convert mercaptans or to remove acidic impurities, or obtained from a petroleum stock by treating with hydrogen to convert organic sulphur to hydrogen sulphide which is removed. It consists of hydrocarbons having carbon chain lengths predominantly in the range C9-C16 and boiling in the range of approximately 130-290°C.

Substances presenting a health hazard	EC No.	CAS No.	Content	Symbol(s)	R-phrases
Kerosine (petrol) hydrodesulfurized	265-184-9	64742-81-0	100 %	Xn ,N	R-10, 65, 38, 51/53
Kerosene (petroleum) sweetened	294-799-5	91770-15-9	100 %	Xn ,N	R-10, 65, 38, 51/53

See section 16 for explanations of R-phrases :

Composition comments :

The CAS number of this product may vary depending on the origin of the refinery.

### 3. HAZARDS IDENTIFICATION

Health effects :

If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious inhalation pulmonary lesions (medical survey during 48 hours).  
Irritating to skin.

Environmental impact :

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Physico-chemical hazards :

Flammable.

Product classification :

Flammable.  
Harmful: may cause lung damage if swallowed.  
Irritant: Xi.  
Dangerous for the environment.

### 4. FIRST AID MEASURES

IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.

Inhalation :

This risk exists only if the product is sprayed or heated to a high temperature. Transport the person out of the contaminated zone, keep warm and allow to rest. Irritation of the respiratory system; narcosis.

Ingestion :

Consult a doctor. Do not induce vomiting to avoid the risk of aspiration into the respiratory tract. Allow the person to rest. Nausea, vomiting, abdominal pains.

Skin contact :

Immediately remove all soiled or stained clothing. Wash immediately and abundantly with soap and water. Skin irritation.

Eye contact :

Wash immediately in copious amounts of water, keeping eyelids apart for at least 15 minutes and consult a specialist. Burning feeling and temporary redness.

Aspiration :

If the product is believed to have entered the lungs (in case of vomiting, for example), take the person to hospital for immediate care.

### 5. FIRE FIGHTING MEASURES

Flash point:

see heading 9 - "Physical and chemical properties"  
> = 38°C according to standard NF M 07-011



# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

Extinguishing media :	- suitable: Foam, CO <sub>2</sub> , powder, possibly water spray (preferably water containing a wetting agent). - not recommended: Solid water streams are prohibited as they could help to spread the flames.
Specific fire-fighting methods :	Cool down any tanks and surfaces exposed to fire by spraying abundantly with water. Isolate the source of the combustible product; allow to burn out under supervision or use appropriate fire extinguishers, as applicable.
Specific hazards :	Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled. Special care must be taken to avoid the risk of explosion. When the temperature is close to the flash point, the vapour pressure is so high that it may create an explosive atmosphere above the stored product.
Protective measures for firefighters :	Use water curtains to protect the personnel. Insulated breathing apparatus must be worn in confined premises with heavy concentrations of fumes and gases.

### 6. ACCIDENTAL RELEASE MEASURES

Personal protection :	As applicable in view of the risk of exposure, wear hydrocarbon-proof protective clothing, gloves, goggles, boots, and an insulated breathing apparatus (if vapour inhalation is a risk) - see also section 8.
After spillage / leakage :	Do not allow to penetrate into sewers, rivers and ground water. In case of spillage, contact the competent authorities if the situation cannot be brought under control rapidly and efficiently.
Spill cleanup methods :	- Recovery: Use mechanical means such as pumps, skimmers and absorbent materials. Never use dispersing agents. Contain and collect the spilled product with sand or any other inert absorbent material. Preserve the waste in closed and sealed recipients. - Elimination: Hand over contaminated materials to an approved collector - see also section 13.
Prevention of secondary risks :	Remove all sources of ignition. Cut off the electric power supply if this operation causes no sparks in the area containing vapours from the product.

### 7. HANDLING AND STORAGE

#### HANDLING :

Prevention of user exposure :	Prevent the formation of vapours, mist and aerosols. Handle in well-ventilated premises. Keep the product away from food and beverages. Operations involving the inspection, cleaning and maintenance of storage containers require the application of strict procedures and must be entrusted to qualified specialist personnel only. DO NOT SMOKE. AVOID INHALING VAPOURS. AVOID CONTACT WITH THE SKIN AND MUCOUS MEMBRANES. Wear safety boots and fully covering protective clothing GENERATING NO STATIC ELECTRICITY.
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# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

Prevention of fire and explosion :	Use explosion-proof material. Arrange machinery and equipment so as to prevent the sheet of burning product from spreading (retention pits and basins, syphons in the water drainage system). Handle away from any source of ignition (open flame and sparks) and heat (hot manifolds or casings). Do not use compressed oxygen or air when transferring or pouring the products. <b>OPERATE ONLY ON COLD AND DEGASSED RESERVOIRS IN VENTILATED PREMISES (TO AVOID RISK OF EXPLOSION).</b> Empty containers may contain flammable or explosive vapours.
Precautions :	Loading and unloading must be carried out at room temperature. To prevent risks related to static electricity build-up, ensure that the machinery, equipment and tanks are properly earthed, prohibit charging in the rain and ensure that the product is poured slowly, particularly at the beginning of the operation. Avoid extended and repeated contact with the skin as this may cause skin conditions, which may also be aggravated by minor injuries or by contact with soiled clothing. Remove any soiled or splashed clothing immediately. After contact with skin, wash immediately with plenty of water and soap. Avoid breathing in vapours, fumes or mists. Do not eat or drink or smoke during use. Avoid contact with strong oxidising agents. Use only hydrocarbon-resistant containers, joints, pipes etc...
STORAGE :	
Technical measures :	Use anti-explosive materials conforming with the applicable regulations.
Storage precautions :	- Suitable: Store packaged product (drums, samples, cans...) in well-ventilated areas. Store at room temperature, protected against contact with water and moisture, and away from any source of ignition. Installations should be designed to avoid ground and water pollution. Electric installations must comply with the applicable regulations. Arrange the machinery and equipment so as to prevent fire from spreading (retention pits and basins, syphons in the drainage system). Follow regulations applicable for hazard-rated facilities and local airport regulations. - To be avoided: Do not store exposed to the elements.
Incompatible products :	Dangerous reaction when in contact with strong oxidizers (herbicides etc...).
Packaging materials :	Use only hydrocarbon-resistant containers, joints, pipes, etc.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Technical measures :	Use this product in a well-ventilated atmosphere with explosion-proof equipment. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.
Occupational exposure limit :	In FRANCE, exposure to kerosene vapours is not regulated; in USA, the Mean Exposure Value (TLV-TWA) is 200 mg/m <sup>3</sup> for 8 hours.
Respiratory protection :	When working in confined spaces (tanks, reservoirs ...), ensure that there is a supply of air suitable for breathing and wear or use the recommended equipment.
Hand protection :	Impermeable hydrocarbon-proof gloves. Recommended materials : PVA, Nitrile, Fluoro polymer.
Eye protection :	Goggles, in case of risk of splashing.
Skin and body (other than the hands) protection :	Face mask, boots, hydrocarbon-proof clothing, safety boots, as applicable.



# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

Hygienic work practices :

Avoid contact with the skin.

If the product comes into contact with the skin, wash the affected area immediately and copiously with soap and water.

In case of contact with eyes, wash immediately in copious amounts of water while keeping eyelids spread apart for at least 15 minutes and consult a specialist.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance :	Liquid
Colour :	Colourless to light yellow.
Odour :	Characteristic.
Density/specific gravity :	775 - 840 kg/m <sup>3</sup> Temperature (°C) 15
Flash point :	>= 38 °C
Comments on flash points :	~41°C (ASTM D 3828)
Température d'auto-inflammation :	> 230 °C (ASTM E 659)
Comments on autoignition temperature :	This temperature may be significantly lower under particular conditions (slow oxidation on finely divided materials...).
Flammability limit - lower(%) :	0,7
Flammability limit - upper(%) :	6
Comments on explosivity :	Explosive mixtures may form in contact with air.
Temperatures at phase change :	Distillation range: ~ 130 - 300 ° C Congealing temperature: =< - 47 ° C (ASTM D 2386)
Vapour density :	> 1 (Air=1)
Vapour pressure :	< 8 hPa Temperature (°C) 20
Solubility :	- in water : Practically immiscible Insoluble - in organic solvents : Soluble in many common solvents.
Viscosity :	< 7 mm <sup>2</sup> /s Temperature (°C) 40
Further information :	- pH: not applicable Log Pow = 3,3 - > 6 for the hydrocarbon components of kerosines.

### 10. STABILITY AND REACTIVITY

Stability :	The product is stable at normal storage, handling and use temperatures.
Conditions to avoid :	Heat (temperatures above flash point), sparks, ignition points, flames, static electricity
Materials to avoid :	Strong oxidising agents.
Hazardous decomp. products :	Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot.

### 11. TOXICOLOGICAL INFORMATION

Acute toxicity / Local effect :



# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

Inhalation, comments:	The vapours inhaled or spray may be irritating for the respiratory tract and for mucous membranes. Vapours inhaled in strong concentration have a narcotic effect on the central nervous system, which may be light headache, dizziness, somnolence or serious fainting, in which case first aid is required rapidly.
Skin contact, comments:	Irritating.
Eye contact, comments:	Not classified as irritating, but may cause a burning feeling and temporary reddening.
Ingestion, comments:	Harmful: If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey for 48 hours min).

### CHRONIC TOXICITY OR LONG-TERM TOXICITY :

Inhalation :	Vapour and spray may be irritating for the respiratory tract and for mucous membranes
Sensitization :	Not classified as allergenic.

## 12. ECOLOGICAL INFORMATION

Ecotoxicity :	Acute toxicity. LC50 96 hours fish 7,3(WAF) - 45(OWD) mg/l Acute toxicity. EC50 48 hours Crustacea 1 -21 mg/l Acute toxicity. IC50 72 hours Algae (Raphidocelis subcapitata) 3,7 - 8,3 mg/l
Comments about ecotoxicity :	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (CONCAWE recommendation).
Mobility :	- Air: Lightest molecular weight hydrocarbons evaporate in the air and disperse to a degree, depending on local conditions - Land: The product may infiltrate the ground. Higher molecular weight hydrocarbons will be absorbed on sediment. - Water: The product spreads on the surface of the water. A small amount may dissolve.
Bioaccumulation :	Bioconcentration Factor (BCF): 61 - 159 Potentially bioaccumulative
Persistence and degradability :	From the know properties of hydrocarbons in the range C9 - C16, it is considered that kerosines are not readily biodegradable, but as they can be degraded by micro-organisms, they are regarded as being inherently biodegradable.

## 13. DISPOSAL CONSIDERATIONS

Waste disposal :	The recommended method is recycling or incineration at an approved installation.
Disposal of contaminated packaging :	Empty packagings may contain flammable or explosive vapours. Disposal via an authorised waste contractor.

## 14. TRANSPORT INFORMATION

UN Number :	1863
Proper shipping name (national) :	Carburéacteur
Proper shipping name (international) :	Kérosène (UN 1223)
Road (ADR) / Rail (RID) :	
Class :	3



# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

Code de classification :	F1
Hazard Label(s) :	3
Hazard identification number :	30
Packing Group :	III
Transport by barge (ADNR) :	
Class :	3
Code de classification :	F1
Hazard Label(s) :	3
Packing Group :	III
Marine (IMO-IMDG) :	
Class :	3
Hazard Label(s) :	3
Safety card :	F-E, S-E
Marine pollutant :	No.
Packing Group :	III
Air (ICAO/IATA) :	
Class :	3
Hazard Label(s) :	3
Packing Group :	III
Special provisions :	none

### 15. REGULATORY INFORMATION

EC No : 265-184-9 - Kerosene (petroleum), hydrodesulphurised  
 EC No : 294-799-5 - Kerosene (petroleum) sweetened

Symbol(s) :



Symbol(s) : Xn Harmful N Dangerous for the environment.

Contains : Kerosene (petroleum) sweetened  
 Kerosine (petrol) hydrodesulfurized

Risk phrases : R-10 Flammable.  
 R-65 Harmful: may cause lung damage if swallowed.  
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# PAKISTAN STATE OIL COMPANY LIMITED

## MATERIAL SAFETY DATA SHEET

**JET A-1**

**MSDS No. 8**

Safety phrases :	S-23 Do not breathe vapour. S-24 Avoid contact with skin. S-62 If swallowed, do not induce vomiting; seek medical advice immediately and show the container or label. S-61 Avoid release to the environment. Refer to special instructions/Safety Data Sheets. S-2 Keep out of reach of children.
Other :	CONCAWE : report 01/53 and 01/54
EU directives :	D. 67/548/EC modified by D. 94/69/EC (21th ATP)
Social Security code :	Table of occupational illnesses and diseases No. 4 bis - Art. L 461-6, Art. D.461-1, annexe A, n° 601
Labor code :	- Art. R 241-50, decree of 07.11.1977 (special medical surveillance).
Listed installations :	Flammable liquid (1st category) heading 1430 Follow the regulations applicable for hazard-rated facilities.
Others (French Regulations) :	Order of 9 november 2004 relating to the classification, packaging and labelling of dangerous substances and transposing directive 2001/59/EC Decree 2003-1254 of december, 23th 2003 (JORF of march, 2nd 2004)

### 16. OTHER INFORMATION

Explanations of R-phrases in section 2 :	R-10 Flammable. R-65 Harmful: may cause lung damage if swallowed. R-38 Irritating to skin. R-51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
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#### RECOMMENDED USES AND RESTRICTIONS ON USE :

The product is to be used only as fuel for aircraft turbines.

Revision date: 2006-11-23

Supersedes the data sheet of: 2006-04-10

\* Information revised since the previous version of the SDS :

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