SAFETY DATA SHEET
KEROSENE

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **UN: 1223**

Product Name: KEROSENE
Product description: Petroleum hydrocarbons.
Uses: For domestic, commercial and industrial use. For specific applications see the technical sheet or ask the representative of PUMA ENERGY.
Synonyms: Illuminating paraffin, kerosine, querosín.

COMPANY IDENTIFICATION:

Supplier: Puma Energy International B.V.
2, Quai de La Poste, CH 1204 Geneva, Switzerland
Tel: +(41) 22 594 69 00
Fax: +(41) 22 594 61 01
www.pumaenergy.net

Emergency Telephone Number: 1-801- PUMA ENERGY
1-801-2267-3672
msdsrequest@puma-energy.com

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATIONS:
- Flammable liquid. Category 3
- Skin irritant. Category 2
- Eyes irritant. Category 2A
- Carcinogenic. Category 2
- Specific Target Organ Toxicity: (Single Exposure) Category 3
- Harmful or fatal if swallowed: Category 1
- Chronic aquatic toxicity. Category 2

PICTOGRAMS:

SIGNAL WORD: **DANGER**

NFPA ID: **Health: 2** **Flammability: 2** **Reactivity: 0**
(Hazard Rating: Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme – 4)

PHYSICAL HAZARDS:
- Combustible liquid and vapor.
- Harmful or fatal if swallowed - may cause lung damage if swallowed.
- May cause respiratory tract irritation if inhaled.

- Causes skin irritation.
- Toxic to aquatic organisms.

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HEALTH HAZARDS:

Inhalation: Mists of this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

Eye: Not expected to cause prolonged or significant eye irritation.

Skin Contact: Contact with the skin causes irritation. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.

SECTION 3. COMPOSITION AND CHEMICAL INFORMATION ON INGREDIENTS

A mixture of kerosene streams.

INGREDIENTS	CAS NUMBER	CONCENTRATION
Kerosene	8008-20-6	0 - 100%
Kerosene hydrodesulfurized	64742-81-0	0 - 100%
Nafthalene	91-20-3	0 - 0.5%
Ethyl benzene	100-41-4	0 - 0.5%

SECTION 4 FIRST AID MEASURES

Inhalation:
Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

Skin:
Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Eye:
No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Ingestion:
If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Medical advice:
Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

Target Organs:
Repeated inhalation of this material at concentrations above the recommended exposure limit may cause damage to the following organ(s) based on animal data: Auditory System Nervous System

SECTION 5 FIRE FIGHTING MEASURES

Flammability Properties:

Flash Point [Method]:	38°C (100°F) Closed Cup ASTM D56
Autoignition Temperature:	> 220°C (428°F)
Flammability limits in air:	Lower: 0.7% / Upper: 5.0%

Extinguishing Media:
Water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish flames.

Fire Fighting Instructions:
For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Hazardous Combustion Products:
Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures:
Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

Wear appropriate personal protective equipment when cleaning up spills. Refer to Section 8.

Spill Management:
Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures:
READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 30°C (85°F).
Do not get in eyes, on skin, or on clothing. Do not breathe vapor or fumes. Do not breathe mist. Do not taste or swallow. Wash thoroughly after handling.

Unusual Handling Hazards:
WARNING! Use only in a well ventilated area. Toxic fumes may accumulate and cause death**.**

General Handling Information:
Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard:
Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

General Storage Information:
DO NOT USE OR STORE near heat, sparks or open flames. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Container Warnings:
Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Occupational exposure limits:

Kerosene (8008-20-6)	ACGIH:	200 mg/m3 TWA
		Skin - sinificative contribution to total exposure of skin.
	NIOSH:	100 mg/m3 TWA
Naftaleno (91-20-3)	ACGIH:	10 ppm TWA
		15 ppm STEL
		Skin - sinificative contribution to total exposure of skin.
	OSHA:	10 ppm TWA; 50 mg/m3 TWA
	NIOSH:	10 ppm TWA; 50 mg/m3 TWA
		15 ppm STEL; 75 mg/m3 STEL

PERSONAL PROTECTION
Eye Protection:
No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection:
Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Polyvinyl Alcohol (PVA) (Note: Avoid contact with water. PVA deteriorates in water.), Viton.

Respiratory Protection:
Determine if airborne concentrations are below the recommended exposure limits. If not, wear an approved respirator that provides adequate protection from measured concentrations of this material, such as: Air-Purifying Respirator for Organic Vapors.
When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

ENGINEERING CONTROLS:
The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances.
Appropriate measures include: Use sealed systems as far as possible. Adequate ventilation to control airborne concentrations below the exposure limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use.
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SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Colorless to light yellow liquid. Petroleum odor.
Substance Chemical Family: Petroleum Hydrocarbon

Boiling Point:	160°C (320°F) - 300°C (572°F)
Specific Gravity:	00.81 @ 15.6°C (60.1°F)
Vapor Pressure:	1 kPa @ 37.8°C (100°F)
Vapor density:	(Air = 1) 5.7 (Approximate)
Viscosity:	8 cSt @ -20.0 °C (-28.9 °F) (Max)
Freezing Point	-40°C (-40°F) (Max)
Melting Point	N/A
Solubility in water:	Low PPM range in water

SECTION 10 REACTIVITY AND STABILITY

Stability:
This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Conditions to Avoid:
Avoid heat and open flames.

Incompatibilities:
May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products:
None known (None expected).

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Inhalation Toxicity (rat): LC50: >5ml/l (4 hours)
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Oral (rat): LD50: >5 g/kg
Dermal (rabbit): LD50: >5g/kg (24 hours).
Draize Eye irritation score: 0.0/110 in rabbits for a 24-hour exposure.
Primary Irritation Index (PII) skin irritation in rabbits: 5.5/8 for a 4-hour exposure.
Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test

Additional Toxicological Information
ACUTE/SUBCHRONIC: Following acute exposure to kerosene, signs observed in rats and rabbits were of a low order of toxicity: central nervous system depression occurred following oral exposure, skin irritation (ranging from slight to severe irritation) occurred with dermal exposure, and respiratory tract irritation occurred with inhalation exposure. None of the kerosenes tested produced more than slight eye irritation and none were skin sensitizers. However, intratracheal administration or artificial aspiration of small volumes (0.1 to 0.2 ml) of kerosene into the lungs of rats, chickens and primates resulted in lung damage.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The 7 day(s) EC50 for mysid shrimp (Mysidopsis bahia) is 1.19 mg/l.
This material is expected to be toxic to aquatic organisms.

ENVIRONMENTAL FATE: This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

DISPOSAL RECOMMENDATIONS:
Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Name: FUEL, AVIATION, TURBINE ENGINE
DOT Hazard Class: 3 (Flammable Liquid)
DOT Identification Number: UN1863
DOT Packing Group: III

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: YES
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

The following components of this material are found on the regulatory lists indicated.

Kerosene	17, 18, 20
Kerosene, hydrodesulfurized	17, 18, 20

CHEMICAL INVENTORIES:
UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.
CANADA: All the components of this material are on the Canadian DSL or have been notified under the New Substance Notification Regulations, but have not yet been published in the Canada Gazette.

SECTION 16 OTHER INFORMATION

Revision#: 2
Revision Date: 01/Feb/2016
Revisions since last change (discussion): This Safety Data Sheet (SDS) has been reviewed to fully comply with the guidance contained in the ANSI SDS standard (ANSI Z400.1/Z129.1-2010). We encourage you to take the opportunity to read the SDS and review the information contained therein.

THIS PRODUCT IS INTENDED FOR USE AS A FUEL ONLY.

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT: IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

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