



A Valero Company

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS NUMBER: 5213

MSDS DATE: April 1, 2010

PRODUCT NAME: KEROSENE – TYPE AVIATION TURBINE FUEL

TRANSPORTATION EMERGENCIES: CALL CANUTEC AT (613) 996-6666

Ontario Regional Poison Information Center
1-800-267-1373 (Ottawa)
1-800-268-9017 (Toronto)

Quebec Poison Control Center
1-800-463-5060
New Brunswick Poison Information Center
(506) 857-5555

Nova Scotia / PEI Poison Control Center:
1-800-565-8161

Newfoundland Poison Control Center
(709) 722-1110

MSDS ASSISTANCE: 1-888-871-4404

SUPPLIER'S NAME/ADDRESS:

ULTRAMAR LTD
2200 McGill College
Montreal, Quebec H3A 3L3
(514) 499-6111

CHEMICAL NAME: Kerosene; Petroleum Distillate

CAS NUMBER: 8008-20-6

SYNONYMS/Common Names: This Material Safety Data Sheet applies to the following product descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product and are not reflected in this document. Consult specification sheets for technical information.

Jet A1 Fuel

Kerosene

2. COMPOSITION, INFORMATION ON INGREDIENTS

DESCRIPTION: Jet Fuel is a complex mixture of hydrocarbons from a variety of chemical processes blended to meet standardized product specifications. Composition varies greatly and includes C9 to C16 hydrocarbons with a boiling range of about 160- 300° C. The following is a non-exhaustive list of common components, typical percentage ranges in product, and occupational exposure limits for each. Functional and performance additives may also be present at concentrations below reporting thresholds.

Component or Material Name	%	CAS Number	ACGIH Limits			OSHA Exposure Limits			
			TLV	STEL	Units	PEL	STEL	C/P	Units
Kerosene	0-100	8008-20-6	200	NA	mg/m3	NA	NA	NA	NA

Product may contain traces of sulphur and benzene.

Basis for LD ₅₀ and LC ₅₀ values	LD ₅₀ value	Species & route	LC ₅₀ Value	Species and route
Mixture	20 g/Kg	Guinea Pig-oral	> 5 g/ kg/ 4H	Rat by inhalation

3. HAZARDS IDENTIFICATION

HEALTH HAZARD DATA:

The major effect of exposure to this product is headache, drowsiness, irritation of the eyes and nose, and lungs. Target organs include the respiratory system, nervous system, and mucous membranes.

HAZARDS OF COMBUSTION PRODUCTS: Carbon monoxide and carbon dioxide can be found in the combustion products of this product and other forms of hydrocarbon combustion. Carbon monoxide in moderate concentrations can cause symptoms of headache, nausea, vomiting, increased cardiac output, and confusion. Exposure to higher concentrations of carbon monoxide can cause loss of consciousness, heart damage, brain damage, and/or death. Exposure to high concentrations of carbon dioxide can cause simple asphyxiation by displacing available oxygen. Combustion of this and other similar materials should only be carried out in well ventilated areas. The National Kerosene Heater Association has released preliminary test results that indicate no increased emissions of carbon monoxide or nitrogen dioxide resulted from using red-dyed kerosene in “new generation” heaters.

MEDICAL CONDITION GENERALLY AGGRAVATED BY EXPOSURE: Medical conditions which have the same symptoms and effects as those outlined under the health hazard information section can be aggravated by exposure to this product.

MEDICAL LIMITATION: N/A

ROUTES OF EXPOSURE

INHALATION: Irritation of the upper respiratory tract and eyes, with possible euphoria, dizziness, headache, incoordination, ringing in the ears, convulsions, coma, and respiratory arrest.

SKIN CONTACT: Defatting of the skin may occur with continued and prolonged contact. Irritation and burning sensation may occur on exposure to the liquid or mists, as well as the possibility of blisters. Hair loss can occur upon chronic exposure.

SKIN ABSORPTION: Not significant.

EYE CONTACT: Severe burning sensation with temporary irritation and swelling of lids.

INGESTION: Irritation of the mucous membranes of throat, esophagus and stomach which may result in nausea and vomiting; central nervous system depression may occur, if absorbed (see Inhalation symptoms above). If aspirated, chemical pneumonitis may occur with potentially fatal results.

EFFECTS OF OVEREXPOSURE

ACUTE: See above.

CHRONIC: May cause dermatitis. Animal studies have shown development of cancerous tumours, but no correlation in humans has been established.

CARCINOGENICITY INFORMATION

Kerosene is not listed as carcinogenic by NTP, OSHA, and ACGIH. IARC has listed kerosene as a probable human carcinogen (2A).

MUTAGENICITY/TERATOGENICITY/ REPRODUCTIVE TOXICITY INFORMATION

Mutagenicity: Not a mutagen.

Teratogenicity: No teratogenic effects are observed.

Reproductive Toxicity: No reproductive effects observed.

4. FIRST AID MEASURES

EYES: Immediately flush eyes with large amount of water for at least 15 minutes holding lids apart to ensure flushing of the entire eye surface. **SEEK MEDICAL ATTENTION.**

SKIN: Wash contaminated areas with plenty of soap and water. A soothing ointment may be applied to irritated skin after thoroughly cleansing. Remove contaminated clothing and footwear. **SEEK MEDICAL ATTENTION.**

INHALATION: Get person out of contaminated area to fresh air. If breathing has stopped resuscitate and administer oxygen if readily available. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

INGESTION: Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. If vomiting occurs spontaneously, keep airway clear. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

NOTES TO PHYSICIAN: Do not induce vomiting, use gastric lavage only. Aspiration of liquid into the lungs could result in Chemical pneumonitis. Use of adrenaline is not advised. Treat symptomatically.

5. FIRE AND EXPLOSION DATA

FLASH POINT: >38 °C (100 °F) (Tag Closed)

AUTOIGNITION TEMPERATURE: 240°C (464 °F)

FLAMMABLE LIMITS IN AIR: UEL: 7.0%
LEL: 0.8%

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam, or water spray. Do not use direct high pressure water spray. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect persons attempting to stop a leak.

SPECIAL FIRE FIGHTING PROCEDURES: Pressure-demand, self-contained breathing apparatus should be provided for fire fighters in buildings or confined areas where this product is stored. Storage containers exposed to fire should be kept cool with water spray.

UNUSUAL FIRE AND EXPLOSION HAZARD: Vapour accumulation is possible, and flashback can occur with explosive force if vapours are ignited. Transfer to and from commonly grounded containers.

SENSITIVITY TO STATIC DISCHARGE /MECHANICAL IMPACT: May accumulate static charge. No sensitivity to impact.

6. ACCIDENTAL RELEASE MEASURES

If material is spilled, steps should be taken to contain liquid and prevent discharges to streams or sewer systems and control or stop the loss of volatile materials to the atmosphere. Remove ignition sources. Absorb spilled material with non-combustible materials such as cat litter, dirt, sand, or petroleum sorbent pads/pillows. Do not use combustible materials like rags, wood chips, or sawdust. Remove contaminated materials to an appropriate disposal container. For large spills dike spill area with sand or dirt to contain material and cover sewers/drains. Remain upwind and keep unnecessary people away. Contact trained emergency response team for cleanup. Remove liquid using grounded suction pumps, isolate hazard area, and deny entry. Spills or releases should be reported, if required to the appropriate local, provincial, and federal regulatory agencies.

7. HANDLING AND STORAGE INFORMATION

Store only in approved containers. Protect containers against physical damage. Outside or detached storage is preferred. Separate from oxidizing materials. Store in cool, well ventilated area of non-combustible construction away from possible sources of ignition. Keep away from incompatible materials and follow NFPA 30 for storage requirements. This product is intended for use as a fuel in engines and heaters designed for kerosene or diesel fuels, and for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION REQUIREMENTS: Work in well ventilated areas using good engineering practices to process, transfer and store. Special ventilation is not required unless product is sprayed or heated. High volume use may require engineering controls.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY: Respiratory protection is not required unless product is sprayed or heated. Use NIOSH approved respiratory protection following manufacturer's recommendations where spray, mists, or vapours may be generated. Supplied air respiratory protection is required for IDLH areas. See CSA Z94.4-93 and 29 CFR 1910.134 for OSHA Respiratory Protection regulations.

EYE: Face shield and goggles or chemical goggles should be worn where mist or spray may be generated, and where splashing occurs. Shower and eyewash facilities should be accessible.

GLOVES: Impermeable protective gloves such as nitrile gloves should be worn during routine handling of this product. Barrier creams may also be appropriate where tactile sensitivity is required.

OTHER CLOTHING AND EQUIPMENT: Clothing contaminated with this product should be removed and laundered before reuse. Items, which can not be laundered, should be discarded. Allow contaminated items to air dry or hang in a well-ventilated area.

EXPOSURE MONITORING

BIOLOGICAL: No applicable procedure, breath analysis for hydrocarbons has been suggested.

PERSONAL/AREA: Monitor for kerosene using both active and passive monitors employing charcoal adsorption follow by gas chromatography. An average molecular weight of 170 has been suggested as the average value to convert the determined weight of hydrocarbons to ppm. Direct reading colorimetric tubes are available to evaluate short term exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Colorless to pale straw or red oily liquid with characteristic odour.

VISCOSITY: Specification dependent, 1.0-1.9 cSt @ 40°C to 8.0 cSt max @ -4°C

BOILING RANGE @ 760 mm Hg: 280-574°F (160- 300°C)

VAPOR DENSITY (Air=1): 4.5

FREEZING POINT: -40 °F (-40 °C)

EVAPORATION RATE (BuAc=1): N/A

VAPOR PRESSURE: > 8 mmHg @ 38 °C

SPECIFIC GRAVITY (H₂O=1): 0.82-0.85

% VOLATILES BY VOL.: N/A

BULK DENSITY AT 60° F: 6.67 lbs./gal.

API GRAVITY: Specification dependent

SOLUBILITY IN H₂O % BY WT.: Insoluble

pH: NA

10. STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY: Under normal conditions, the material is stable. Avoid sources of ignition such as flames, hot surfaces, sparks, and electrical equipment.

INCOMPATIBILITY: Avoid contact with strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products may include carbon monoxide, carbon dioxide, oxides of sulphur and nitrogen, and other toxic gases.

HAZARDOUS POLYMERIZATION: Material is not known to polymerize.

11. TOXICOLOGICAL INFORMATION

1. NIOSH recommends that whole diesel engine exhaust be regarded as a potential occupational carcinogen. Follow OSHA and MSHA rules where diesel engine exhaust fumes may be generated.
2. A life time skin painting study by the American Petroleum Institute has shown that similar naphtha products with a boiling range of 350-700° F usually produce skin tumours and/or skin cancers in laboratory mice. Only a weak to moderate response occurred. The effect to humans has not been determined. Contact dermatitis (skin irritation) may occur with prolonged or repeated contact.
3. IARC has listed kerosene as probably carcinogenic to humans based on sufficient evidence in experimental animals and limited evidence in humans.

For further information, contact MSDS Assistance.

12. ECOLOGICAL INFORMATION

For further information, contact MSDS Assistance.

13. DISPOSAL CONSIDERATIONS

Shipment, storage, disposal, and cleanup actions of waste materials are regulated under local, state, and federal rules. Contact the appropriate agencies if uncertain of applicability. Waste product and contaminated material having a flash point below 140°F is considered a hazardous waste.

14. TRANSPORT INFORMATION

TDG PROPER SHIPPING NAME	Fuel, aviation, turbine engine
TDG HAZARD CLASS	3
PACKING GROUP (PG)	III
TDG I.D. NUMBER	UN1863

15. REGULATORY INFORMATION

WHMIS CLASS:

B3 Combustible Liquid
D2B Toxic material- Irritant

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

16. PREPARER & OTHER INFORMATION

MSDS Prepared By:
ULTRAMAR LTD

NFPA (National Fire Protection Association) Hazard Ratings Codes

Health	Fire	Reactivity	Other
1	2	0	Blank

Based on "Standard System for the Identification of the Fire Hazards of Materials, NFPA No. 704 M

This Material Safety Data Sheet was prepared by Ultramar Ltd in accordance with SOR/88-66. All information, recommendations and suggestions appearing herein concerning this product are based upon tests and data believed to be reliable, however, it is the user's responsibility to determine the safety, toxicity and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee expressed or implied is made by Ultramar Ltd as to the effects of such use, the results to be obtained or the safety and toxicity of the product nor does Ultramar Ltd assume any liability arising out of use by others of the product referred to herein. Nor is the information herein to be construed as absolutely complete since additional information may be necessary or Desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.

Definitions of Material Safety Data Sheet Terminology

GOVERNMENT AGENCIES AND PRIVATE ASSOCIATIONS

ACGIH - American Conference of Governmental Industrial Hygienists, (private association)
DOT - United States Department of Transportation
EPA - United States Environmental Protection Agency
IARC - International Agency for Research on Cancer, (private association)
NFPA - National Fire Protection Association, (private association)
MSHA - Mine Safety and Health Administration, U.S. Department of Labour
NIOSH - National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services
NTP - National Toxicology Program, (private association)
OSHA - Occupational Safety and Health Administration, U.S. Department of Labour
WHMIS- Workplace Hazardous Material Information System
CSA- Canadian Standards Association

HAZARD AND EXPOSURE INFORMATION

Acute Hazard - An adverse health effect which occurs rapidly as a result of short term exposure.
CAS # - American Chemical Society's Chemical Abstract service registry number which identifies the product and/or ingredients.
Ceiling - The concentration that should not be exceeded during any part of the working exposure
Chronic Hazard - An adverse health effect which generally occurs as a result of long term exposure or short term exposure with delayed health effects and is of long duration
Fire Hazard - A material that poses a physical hazard by being flammable, combustible, pyrophoric, or an oxidizer as defined by 29 CFR 1910.1200
Hazard Class - DOT hazard classification
Hazardous Ingredients - Names of ingredients which have been identified as health hazards
IDLH- Immediately Dangerous to Life and Health, the airborne concentration below which a person can escape without respiratory protection and exposure up to 30 minutes, and not suffer debilitating or irreversible health effects. Established by NIOSH.
mg/m³ - Milligrams of contaminant per cubic meter of air, a mass to volume ratio
N/A - Not available or no relevant information found
NA - Not applicable
PEL - OSHA permissible exposure limit; an action level of one half this value may be applicable
ppm - Part per million (one volume of vapour or gas in one million volumes of air)
Pressure Hazard - A material that poses a physical hazard due to the potential of a sudden release of pressure such as explosive or a compressed gas as defined by 29 CFR 1910.1200
Reactive Hazard - A material that poses a physical hazard due to the potential to become unstable reactive, water reactive or that is an organic peroxide as defined by 29 CFR 1910.1200.
STEL - The ACGIH Short-Term Exposure Limit, a 15-minute Time-Weighted Average exposure which should not be exceeded at any time during a workday, even if the 8-hour TWA is less than the TLV.
TLV - ACGIH Threshold Limit Value, represented herein as an 8-hour TWA concentration.
8-hour TWA - The time weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.
W - DO NOT ADD WATER - water reactive materials may produce toxic gas, extreme heat, or chemical reaction on contact with water.
LD₅₀ – Single dose of a substance that, when administered by a defined route in an animal assay, is expected to cause the death of 50% of the defined animal population.
LC₅₀ - The concentration of a substance in air that, when administered by means of inhalation over a specified length of time in an animal assay, is expected to cause the death of 50% of a defined animal population.