

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Kerosene

MSDS Code: 682950

Synonyms: 1K Kerosene
Dyed Kerosene
K1 Kerosene; K1 Kerosene LS; K1 Super Kerosene LS
K2 Kerosene
Kerosine
Ultra Low Sulfur Kerosene
Straight Run Kerosene
Kero 153
Kero LS 04
Kero LS 047
Kero ULS 001

Intended Use: Fuel

Responsible Party: ConocoPhillips
600 N. Dairy Ashford
Houston, Texas 77079-1175

MSDS Information: Phone: 800-762-0942
Email: MSDS@conocophillips.com
Internet: <http://w3.conocophillips.com/NetMSDS/>

Emergency Telephone Numbers: Chemtrec: 800-424-9300 (24 Hours)
California Poison Control System: 800-356-3219

2. HAZARDS IDENTIFICATION

Emergency Overview

WARNING!
Flammable Liquid and Vapor
Skin Irritant
Aspiration Hazard

NFPA



Appearance: Clear, light yellow or light green (may be dyed red)

Physical Form: Liquid

Odor: Kerosene

Potential Health Effects

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Skin irritant. Contact may cause redness, itching, a burning sensation, and skin damage. Prolonged or repeated contact can defat the skin, causing drying and cracking of the skin, and possibly dermatitis (inflammation). No harmful effects from skin absorption are expected.

Inhalation (Breathing): Expected to have a low degree of toxicity by inhalation.

Ingestion (Swallowing): No harmful effects expected from ingestion. ASPIRATION HAZARD - This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the respiratory tract, irritation of the digestive tract, nausea, vomiting, pneumonitis (inflammation of the lungs), signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders, respiratory (asthma-like) disorders.

See Section 11 for additional Toxicity Information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS	Concentration (wt %)
Hydrodesulfurized Kerosene ..C9-16	64742-81-0	0-100
Hydrotreated Distillate, Light ..C9-16	64742-47-8	0-100
Kerosene ..C9-16	8008-20-6	0-100

4. FIRST AID MEASURES

Eye: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention.

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

5. FIRE-FIGHTING MEASURES

NFPA 704 Hazard Class

Health: 2 **Flammability:** 2 **Instability:** 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

6. ACCIDENTAL RELEASE MEASURES

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Personal precautions: Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof electrical equipment is recommended.

Spill precautions: Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8).

Environmental precautions: Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate absorbent material.

Methods for cleaning up: Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharge. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Section 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	ACGIH	OSHA	Other:
Hydrodesulfurized Kerosene ..C9-16	TWA: 200 mg/m ³ Skin	---	---
Hydrotreated Distillate, Light ..C9-16	TWA: 200 mg/m ³ Skin based on Kerosene 8008-20-6	---	---
Kerosene ..C9-16	TWA: 200 mg/m ³ Skin	---	---
Naphthalene	TWA: 10 ppm STEL: 15 ppm Skin	TWA: 10 ppm TWA: 50 mg/m ³	---

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits additional engineering controls may be required.

Personal Protective Equipment (PPE):

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Skin: The use of nitrile gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation, and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, nitrile apron and/or arm covers may be necessary.

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge may be used under conditions where airborne concentrations are expected to exceed exposure limits.

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode if there is potential for an oxygen-deficient atmosphere, uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Appearance:	Clear, light yellow or light green (may be dyed red)
Physical Form:	Liquid
Odor:	Kerosene
Odor Threshold:	No data
pH:	Not applicable
Vapor Pressure:	0.40 mm HG
Vapor Density (air=1):	> 4.5
Boiling Point/Range:	300-572°F / 149-300°C
Melting/Freezing Point:	<-40°F / <-40°C
Solubility in Water:	<0.1%
Partition Coefficient (n-octanol/water) (Kow):	No data
Specific Gravity:	0.775-0.840 @ 68°F (20°C)
Bulk Density:	6.73 lbs/gal
Viscosity:	1-2.4 cSt @ 40°C
VOC Content(%):	0.16 lb/1000 gal
Percent Volatile:	98-100% @ 545°F (285°C)
Evaporation Rate (nBuAc=1):	<1
Flash Point:	100 -150°F / 38 - 66°C
Test Method:	Tag Closed Cup (TCC), ASTM D56
LEL (vol % in air):	0.7
UEL (vol % in air):	7.0
Autoignition Temperature:	410°F / 210°C

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions to Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc..

Hazardous Decomposition Products: carbon, nitrogen and sulfur oxides Combustion can yield The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data:

Hydrodesulfurized Kerosene ..C9-16

Carcinogenicity: Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation. Animal studies have also shown that washing the skin with soap and water can reduce the tumor response. Middle distillates with low polynuclear aromatic hydrocarbon content have not been identified as a carcinogen by NTP, IARC or OSHA. Diesel exhaust has been identified as a probable cancer hazard by IARC

Reproductive: Skin application in female rats at 494, 330, or 165 mg/kg daily for 7 consecutive weeks (prematuring, mating, and gestation), or for 8 consecutive weeks in males did not result in systemic, reproductive, or developmental toxicity.

Hydrotreated Distillate, Light ..C9-16

Carcinogenicity: Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation. Animal studies have also shown that washing the skin with soap and water can reduce the tumor response. Middle distillates with low polynuclear aromatic hydrocarbon content have not been identified as a carcinogen by NTP, IARC or OSHA. Diesel exhaust has been identified as a probable cancer hazard by IARC

Kerosene ..C9-16

Carcinogenicity: Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation. Animal studies have also shown that washing the skin with soap and water can reduce the tumor response. Middle distillates with low polynuclear aromatic hydrocarbon content have not been identified as a carcinogen by NTP, IARC or OSHA. Diesel exhaust has been identified as a probable cancer hazard by IARC

Naphthalene

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

Acute Data:

Component	Oral LD50	Dermal LD50	Inhalation LC50
Hydrodesulfurized Kerosene ..C9-16	>5 g/kg (Rat) based on Kerosene	>=2 g/kg (Rabbit)	>5 mg/L (4-hr., Rat)
Hydrotreated Distillate, Light ..C9-16	> 5g/kg (Rat) based on Kerosene	>2g/kg (Rabbit)	>5mg/L (4-hr., Rat)
Kerosene ..C9-16	>5 g/kg (Rat)	>2,000 mg/kg (Rabbit)	>5000 ppm (rat)

12. ECOLOGICAL INFORMATION

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When No 1 distillates (kerosene, jet fuels, heating oils) escape into the environment due to leaks or spills, most of their constituent hydrocarbons will evaporate and be photodegraded by reaction with hydroxyl radicals in the atmosphere. The half-lives in air for many of the individual hydrocarbons is less than one day. Less volatile hydrocarbons can persist in the aqueous environment for longer periods. They remain floating on the surface of the water; those that reach soil or sediment biodegrade relatively slowly. Soil contaminated with jet fuel can develop adapted microbial species able to use the fuel as a carbon source; soil aeration and nutrient supplementation can enhance this biodegradation.

Reported LC50/EC50 values for water-soluble fractions of kerosenes and jet fuels are usually in the range of 10 to 100 mg/liter. Adverse effects on the gills, pseudobranch, kidney and nasal mucosa have been reported in fish involved in spills of jet fuel. Juvenile clams may be particularly sensitive to marine sediments contaminated as a result of spilled jet fuel. Direct toxicity and fouling of sea birds from jet fuel can occur if birds dive through floating layers of spilled fuel.

Phytotoxic effects of jet fuel have been reported following exposure of plants to sprays or vapors. Lack of seed germination and inhibition of seedling growth may also occur. There is evidence for moderate bioaccumulation of the water-soluble hydrocarbons present in jet fuels.

13. DISPOSAL CONSIDERATIONS

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste. However, it would likely be identified as a federally regulated RCRA hazardous waste for the following characteristic(s) shown below. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard. Container residues and rinseates could be considered to be hazardous wastes.

EPA Waste Number(s)

- D001 - Ignitability characteristic

14. TRANSPORTATION INFORMATION

U.S. Department of Transportation (DOT)

Shipping Description:	Kerosene, Combustible liquid or 3, UN1223, III
Non-Bulk Package Marking:	None or Kerosene, UN1223
Non-Bulk Package Labeling:	None or Flammable liquid
Bulk Package/Placard Marking:	Combustible or Flammable/1223
Packaging - References:	None; none; 49 CFR 173.241 or 49 CFR 173.150; 173.203; 173.241 <i>(Exceptions; Non-bulk; Bulk)</i>
Hazardous Substance:	None
Emergency Response Guide:	128
Note:	This product may be reclassified as a Combustible Liquid for domestic land transportation under 49 CFR 173.150(f). Combustible liquids are not regulated by DOT in non-bulk quantities shipped by land.

International Maritime Dangerous Goods (IMDG)

Shipping Description:	Not regulated if flashpoint is >60° C closed-cup UN1223, Kerosene, 3, III, (FP° C), where FP is the material's flash point in degrees C.
Non-Bulk Package Marking:	Kerosene, UN1223
Labels:	Flammable liquid
Placards/Marking (Bulk):	Flammable/1223
Packaging - Non-Bulk:	P001, LP01
EMS:	F-E, S-E
Note:	Additional Federal compliance requirements may apply. See 49 CFR 171.12.

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

14. TRANSPORTATION INFORMATION

UN/ID #: *Not regulated if flashpoint is >60° C cc*
 UN1223
 Proper Shipping Name: Kerosene
 Hazard Class/Division: 3
 Subsidiary risk: None
 Packing Group: III
 Non-Bulk Package Marking: Kerosene, UN1223
 Labels: Flammable liquid
 ERG Code: 3L
 Note: Additional Federal compliance requirements may apply. See 49 CFR 171.11.

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	Y309	309	310
Max. Net Qty. Per Package:	10 L	60 L	220 L

15. REGULATORY INFORMATION

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health: Yes
 Chronic Health: Yes
 Fire Hazard: Yes
 Pressure Hazard: No
 Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Component	Concentration (wt %)	de minimis
Naphthalene	<1	0.1%

EPA (CERCLA) Reportable Quantity (in pounds):

EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California Proposition 65:

Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Type of Toxicity
Toluene	Developmental Toxicant
Benzene	Cancer Developmental Toxicant Male Reproductive Toxicant
Naphthalene	Cancer

Canadian Regulations:

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

WHMIS Hazard Class
 B3 - Combustible Liquids
 D2B - Toxic Material

National Chemical Inventories:

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.
All components are listed on the Canadian DSL.

U.S. Export Control Classification Number: EAR99

16. OTHER INFORMATION

Issue Date:	12-Mar-2007
Status:	Final
Product Code:	1049855, 1049856, 1049857, 1049858, 1049859, 1049860
Revised Sections or Basis for Revision:	Format change Product Name / Synonyms (Section 1)
MSDS Code:	682950

MSDS Legend:

ACGIH = American Conference of Governmental Industrial Hygienists; CAS = Chemical Abstracts Service Registry; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warranties:

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