

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME(S): Kerosene - Dual Purpose, K1, Dyed K1, Diesel Fuel - No. 1, Artic, Dyed Highway, On-Road, Off-Road Jet Fuel – A, B, A-1, A-50, High Sulfur, Military, Jet A & B Aviation Turbine Fuel, Jet A-1 Aviation Fuel (Combustible), Aviation Fuel (Flammable), Jet Q Turbine Fuel, Turbine Fuel No. 1, FO #1, Low Aromatic Feedstock, SRK Solvent, Arctic Grade Fuel Oil (DFA), Range Oil, Coal Oil, JP-4, JP-5, JP-8



GENERAL USE: Fuel

PRODUCT DESCRIPTION: Odor is characteristic of petroleum hydrocarbon or kerosene. Liquid with various colors from clear, light yellow, light green to dyed red.

MANUFACTURER'S NAME Tesoro Petroleum Companies, Inc.		DATE PREPARED: October 22, 2003 SUPERSEDES: May 22, 2002	Page 1 of 5
ADDRESS (NUMBER, STREET, P.O. BOX) 300 Concord Plaza Drive		TELEPHONE NUMBER FOR INFORMATION Tesoro Call Center (877) 783-7676	
(CITY, STATE AND ZIP CODE) San Antonio, TX 78216-6999	COUNTRY USA	EMERGENCY TELEPHONE NUMBER Chemtrec (800) 424-9300	
DISTRIBUTOR'S NAME Same			
ADDRESS (NUMBER, STREET, P.O. BOX)		TELEPHONE NUMBER FOR INFORMATION	
(CITY, STATE AND ZIP CODE)	COUNTRY	EMERGENCY TELEPHONE NUMBER	

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	CAS #	%	OSHA PEL		ACGIH TWA		SARA TITLE III	RQ LBS
			PPM	MG/M ³	PPM	MG/M ³		
Contains or May Contain:								
Kerosene	8008-20-6	0 - 100			100 (NIOSH)			
Petroleum distillate, aliphatic	64742-47-8	0 - 100	100	525				
Sulfur, precipitated	7704-34-9	0 - 0.50		15				
Naphthalene (a,b,c,d)	91-20-3	0 - 3	10	50	10		Yes	100
Ethylene glycol monomethylether (a,e)	109-86-4	0 - 0.15	25	80	5	16 (skin)		
Benzene (a,b,c,e,f,g)	71-43-2	0 - 1.8	1		0.5		Yes	10
Xylene (mixed) (a,b,c)	1330-20-7	0 - 1	100	435	100		Yes	1000
Cyclohexane (a,b,c)	110-82-7	0 - 0.11	300	1050	300		Yes	1000
Ethylbenzene (a,c)	100-41-4	0 - 0.11	100	435	125	545	Yes	1000
Trimethylbenzene 1,2,4 (a)	95-63-6	0 - 0.78	25	125			Yes	
Toluene (a,b,c,e,g)	108-88-3	0 - 0.18	200		50		Yes	1000
n-Hexane	110-54-3	0 - 0.04	500	1800	50	176		

(a,c) See Section 15

- (b) Indicates that the Resource Conservation and Recovery Act (RCRA) has determined the waste for this chemical is listed as hazardous and must be handled according to regulations in 40 CFR 260-281.
- (d) Product is listed or defined as a marine pollutant in IMDG Code or 49 CFR 172.101 Appendix B, List of Marine Pollutants and must be classified as an Environmentally Hazardous Substance, Class 9, in addition to any other defined hazards for this product.
- (e) California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986, chemicals known to the state to cause cancer or reproductive toxicity. A person in the course of doing business must warn others who may consume, come into contact with, or otherwise be exposed to this chemical.
- (f) Indicates substance appears on National Toxicology Program (NTP) list of carcinogens, International Agency for Research on Cancer (IARC) list of carcinogens or is regulated by the Occupational Safety and Health Administration (OSHA) as a possible carcinogen.
- (g) Indicates listing in Table Z - 2, 29 CFR 1910.1000, value shown is 8-hour Time Weighted Average. See table for acceptable ceiling concentration limits and acceptable maximum peak above the acceptable ceiling concentration.

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SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Liquid with various colors from clear, light yellow, light green to dyed red, potentially hazardous vapors. Flammable as defined by DOT and TDG. May be classified by DOT as Combustible. Classified as Combustible by OSHA. Can cause eye and skin irritation upon contact. Inhalation of vapors can cause anesthetic effect leading to death in poorly ventilated areas. Hazard symbols for this product - F, Xi Risk Phrases - R10, 20, 36/38, 51, 65

POTENTIAL HEALTH EFFECTS

INHALATION: High concentrations are irritating to the respiratory tract; may cause headache, dizziness, nausea, vomiting and malaise.

SKIN: Brief contact may cause slight irritation; prolonged contact may cause moderate irritation or dermatitis.

EYES: High vapor concentration or contact may cause irritation and discomfort.

INGESTION: May result in vomiting; aspiration of vomitus into the lungs must be avoided; DO NOT induce vomiting. Minute amounts aspirated into the lungs can produce severe lung injury, chemical pneumonitis, pulmonary edema or death.

CARCINOGENICITY NTP? No IARC MONOGRAPHS? No OSHA REGULATED? No
 This product contains a mixture of petroleum hydrocarbons called middle distillates. Because of this broad description, many products are considered middle distillates yet they are produced by a variety of different petroleum refining processes. Toxicology data developed on some middle distillates found that they caused positive responses in some mutagenicity tests and caused skin cancer when repeatedly applied to mice over their lifetime.

SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air; provide oxygen if breathing is difficult; if affected person is not breathing, administer CPR and seek emergency medical attention.

SKIN: Remove contaminated clothing; wash affected area with soap and water; launder contaminated clothing before reuse; if irritation persists, seek medical attention.

EYES: Remove contact lenses. Flush eyes with clear running water for 15 minutes while holding eyelids open; if irritation persists, seek medical attention.

INGESTION: DO NOT induce vomiting; if vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs; seek immediate medical attention. Vomiting may be induced only under the supervision of a physician.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT (METHOD USED) 100 - 106° F (38 - 41° C) TCC	FLAMMABLE LIMITS	LEL: 0.6%	UEL: 8.6%
	AUTOIGNITION TEMPERATURE:	410° F (210° C)	NFPA CLASS: II

GENERAL HAZARDS: Product is considered combustible. Products of combustion include compounds of carbon, hydrogen and oxygen, including carbon monoxide.

EXTINGUISHING MEDIA
Carbon dioxide, water fog, dry chemical, chemical foam

FIRE FIGHTING PROCEDURES
Firefighters must wear full facepiece self - contained breathing apparatus in positive pressure mode. Do not use solid stream of water since stream will scatter and spread fire. Fine water spray can be used to keep fire - exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Closed containers can explode due to buildup of pressure when exposed to extreme heat. Do not use direct stream of water on pool fires as product may reignite on water surface. Caution - Material is combustible!

HAZARDOUS COMBUSTION PRODUCTS
Smoke, fumes, oxides of carbon

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SECTION 6 - ENVIRONMENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: COMBUSTIBLE. Evacuate and ventilate area; confine and absorb into absorbent; place material into approved containers for disposal; for spills in excess of allowable limits (RQ) notify the National Response Center (800) 424 - 8802; refer to CERCLA 40 CFR 302 and SARA Title III, Section 313 40 CFR 372 for detailed instructions concerning reporting requirements. Do not discharge into lakes, ponds, streams or public waters.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: This material is combustible. It should be stored in tightly closed containers in a cool, well ventilated area. Vapor may form explosive mixtures in air. All sources of ignition should be controlled. This material may be classified as COMBUSTIBLE by DOT unless transported by vessel or aircraft. Refer to 49 CFR 173.120. Keep this and other chemicals out of reach of children. Avoid inhaling concentrated fumes or vapors.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

The use of local exhaust ventilation is recommended to control emissions near the source. Provide mechanical ventilation of confined spaces. Use explosion-proof ventilation equipment. See Section 2 for Component Exposure Guidelines.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): None required while threshold limits (Section 2) are kept below maximum allowable concentrations; if TWA exceeds limits, NIOSH approved respirator must be worn. Refer to 29 CFR 1910.134 or European Standard EN 149 for complete regulations.

PROTECTIVE GLOVES: Neoprene or rubber gloves with cuffs.

EYE PROTECTION: Protective eyeglasses or chemical safety goggles. Refer to 29 CFR 1910.133 or European Standard EN166.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Safety eyebath nearby

WORK / HYGIENIC PRACTICES: Practice safe workplace habits. Minimize body contact with this, as well as all chemicals in general.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

VAPOR PRESSURE (PSIA) 0.1 PSIA @ 100° F	VAPOR DENSITY (AIR = 1) 5.7
SPECIFIC GRAVITY (WATER = 1) 0.810	EVAPORATION RATE (WATER = 1) < 1
SOLUBILITY IN WATER Negligible	FREEZING POINT - 40° F (- 40° C)
pH Not applicable	APPEARANCE AND ODOR Liquid, clear, light yellow, light green, red. Hydrocarbon odor
BOILING POINT 320 - 572° F (160 - 300° C)	PHYSICAL STATE Liquid
VISCOSITY 1.6 cSt @ 40° C	VOLATILE ORGANIC COMPOUNDS (Total VOC's) 6.75 lbs / gallon

SECTION 10 - STABILITY AND REACTIVITY

STABILITY UNSTABLE: STABLE: XXX	CONDITIONS TO AVOID: Extreme temperatures, open flames
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids	
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Decomposition will not occur if handled and stored properly. In case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.	
HAZARDOUS POLYMERIZATION WILL NOT OCCUR: XXX	CONDITIONS TO AVOID: None

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SECTION 11 - TOXICOLOGICAL INFORMATION

Hazardous Ingredients (All products may not be listed if information is not available)	CAS #	EINECS #	LD50 of Ingredient (Species and Route)	LC50 of Ingredient (Species)
Contains or May Contain:				
Kerosene	8008-20-6	232-366-4	5 ml / kg Oral - rat	5 ml / l / 4H Inhalation - rat
Petroleum distillate, aliphatic	64742-47-8	265-149-8	Not determined	Not determined
Sulfur, precipitated	7704-34-9	231-722-6	Not available	Not available
Naphthalene (a,b,c,d)	91-20-3	202-049-5	1780 mg / kg Oral - rat	Not established
Ethylene glycol monomethylether (a,e)	109-86-4	203-713-7	2370 mg / kg Oral - rat	1500 ppm / 7H Inhalation - rat
Benzene (a,b,c,e,f,g)	71-43-2	200-753-7	930 mg / kg Oral - rat	10000 ppm / 7H Inhalation - rat
Xylene (mixed) (a,b,c)	1330-20-7	215-535-7	4300 mg / kg Oral - rat	5000 ppm / 4H Inhalation - rat
Cyclohexane (a,b,c)	110-82-7	203-806-2	813 mg / kg Oral - rat	Not established
Ethylbenzene (a,c)	100-41-4	202-849-4	3500 mg / kg Oral - rat	4000 ppm/4H(LCLo) Inhalation - rat
Trimethylbenzene 1,2,4 (a)	95-63-6	202-436-9	5 gm / kg Oral - rat	18 gm / m3 / 4H Inhalation - rat
Toluene (a,b,c,e,g)	108-88-3	203-625-9	5000 mg / kg Oral - rat	7525 ppm / 4H Inhalation - mouse
n-Hexane	110-54-3	203-777-6	28710 mg / kg Oral - rat	48000 ppm / 4H Inhalation-rat

SECTION 12 - ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment. Neither COD nor BOD data are available. Release of this product should be prevented from contaminating soil and water and from entering drainage and sewer systems. U.S.A. regulations require reporting spills of this material that could reach any surface waters. The toll free number for the U.S. Coast Guard National Response Center is (800) 424-8802. Naphthalene (91-20-3) one of the ingredients in this mixture is classified as a Marine Pollutant.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of in accordance with Local, State, and Federal Regulations. This product may produce hazardous vapors or fumes in a closed disposal container creating a dangerous environment. Refer to "40 CFR Protection of Environment Parts 260 - 299" for complete waste disposal regulations. Consult your local, state, or Federal Environmental Protection Agency before disposing of any chemicals. Do not flush to sanitary sewer or waterway.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: FUEL, AVIATION, TURBINE ENGINE

DOT HAZARD CLASS / Pack Group: 3 / III

IATA HAZARD CLASS / Pack Group: 3 / III

REFERENCE: 49 CFR 173.150, .203, .242

IMDG HAZARD CLASS: 3 / III

UN / NA IDENTIFICATION NUMBER: UN 1863

RID/ADR Dangerous Goods Code: 3

LABEL: FLAMMABLE LIQUID

UN TDG Class / Pack Group: 3 / III

HAZARD SYMBOLS: F

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EC, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

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SECTION 15 - REGULATORY INFORMATION

TSCA (Toxic substance Control Act)

All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50.

SARA TITLE III (Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories

Immediate health, fire hazard

313 Reportable Ingredients:

(a) A "Yes" in the SARA TITLE III column in Section 2 indicates a toxic chemical subject to annual reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

CERCLA (Comprehensive Response Compensation and Liability Act)

(c) The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) has notification requirements for releases or spills to the environment of the Reportable Quantity (RQ for this mixture = 500 lbs) or greater amounts, according to 40 CFR 302.

CPR (Canadian Controlled Products Regulations)

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

IDL (Canadian Ingredient Disclosure List)

Components of this product identified by CAS number are listed on the Canadian Ingredient Disclosure List are shown in Section 2.

DSL / NDSL (Canadian Domestic Substances List / Non-Domestic Substances List)

Components of this product identified by CAS number are listed on the DSL or NDSL and may or may not be listed in Section 2 of this document. Only ingredients classified as "hazardous" are listed in Section 2 unless otherwise indicated.

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

Warning: This product contains a chemical known to the State of California to cause cancer.

EINECS (European Inventory of Existing Commercial Chemical Substances)

Components of this product identified by CAS numbers are on the European Inventory of Existing Commercial Chemical Substances.

EC Risk Phrases

- R10 Flammable
- R20 Harmful by inhalation
- R36/38 Irritating to eyes and skin
- R51 Toxic to aquatic organisms.
- R65 Damaging to lungs when swallowed

EC Safety Phrases

- S23 Do not breathe vapor
- S24/25 Avoid contact with skin and eyes
- S28 After contact with skin, wash immediately with plenty of soap and water.
- S62 If swallowed, do not induce vomiting; seek medical advice immediately and show this label.

SECTION 16 - OTHER INFORMATION

Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

HMIS HAZARD RATINGS	HEALTH	1	0 = INSIGNIFICANT	3 = HIGH
	FLAMMABILITY	2	1 = SLIGHT	4 = EXTREME
	REACTIVITY	0	2 = MODERATE	
	PERSONAL PROTECTIVE EQUIPMENT	B	Safety Glasses, Gloves	

REVISION SUMMARY:

This MSDS has been revised in the following sections:
 Section 2 Exposure limits for Kerosene
 Section 11 Added EINECS numbers

MSDS Prepared by: Chem-Tel, Inc.
 1305 N. Florida Ave.
 Tampa, Florida USA 33602
 (800) 255-3924 Outside USA (813) 248-0573

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Handling, storage, use or disposal of the above-referenced product is beyond our control and may occur under conditions with which we are unfamiliar. FOR THESE AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM ANY LIABILITY FOR DAMAGE, INJURY AND COST ARISING FROM OR RELATED TO THE USE OF THE PRODUCT.

PRODUCT NUMBER (s): 2, 3, 18, 22, 40, 41, 42, 43, 44, 45, 60, 113, 137, 138, 139, 140, 141, 142, 263