

BEGIN MSDS NCR10090

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

National Cooperative Refinery Association EMERGENCY RESPONSE
1391 Iron Horse Road CHEMTREC: 1-800-424-9300 (USA)
McPherson, KS 67460
(620) 241-2340

SUBSTANCE: ULSD NO. 1 FUEL OIL

TRADE NAMES/SYNONYMS:

FUEL OIL NO. 1; COAL OIL; RANGE OIL; Kerosine; K-10; Kerosene; Gasoline,
Automotive, Unleaded; UN 1223; NCR10090; RTECS OA5500000

CHEMICAL FAMILY: petroleums, hydrocarbons

CREATION DATE: Sep 12 1994

REVISION DATE: Apr 23 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: ULSD NO. 1 FUEL OIL
CAS NUMBER: 8008-20-6
EC NUMBER (EINECS): 232-366-4
EC INDEX NUMBER: 649-404-00-4
PERCENTAGE: >99.0

OTHER CONTAMINANTS:

MAY CONTAIN TRACES OF SULFUR.

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=2 REACTIVITY=0

EMERGENCY OVERVIEW:

PHYSICAL DESCRIPTION: Colorless to light-brown, mobile, oily liquid with a mild petroleum odor.

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation,
aspiration hazard, central nervous system depression

PHYSICAL HAZARDS: Combustible liquid and vapor.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, chest pain, headache, drowsiness,
disorientation, mood swings, loss of coordination, lung congestion, coma
LONG TERM EXPOSURE: same as effects reported in short term exposure,
tremors, blood disorders

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: irritation, blood disorders

EYE CONTACT:

SHORT TERM EXPOSURE: no information on significant adverse effects
LONG TERM EXPOSURE: no information is available

INGESTION:

SHORT TERM EXPOSURE: same as effects reported in short term inhalation,
vomiting, diarrhea, aspiration hazard
LONG TERM EXPOSURE: no information on significant adverse effects

CARCINOGEN STATUS:

OSHA: No
NTP: No
IARC: No

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: Aspiration hazard. DO NOT induce vomiting. If vomiting occurs, keep head lower than hips to help prevent aspiration. Get immediate medical attention. Give artificial respiration if not breathing.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Moderate fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to

extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

FLASH POINT: >100 F (>38 C) (CC)
LOWER FLAMMABLE LIMIT: 0.7%
UPPER FLAMMABLE LIMIT: 5.0%
AUTOIGNITION: 410 F (210 C)
FLAMMABILITY CLASS (OSHA): II

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

ULSD NO. 1 FUEL OIL:

KEROSENE:

200 mg/m3 ACGIH TWA (restricted to conditions with negligible aerosol exposure) (cutaneous absorption danger)
100 mg/m3 NIOSH recommended TWA 10 hour(s)

MEASUREMENT METHOD: NIOSH IV # 1550

VENTILATION: Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

1000 mg/m³

Any air-purifying half-mask respirator equipped with organic vapor cartridge(s).

Any supplied-air respirator.

2500 mg/m³

Any supplied-air respirator operated in a continuous-flow mode.

Any powered, air-purifying respirator with organic vapor cartridge(s).

5000 mg/m³

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any powered, air-purifying respirator with a tight-fitting facepiece and organic vapor cartridge(s).

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION: Colorless to light-brown, mobile, oily liquid with a mild petroleum odor.

BOILING POINT: 304-574 F (151-301 C)

FREEZING POINT: 0 F (-18 C)

VAPOR PRESSURE: 5 mmHg @ 38 C

VAPOR DENSITY (air=1): 4.5

SPECIFIC GRAVITY (water=1): 0.8

WATER SOLUBILITY: insoluble

PH: Not available

VOLATILITY: Not available

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not available

VISCOSITY: >1.3 cSt @ 40 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water

supplies and sewers.

INCOMPATIBILITIES: oxidizing materials, halogens

KEROSENE (FUEL OIL NO. 1):

CHLORINE: Vigorous reaction or possible ignition or explosion.

FLUORINE: Possible ignition or explosion.

MAGNESIUM PERCHLORATE: Possible explosion on heating.

NITROGEN TETROXIDE: Possible explosion.

OXIDIZERS (STRONG): Fire and explosion hazard.

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

ULSD NO. 1 FUEL OIL:

IRRITATION DATA: 500 mg skin-rabbit severe; 100 percent/24 hour(s) skin-rabbit moderate

TOXICITY DATA: 3570 mg/kg oral-man TDLo; 500 mg/kg oral-man LDLo; 403 mg/kg intravenous-man TDLo; 1176 mg/kg unreported-man LDLo; >5 gm/kg oral-rat LD; >5 gm/m³/4 hour(s) inhalation-rat LC; 10700 mg/kg intraperitoneal-rat LDLo; 800 mg/kg intratracheal-rat LD50; 4 gm/kg oral-dog LDLo; 200 mg/kg intravenous-dog LDLo; 800 mg/kg intratracheal-dog LDLo; 2835 mg/kg oral-rabbit LD50; >2 gm/kg skin-rabbit LD; 6600 mg/kg intraperitoneal-rabbit LD50; 180 mg/kg intravenous-rabbit LD50; 200 mg/kg intratracheal-rabbit LD50; 20 gm/kg oral-guinea pig LD50; 2500 mg/m³/2 hour(s) inhalation-dog TCLo; 15 gm/kg oral-rat LD50; 5 mg/kg subcutaneous-rat TCLo; 2 mg/kg unreported-rat LDLo; 2 mg/kg unreported-rat TCLo; 5.7 mg/kg oral-human TCLo; 10 ml/kg oral-domestic animal TDLo; 20 ml/kg oral-domestic animal TDLo; 540 gm/kg/90 day(s) intermittent oral-rat TDLo; 84 gm/kg/35 day(s) intermittent subcutaneous-rat TDLo; 4500 mg/kg/3 week(s) intermittent skin-rabbit TDLo; 2400 mg/kg/28 day(s) intermittent skin-rabbit TDLo; 20400 mg/m³/21 day(s) intermittent inhalation-guinea pig TCLo; 500 mg/m³/4 week(s) continuous inhalation-rat TCLo; 500 mg/m³/4 week(s) continuous inhalation-mouse TCLo; 500 mg/m³/4 week(s) continuous inhalation-rabbit TCLo; 500 mg/m³/4 week(s) continuous inhalation-cat TCLo; 300 mg/m³/12 week(s) intermittent inhalation-rat TCLo; 300 mg/m³/12 week(s) intermittent inhalation-rabbit TCLo; 405 gm/kg/17 week(s) intermittent oral-rat TDLo; 11.9 gm/kg/35 day(s) intermittent subcutaneous-rat TDLo; 250 mg/m³/4 year(s) intermittent inhalation-human TCLo; 0.15 mg/m³/5 year(s) intermittent inhalation-human TCLo

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Group 3, Animal Limited Evidence (Straight-run kerosene); ACGIH: A3 -Animal Carcinogen

LOCAL EFFECTS:

Irritant: inhalation, skin

ACUTE TOXICITY LEVEL:

Slightly Toxic: ingestion

TARGET ORGANS: central nervous system

MUTAGENIC DATA: mutation in microorganisms - Salmonella typhimurium 25 uL/plate (+S9)

ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation.

HEALTH EFFECTS:

INHALATION:

ACUTE EXPOSURE:

ULSD NO. 1 FUEL OIL: Inhalation hazard is low due to the low vapor pressure. One study concluded that there is no indication of toxicity at concentrations of 100 mg/m³ or below. High concentrations of mist or vapor may cause mucous membrane irritation, a burning sensation in the chest, an odor of kerosene on the breath, and chemical pneumonitis. There may be transient euphoria and excitement followed by symptoms of central nervous system depression which may include headache, nausea, dizziness, weakness, ataxia, restlessness, and ringing in the ears. Disorientation and confusion may progress to drowsiness and coma, sometimes with convulsions. Vasomotor disturbances, possibly with cyanosis of the extremities may occur. Death is usually due to respiratory arrest, but rarely sudden death may occur, presumably due to ventricular fibrillation.

CHRONIC EXPOSURE:

ULSD NO. 1 FUEL OIL: Repeated or prolonged exposure to kerosene mist may cause mucous membrane irritation and polyemia. Aerosol exposure at 500-12000 mg/m³ for 2 hours/day for 2-4 weeks caused leukocytosis, tracheitis, bronchitis, and pneumonia. Malaise, weakness, tremor, twitching, vertigo, and pain in the extremities have also been reported. Dogs and rats exposed to 100 mg/m³ of deodorized kerosene for 6 hours/day, 5 days/week for 67 days showed no toxic effects.

SKIN CONTACT:

ACUTE EXPOSURE:

ULSD NO. 1 FUEL OIL: Direct contact may cause defatting with dryness, irritation, dermatitis, and edema. Secondary infections are possible. In one study, skin developed a burning sensation during the first hour of exposure, erythema by the second, and blister formation by the twelfth. Although absorption through intact skin is slight, it may be moderate through injured skin. Kerosene may increase the toxicity of skin-sensitizing agents.

CHRONIC EXPOSURE:

ULSD NO. 1 FUEL OIL: Repeated or prolonged exposure may cause defatting and dermatitis. Several cases have been reported in humans where misuse of kerosene to massage extremities resulted in aplastic anemia and death, probably due to absorption of benzene. Rabbits treated for 3 days with 3 ml/kg/day experienced hairloss, scaling, cracking of the epidermis, but no systemic toxicity.

EYE CONTACT:

ACUTE EXPOSURE:

ULSD NO. 1 FUEL OIL: Application to the human eye is reported to cause no discomfort or injury.

CHRONIC EXPOSURE:

ULSD NO. 1 FUEL OIL: No data is available.

INGESTION:

ACUTE EXPOSURE:

ULSD NO. 1 FUEL OIL: May cause local irritation with a burning sensation in the mouth, esophagus, and stomach; and vomiting, belching, and diarrhea with blood-tinged feces. Aspiration into the lungs may occur readily

during ingestion or subsequent vomiting or belching. Even small amounts may cause chemical pneumonitis with pulmonary edema and hemorrhage and may possibly be complicated by secondary bacterial pneumonia. Signs of lung involvement are sudden development of rapid, labored breathing, distress, cyanosis with rales, fever, and tachycardia. If sufficient amounts are ingested and retained, symptoms of central nervous system depression may occur as detailed in acute inhalation; drowsiness may progress to coma, sometimes with convulsions. Severe cases may be fatal. Ventricular fibrillation is possible.

CHRONIC EXPOSURE:

ULSD NO. 1 FUEL OIL: Repeated dosing of rats and rabbits by gastric intubation did not result in pulmonary injury.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 5000 ug/L 96 day(s) LC50 (Mortality) Rainbow trout, donaldson trout (*Oncorhynchus mykiss*)

INVERTEBRATE TOXICITY: 1270 ug/L 7 hour(s) EC50 (Immobilization) Giant water bug (*Belostoma indicum*)

13. DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Kerosene
ID NUMBER: UN1223
HAZARD CLASS OR DIVISION: 3
PACKING GROUP: III
LABELING REQUIREMENTS: 3

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Kerosene
UN NUMBER: UN1223
CLASS: 3
PACKING GROUP/RISK GROUP: III

LAND TRANSPORT ADR:

PROPER SHIPPING NAME: Kerosene
UN NUMBER: UN1223
CLASS: 3
CLASSIFICATION CODE: F1
PACKING GROUP: III
LABELS: 3

LAND TRANSPORT RID:
PROPER SHIPPING NAME: Kerosene
UN NUMBER: UN1223
CLASS: 3
CLASSIFICATION CODE: F1
PACKING GROUP: III
LABELS: 3

AIR TRANSPORT IATA:
PROPER SHIPPING NAME: Kerosene
UN/ID NUMBER: UN1223
CLASS OR DIVISION: 3
HAZARD LABELS: 3
PACKING GROUP: III

AIR TRANSPORT ICAO:
PROPER SHIPPING NAME: Kerosene
UN NUMBER: UN1223
CLASS OR DIVISION: 3
LABELS: 3
UN PACKING GROUP: III

MARITIME TRANSPORT IMDG:
PROPER SHIPPING NAME: Kerosene
UN NUMBER: UN1223
CLASS OR DIVISION: 3
PACKING GROUP: III

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):
Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):
Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:

EC CLASSIFICATION (ASSIGNED):

Xn Harmful

EC Classification may be inconsistent with independently-researched data.

DANGER/HAZARD SYMBOL:

Xn Harmful

EC RISK AND SAFETY PHRASES:

R 65 Harmful: may cause lung damage if swallowed.

S 2 Keep out of the reach of children.

S 23 Do not breathe gas, fumes, vapor, or spray.

S 24 Avoid contact with skin.

S 62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

CONCENTRATION LIMITS:

C>=10% Xn R 65

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

16. OTHER INFORMATION

"RTECS®" is a United States trademark owned and licensed under authority of the U.S. Government, by and through Symyx Technologies, Inc.

Copyright 1984-2008 Symyx Technologies, Inc. All rights reserved.

THIS INFORMATION WAS OBTAINED FROM SOURCES WHICH NCRA BELIEVES ARE RELIABLE. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY, IS EXPRESSED OR IMPLIED REGARDING THIS INFORMATION OR PRODUCT, RESULTS FROM USE THEREOF OR THE SAFETY OR HAZARDS RELATED THERETO. PERSONS USING THIS PRODUCT SHOULD DETERMINE THE PRODUCT'S SUITABILITY FOR THEIR PARTICULAR PURPOSE AND ASSUME THE RISK OF USE THEREOF.