

## 1 NAME OF SUBSTANCE AND COMPANY

### 1.1 Product Identification

**Name of Substance:** Jet Fuel JET A-1

**EC No.** 294-799-5

**CAS No.** 91770-15-9

**REACH Registration No.** 01-2119502385-46-0009

### 1.2 Product Use:

Established use: fuel

### 1.3 Detailed Information on MSDS Supplier

#### Manufacturer:

Public Company *ORLEN Lietuva*  
Juodeikiai, LT-89467 Mažeikiai District, Lithuania  
Tel.: (370) 443 92121  
Telefax: (370) 443 92525  
E-mail address: info@orlenlietuva.lt

### 1.4. Emergency telephone

Public Company ORLEN Lietuva (24 hours a day): 370 443 92510

Poison Center (24 hours a day): +370 52362052, mob. +370 687 53378

## 2 POSSIBLE HAZARDS

### 2.1 Classification

**2.1.1 Classification according to Regulation (EC) No. 1272/2008:** H226, H304, H315, H336, H411.

**2.1.2 Classification according to Council Directive 67/548/EEC:** N, Xi, Xn; R10, R38, R65, R51/53.

### 2.2 Labeling

*Labeling and classification according to Regulation (EC) No. 1272/2008*

#### Signal word:

DANGER

#### Hazard pictograms



GHS02

GHS08

GHS07

GHS09

#### Hazard statements:

H226: Flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Irritating to skin.

H336: May cause drowsiness or dizziness.

H411: Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P102: Keep out of reach of children.

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P331: Do NOT induce vomiting.  
P501: Dispose of contents/container to ...

**Other hazards**

Jet Fuel (kerosene) is flammable liquid. Light hydrocarbons evaporate slowly.

Vapour irritates eyes and respiratory tract. Liquid product splashes irritate eyes and skin. Long-term and repeated contact causes skin dryness and irritation. May cause chemical pneumonia if inhaled to lungs.

Toxic to aquatic organisms. May cause long-term adverse effects to aquatic environment. Risk of soil and ground water contamination.

**3 COMPOSITION/INFORMATION ON INGREDIENTS****Chemical composition:**

Jet Fuel.

**Components according to Regulation (EC) No. 1272/2008:**

Component name	CAS No.	EC No.	Identification Number	Concentration, % m/m
Hydrotreatment kerosene	91770-15-9	294-799-5	649-427-00-X	Up to 100
Antioxidant	128-39-2, 732-26-3, 98-54-4 88-18-6	204-884-0, 211-989-5, 202-679-0 201-807-2	no date	0 – 0,0031
Anti-static agents Stadis (R) 450	no date	no date	no date	0 – 0,0002

**4 FIRST-AID MEASURES****General Information**

Spillages make surface slippery.

Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply.

Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces.

Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity.

**Inhalation**

Inhalation is unlikely because of the low vapour pressure of the substance at ambient temperature. Exposure to vapours may however occur when the substance is handled at high temperatures with poor ventilation.

Symptoms: may cause headache, nausea, vomiting and an altered state of consciousness.

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

If the casualty is unconscious and:

- Not breathing – ensure that there is no obstruction to breathing and give artificial respiration by trained personnel. If necessary, give external cardiac massage and obtain medical assistance.

- Breathing - place in the recovery position and keep the head below the level of the torso. Administer oxygen if necessary. Obtain medical attention if casualty has an altered state of consciousness or if symptoms do not resolve.

#### **Skin Contact**

Symptoms: reddening, irritation.

Immediately remove contaminated clothing and footwear and dispose of safely.

Wash affected area thoroughly with soap and water.

Seek medical attention if skin irritation, swelling or redness develops and persists.

When using high-pressure equipment, injection of product can occur. If high-pressure injuries occur, immediately seek professional medical attention. Do not wait for symptoms to develop.

For minor thermal burns: Cool the burn. Hold the burned area under cold running water for at least five minutes, or until the pain subsides. However, body hypothermia must be avoided.

#### **Eye Contact**

Symptoms: slight irritation (unspecific).

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.

If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist.

#### **Ingestion**

Symptoms: few or no symptoms expected. If any, nausea and diarrhoea might occur.

In case of ingestion, always assume that aspiration has occurred. The casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.

Do not induce vomiting as there is high risk of aspiration (chemical pneumonia). Gastric lavage should be undertaken only after endotracheal intubation.

Do not give anything by mouth to an unconscious person.

#### **Information to doctor or other competent person providing first aid.**

Treatment according to symptoms.

## **5 FIRE-FIGHTING MEASURES**

#### **Flammability**

Flammable liquid.

#### **Suitable Extinguishing Media**

- Foam (specifically trained personnel only),
- Water fog (specifically trained personnel only),
- Dry chemical powder,
- Carbon dioxide,
- Inert gases (subject to regulations),
- Sand or earth,
- Steam.

#### **Unsuitable Extinguishing Media**

Do not use direct water jets on the burning product; they could cause splattering and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

**Combustion Products**

Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide and unidentified organic and inorganic compounds.

If sulfur compounds are present in appreciable amounts, combustion products may include also H<sub>2</sub>S and SO<sub>x</sub> (sulfur oxides) or sulfuric acid.

**Specific Hazards**

If tanks or containers with product are exposed to fire, there is danger of explosion due to increased pressure inside the vessel. If spillage of product occurs, the mixture of hydrocarbon vapours and air may explode or ignite of sparks or heated surfaces. Tank cars and storage with product, which are in the direct vicinity of the fire, should be cooled by water jets from the safe distance.

**Protective Equipment for Firefighters and Emergency Responders**

Use adequate breathing apparatus, self-contained gas masks and impervious protective clothes. In case of a large fire or in confined or poorly ventilated spaces wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**6 ACCIDENTAL RELEASE MEASURES****General Information**

Kerosene is flammable liquid, any spillage or leak is a severe fire or explosion hazard. Stop or contain leak at the source if safe to do so. Avoid direct contact with released material. Stay upwind. In case of large spillages, alert residents in downwind areas.

Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency.

Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares).

If required, notify relevant authorities according to all applicable regulations.

**Personal Protective Equipment**

Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and antistatic material.

Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons.

NOTE: gloves made of PVA are not water-resistant, and are not suitable for emergency use.

Work helmet. Antistatic non-skid safety shoes or boots.

Goggles or face shield, if splashes or contact with eyes is possible or anticipated.

Respiratory protection: A half or full-face respirator with filter(s) for organic vapours or a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

**Environmental Measures and Cleaning Methods****Spillages on to Land**

Prevent product from entering sewers, rivers, waterways or other bodies of water.

If necessary, dike the product with dry earth, sand or similar non-combustible materials.

Large spillages may be cautiously covered with foam, if available, to limit fire risk. Do not use direct jets.

When inside buildings or confined spaces, ensure adequate ventilation.

Absorb spilled product with suitable non-combustible materials.

Collect free product with suitable means. Transfer collected product and other contaminated materials to suitable containers for recycle, recovery or safe disposal.

In case soil contamination, remove contaminated soil and treat this in accordance with local regulations.

### **Spillages on Water or at Sea**

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. Control the spreading of the spillage. Collect the product by skimming or other suitable mechanical means, only if fire/explosion risks can be adequately prevented.

The use of dispersants should be advised by an expert, and, if required, approved by local authorities.

Collect recovered product and other materials in suitable tanks or containers for recovery or safe disposal.

### **Additional Information**

NOTE: Recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.

Spillages of limited amounts of products, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which are unlikely to entail exposure to dangerous concentrations. However, the build-up of dangerous concentrations may occur in specific spots, like trenches, depressions or confined spaces. In all these circumstances, however, the correct actions should be assessed on a case-by-case basis.

## **7 HANDLING AND STORAGE**

### **General Information**

Ensure that all relevant regulations regarding handling and storage facilities of flammable products are followed.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Use and store only outdoors or in a well-ventilated area.

Avoid contact with the product.

Avoid release to the environment.

### **Handling**

During product transfer activities (loading and unloading of mobile tanks) and during sampling there is a risk of static electrical discharge, therefore precautionary measures against static electricity shall be taken.

Properly sealed mobile tank cars should be used for Jet Fuel transportation.

Ground/bond containers, tanks and transfer/receiving equipment. Use only non-sparking tools.

Do not use compressed air for filling, discharging, or handling operations.

The vapour is heavier than the air. Beware of accumulation in pits and confined spaces.

Use personal protective equipment. Avoid contact with skin and eyes. Do not ingest. Avoid breathing vapours.

### **Storage**

Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Store product only in tanks or containers designed for flammable liquids.

Storage installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills.

Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.

Before entering storage tanks and commencing any operation in a confined area check the atmosphere for oxygen content and flammability.

Kerosene vapours (gaseous hydrocarbons) can build up in the headspace of tanks, they may ignite at temperatures below flash point, therefore, care should be taken to avoid static electrical discharge and all ignition sources during product gauging or sampling from storage tanks.

Store separately from oxidizing agents.

### **Recommended and Unsuitable Materials for Storage**

Recommended materials: For containers (tanks), or container linings use mild steel, stainless steel.

Unsuitable materials: some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

### **Container Advice If the Product is Supplied in Containers**

Keep only in the original container or in a suitable container for this kind of product.

Keep containers tightly closed and properly labeled. Protect from the sunlight.

Light hydrocarbon vapours can build up in the headspace of containers. These can cause flammability/explosion hazards.

Empty containers may contain flammable product residues. Do not weld, solder, drill, cut or incinerate empty containers, unless they have been properly cleaned.

### **Application:**

The product is used as jet fuel in jet engines and aviation turbines.

## **8 EXPOSURE CONTROL/ PERSONAL PROTECTION**

### **Exposure Limits**

National occupational exposure limits allowed should be observed. Where not established, the following short-term exposure limit is recommended:

- 500 mg/m<sup>3</sup>.

### **Technical measures**

At ambient temperatures kerosene emits small quantities of vapour, however, during various technical and process operations kerosene vapours may be emitted into the environment, therefore the concentration in working environment air shall be controlled to the minimum allowed limit.

### **Personal Protective Equipment**

#### **Respiratory Protection**

If during operations the exposure to large amounts of product vapour and gas is inevitable, then suitable respiratory protective equipment, such as A2 filtering mask or analogous should be applied (e.g. acc. to EN 14387). When working in vessel internals or other confined spaces **do not** use filtering masks but the special self-contained protective equipment. Respiratory protection equipment should be selected and used in accordance with the manufacturer's instructions and requirements established by the law.

#### **Eye Protection**

Wear safety goggles in circumstances where eye contact may occur (e.g. acc. to EN 166).

**Skin and Body Protection****Hand Protection**

Wear petroleum product resistant gloves (e.g. acc. to EN 420, EN 388, EN 374-2, EN 374-3).

**Other Protective Measures**

It is necessary to wear protective clothes (e.g. acc. to EN 465), petroleum product resistant gloves and other protection equipment. Protective clothing should be regularly inspected and maintained.

**Special Hygienic Recommendations**

Wash hands before breaks and after work.

**Environmental Impact Control**

To ensure the compliance of ventilation and process equipment with requirements of environmental legal acts, emissions of such equipment are subject to check ups. In some cases vapour filtering installations or process equipment modifications may be necessary for the reduction of emission to allowed limit.

**9 PHYSICAL AND CHEMICAL PROPERTIES****Appearance, colour, odour**

Clear liquid, odour characteristic to hydrocarbons.

**Important Safety Information**

**pH** Insignificant information.

**Distillation temperature range** 150 – 300 °C.

**Freezing point** max minus 47 °C.

**Flash point** > 40 °C.

**Self-ignition temperature** > 220 °C.

**Explosion concentration in air** 0.6 – 6.0 % v/v;

**Vapour pressure** approximately 2 kPa (at 38 °C).

**Vapour density rel. to air** > 3.

**Density at 15°C** 775 – 840 kg/m<sup>3</sup>.

**Viscosity at minus 20 °C** < 8 mm<sup>2</sup>/s.

**Solubility:**

- in water – low solubility (< 50 mg/l at 20 °C );
- in fat – information unavailable.

**10 STABILITY AND REACTIVITY****Stability**

Stable in typical conditions and at ambient temperatures.

**Conditions to Avoid**

High ambient temperature. Avoid static electrical discharges and other ignition sources.

**Materials to Avoid**

Avoid contact with strong oxidizing agents.

**Hazardous Decomposition Products**

Thermal decomposition products vary depending on conditions.

Partial decomposition produces fume, carbon dioxide, carbon monoxide and other harmful gases.

Concentration of toxic gas in a confined space or premises may reach a hazardous limit.

## 11 TOXICOLOGICAL INFORMATION

### Sources of Exposure

The substance may affect human body through skin, if inhaled or swallowed.

### Acute Health Effects

Kerosene vapour slightly irritates eyes and respiratory tract. Liquid product splashes irritate eyes and skin. Irritating to digestive tract if swallowed. May cause chemical pneumonia if liquid product is inhaled to lungs.

Experimental acute toxicity data:

- Acute oral  $LD_{50} > 5000$  mg/kg,
- Acute inhalation  $LC_{50} > 5200$  mg/m<sup>3</sup>,
- Acute dermal  $LD_{50} > 2000$  mg/kg.

### Chronic Health Effects

Prolonged or repeated contact with the product causes drying and irritation of the skin. Vapour irritates eyes and respiratory tract. Prolonged contact with kerosene vapour may cause renal failure.

Experimental chronic toxicity data:

- Short-term repeat dose dermal  $NOAEL \geq 400$  ml/kg/bw,
- Short-term repeat dose inhalation  $NOAEL \geq 24$  mg/m<sup>3</sup>,
- Sub-chronic repeat dose inhalation  $NOAEL \geq 1000$  mg/m<sup>3</sup>,
- Sub-chronic repeat dose oral  $NOAEL \geq 750$  mg/kg/bw.

### Reproductive Toxicity

Experimental Data:

- Oral  $NOAEL \geq 3000$  mg/kg/day,
- Dermal  $NOAEL \geq 494$  g/kg/day,
- Inhalation  $NOAEC \geq 1000$  mg/m<sup>3</sup>.

NOTE: Handling kerosene under usual conditions causes no toxic hazard.

## 12 ECOLOGICAL INFORMATION

### Ecotoxicity

Hydrocarbons of kerosene (liquid) are harmful to aquatic life; may cause long-term adverse effects in the aquatic environment. Spills may form a film on water surfaces causing physical damage to aquatic fauna and flora. Kerosene vapour is of low toxicity. Absorbed hydrocarbon residues can be harmful to organisms found in organic water sediments.

Experimental Data:

- Acute aquatic invertebrate  $EL_{50}$  1,4 mg/l,
- Acute aquatic algae  $EL_{50}$  1-3 mg/l;  $NOEL$  1 mg/l,
- Acute fish  $LL_{50}$  2-5 mg/l;  $NOEL$  2 mg/l,
- Long-term aquatic invertebrate  $EL_{50}$  0,89 mg/l;  $NOEL_{50}$  0,48 mg/l,
- Long-term fish  $NOEL_{50}$  0,098 mg/l.

### Durability and Degradability

Low biodegradability of kerosene hydrocarbons. Non-biodegradable in the water. Volatile hydrocarbons disperse in the atmosphere.

### Bio-Accumulative Potential

Kerosene hydrocarbons are possibly accumulative in living organisms (tests with fish, hydrocarbon concentrations decline noticeably when fish are transferred into pure water).

**Mobility**

Spilled kerosene evaporates slowly from surface soil and water. Dissolves slightly in water. Product may penetrate the soil causing ground water contamination. Degradation occurs extremely slowly under anaerobic (non-oxygen) conditions. Kerosene hydrocarbons can be absorbed in organic materials of soil or water sediments.

**13 WASTE MANAGEMENT****Waste Disposal Methods**

Waste is disposed of by de-harming it in accordance with national requirements and local regulations or via a licensed waste disposal contractor. Identify the hazards of waste handling and undertake required safety measures. Personal protective equipment is necessary for waste managing personnel.

Empty tanks and tank cars may contain some remaining product, therefore, hazard-warning labels are to be retained as a guide to the safe tank handling and waste disposal. Empty containers represent a fire hazard as they may contain flammable product residues and vapour.

**14 TRANSPORT INFORMATION**

**UN number** - 1863  
**Shipping name** - Jet Fuel JET A-1.

**Land Transport****ADR**

Hazard class - 3  
Packing group - III  
Environmental hazard - environmentally hazardous

**RID**

Hazard class - 3  
Packing group - III  
Environmental hazard - environmentally hazardous

**Sea Transport****IMDG**

Hazard class - 3  
Packing group - III  
Sea pollutant - yes

**Air Transport****ICAO/IATA**

Hazard class - 3  
Packing group - III

**15 REGULATORY INFORMATION****Legislation****Lithuanian:**

Commission Regulation (EU) No. 453/2010; Regulation (EC) No. 1272/2008 of the European Parliament and of the Council; Law on Chemical Substances and Preparations of the Republic of Lithuania (*Official Gazette (Valstybės Žinios)*, 2000, No. 36-987; 2004, No. 116-4329; 2005, No. 79-2846; 2006, No. 65-2381; 2008, No. 76-3000); Order No. 532 /742 „Regarding Procedure of Classification and Labeling of Hazardous Chemicals and Preparations“ issued by the Minister of Environment and Minister of Health Care of the Republic of Lithuania on 19 December 2000 (*Official Gazette*, 2001, No. 16-509; 2002, No. 81-3501; 2003, No. 81(1)-3703, No. 81(2)-3703, No. 81(3)-3703; 2005, No. 115-4196, No. 141-5095; 2008, No. 66-2517); Law of the Republic of Lithuania on Packing and Packing Wastes Management (*Official Gazette*, 2001, No. 85-2968; 2005, No.86-3206; 2008, No.71-2699); Lithuanian Hygienic Norm HN 23:2007 „Concentration Limit Values of Hazardous Chemicals in Working Environment Air. General Requirements“ (*Official Gazette*, 2007, Nr.108-4434) approved by Order No. V-827/A1-287 of the Minister of Health Care and the Minister of Social Security and Labor of the Republic of Lithuania on 15 October 2007.

**Chemical Safety Assessment**

Jet Fuel JET A-1 chemical safety assessment has been conducted.

**16 OTHER INFORMATION**

The Material Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EU) No. 453/2010.

**Hazard statements:**

- H226: Flammable liquid and vapour.
- H304: May be fatal if swallowed and enters airways.
- H315: Irritating to skin.
- H336: May cause drowsiness or dizziness.
- H411: Toxic to aquatic life with long lasting effects.

**Precautionary statements:**

- P102: Keep out of reach of children.
- P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P331: Do NOT induce vomiting.
- P501: Dispose of contents/container to ...

**Risk Phrases According to Council Directive 67/548/EEC:**

- R10 Flammable.
- R38 Irritating to skin.
- R65 Harmful: may cause lung damage if swallowed.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do not use Jet Fuel for purposes other than indicated in the manufacturer's information. During such use the user may be exposed to unforeseen hazards.



## MATERIAL SAFETY DATA SHEET

Acc. to the Commission Regulation (EU) No. 453/2010

Substance **JET FUEL JET A-1**

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Should you have any questions or doubts regarding the MSDS, its contents or other issues related to the material safety, please contact us at the address: [info@orlenlietuva.lt](mailto:info@orlenlietuva.lt)

NOTE. Information provided herein is considered to be accurate as of the date specified below. No warranty is made as to the accuracy or completeness of the data and information provided in this data sheet. Information provided herein serves only as guidelines for safe work, use, processing, storage, and waste management. It cannot be considered as a warranty or quality certificate. This information applies only to specific material designated and may not be suitable for such material used in combination with any other materials or in any other manner not described in this document. Public Company *ORLEN Lietuva* shall not be responsible for any damage or injury resulting from abnormal use of the material and from any failure to adhere to recommendations.