

# CONSOLIDATED ENERGY COMPANY LLC

901 Main Street  
Jesup, Iowa 50648

## MATERIAL SAFETY DATA SHEET

### 1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

TRADE NAME **FUEL OIL #1**  
CAS NUMBER 8008-20-06  
MSDS NUMBER 5439  
PRODUCT CODE ND  
SYNONYM(S) NO. 1 FUEL OIL (LOW SULFUR); #1 FO; K-1 KEROSENE; JET FUEL; JP-8; NO. 1 HEATING OIL, JET A, #1 LOW SULFUR, DYED; K-I KEROSENE, DYED; APPLICABLE TO ALL GRADES

#### MANUFACTURE/ SUPPLIERS

Flint Hills Resources, LP P.O. Box 2917, Wichita, KS 67201  
Frontier Oil and Refining Company, 4610 S. Ulster, Suite 200; Denver CO. 80237  
Cenex, A division of CHS Cooperatives, P.O. Box 64089, Mail Station 525, St Paul, MN 55164  
Citgo Petroleum Corporation, P.O. Box 3758. Tulsa, OK 74102  
Exxomobile Oil Corp., 3225 Gallows Road, Fairfax VA. 22037  
Gary-Williams Energy Corp., 1207 Sovereign Row. OKC, OK 73108  
Lion Oil Co., 1000 McHenry St., ElDorado, AK 71730  
Marathon Ashland Petroleum LLC., 539 South Main St., Findlay, OH 45840  
Conoco/Phillips, Bartlesville, OK 74004  
Valero Marketing and Supply Co., P.O. Box 500, San Antonio, TX 78292  
F.C. Stone Trading, 10330 NW Prairieview RD., Kansas City, MO 64153  
SRP, 8101 E. Prentice Ave., Suite 704, Greenwood Village, CO 80111  
Western Petroleum Company, 9531 West 78<sup>th</sup> St., Eden Prairie, MN 55344  
TransMontaigne Product Services, Inc, 370 S17th Street, Suite 2750, Denver, Co. 80202  
Premcor Refining Group Inc., 8182 Maryland Ave. Clayton, MO 63105  
Center Marketing Company, 600 Mason Ridge Center Drive, St. Louis, Mo. 63141  
Apex Oil Co., 8235 Forsyth, 4<sup>th</sup> Floor, St Louis, Mo 63105

### TELEPHONE NUMBERS-24 HOUR EMERGENCY ASSISTANCE

Chemtrec 800-633-8253  
Consolidated Energy Company 800-399-1562

### 2 COMPOSITION / INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>CAS Number</u>	<u>Concentration*</u>	<u>Exposure limits/Health Hazards</u>
A COMPLEX COMBINATION OF C9-C16 HYDROCARBONS PRODUCED BY THE DISTILLATION OF CRUDE OIL	08-20-6	9-100%	ND
<u>1,2,4,-TRIMETHYLBENZENE</u>	<u>95-63-6</u>	<u>0-6%</u>	<u>25 ppm 8-hour TWA (ACGIH)</u>
<u>ETHYLBENZENE</u>	<u>100-41-4</u>	<u>0-4%</u>	<u>100 ppm 8 Hour TWA (OSHA)</u> <u>100 ppm 8-Hour TWA (ACGIH)</u> <u>125 ppm 15-Min STEL (ACGIH)</u>

ND =No Data

NA = Not Applicable

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Trade Name FUEL OIL NO.1 (LOW SULFUR)

TOLUENE	108-88-3	0-2%	200 PPM 8-Hour TWA (OSHA) 300 ppm CEILING (OSHA) 50 ppm 8-Hour TWA (ACGIH)
XYLENES	1330-20-7	0-1%	100 ppm 8-Hour TWA (OSHA) 100 PPM 8-Hour TWA (ACGIH) 150 ppm 15-Min STEL (ACGIH)
NAPHTHALENE	91-20-3	0-0.5%	10- ppm 8-Hour TWA (OSHA) 10- ppm 8-Hour TWA (ACGIH) 15- ppm 15-Min STEL (ACGIH)
BIPHENYL	95-52-4	0-0.5%	0.2 ppm 8-Hour TWA (OSHA) 0.2 ppm 8-Hour TWA (ACGIH)
CUMENE	98-82-8	0-0.3%	50 ppm 8-Hour YWA (OSHA) 50 ppm 8-Hour TWA (ACGIH)
BENZENE	71-43-2	0-0.1%	1- ppm. 8-Hour TWA (OSHA) 5- ppm. 15-min STEL (OSHA) 0.5 ppm 8-Hour TWA (ACGIH) 2.5 ppm 15-min STEL (ACGIH)

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

### COMPOSITION COMMENTS

This Material Data Sheet is intended to communicate potential health hazards and potential physical hazards associated with the product(s) covered by this sheet, and is not intended to communicate product specific information. For product specific information, contact your Pawnee Petroleum Products representative.

## 3 HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

#### WARNING!

#### HEALTH HAZARDS

MAY CAUSE CARDIAC SENSITIZATION

MAY BE IRRITATING TO THE SKIN, EYES AND RESPIRATORY TRACT

OVEREXPOSURE MAY CAUSE CNS DEPRESSION

ASPIRATION HAZARD IF SWALLOWED-CAN ENTER LUNGS AND CAUSE DAMAGE

CONTAINS MATERIAL WHICH MAY CAUSE REPRODUCTIVE EFFECTS BASED ON ANIMAL DATA

SKIN CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS

DANGER-CONTAINS BENZENE-CANCER HAZARD

MAY CAUSE BLOOD DISORDERS

SEE "TOXICOLOGICAL INFORMATION" (SECTION 11) FOR MORE INFORMATION

#### FLAMMABILITY HAZARDS

COMBUSTIBLE

PER OSHA GUIDELINES, 29 CFR 1910.1200(c)

#### REACTIVITY HAZARDS

STABLE

### **POTENTIAL HEALTH EFFECTS, SKIN**

**MODERATELY IRRITATING.** Contact may cause reddening, itching and inflammation. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking. Defatting agent.

No significant effects are expected to occur following short term exposure. Repeated or prolonged contact with large amounts of this material may result in absorption through the skin to produce toxic effects.

### **POTENTIAL HEALTH EFFECTS, EYE**

**SLIGHTLY IRRITATING.** Exposure to vapors, fumes or mists may cause irritation. May cause slight transient irritation, lacrimation (tears) and a burning sensation in the eyes. Prolonged or repeated exposure may cause irritation and conjunctivitis.

### **POTENTIAL HEALTH EFFECTS, INHALATION**

**MODERATELY TOXIC.** Breathing of mists, vapors, or fumes may irritate the nose, throat and lungs. Symptoms may include sore throat, coughing, labored breathing, sneezing, and burning sensation, depending on the concentration and duration of exposure.

May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

May cause cardiac sensitization, including arrhythmia (irregular heart beat) and death due to cardiac arrest.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 11).

## **4 FIRST AID MEASURES**

### **SKIN**

Immediately wash skin with plenty of soap and water while removing contaminated clothing and shoes. GET IMMEDIATE MEDICAL ATTENTION.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

### **EYE**

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

### **INHALATION**

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION

## **INGESTION**

Do not induce vomiting because of danger or aspirating liquid into lungs, causing serious damage and chemical pneumonia. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty. Gastric lavage should be performed only by qualified medical personnel.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

## **NOTES TO PHYSICIAN**

Gastric lavage may be indicated if ingested. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

In cases of acute poisoning, artificial respiration with administration of oxygen may be useful for support. DO NOT GIVE EPINEHRINE, EPHEDRINE OR SIMLAR ADRENERGIC DRUGS. THEY MAY INDUCE FATAL VENTRICULAR FIBRILLATION. Electrocardiographic monitoring should be carried out with severely ill patients to anticipate cardiac arrest.

Anemia may require the usual supportive measures. Medical evaluation of acute overexposure should include hematological determinations until stable. In severe acute and chronic poisoning, both renal and hepatic damage may occur and should be anticipated in such cases. Respiratory and pulmonary problems may require special attention. After severe acute symptoms have been alleviated, it may be advisable to consider periodic monitoring of the patient until such time as the likelihood of other adverse effects can be discounted.

## **5 FIRE FIGHTING MEASURES**

### **HAZARDOUS COMBUSTION PRODUCTS**

Combustion may produce CO<sub>x</sub>, NO<sub>x</sub>, SO<sub>x</sub>, reactive hydrocarbons, irritating vapors and hydrogen sulfide.

### **EXTINGUISHING MEDIA**

Use water spray, dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire.

### **BASIC FIRE FIGHTING PROCEDURES**

Evacuate area and fight fire from safe distance.

If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop leak.

Use water to cool adjacent structures and to protect personnel. Shut off source flow if possible. Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Firefighters must wear NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

## UNUSUAL FIRE & EXPLOSIN HAZARDS

Vapors may form explosive mixture with air. Vapors can travel to a source of ignition and flash back.

Explosion hazard if exposed to extreme heat or to physical or thermal shock.

Flash Point	> 100 *F (>38*C) PENSKY-MARTENS CLOSED CUP
Autoignition Temperature	400*F (>204 *C)
Flammability Limits in Air, Lower, % by Volume	0.7%
Flammability Limits in Air, Upper, % by Volume	5%

## 6 ACCIDENTAL RELEASE MEASURES

### EMERGENCY ACTION

Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for ½ mile in all directions if tank, railcar or tank truck is involved in fire. Evacuate area endangered by release as required. (See Exposure Control/Personal Protection – Section 8).

### ENVIRONMENTAL PRECAUTIONS

Eliminate all sources of ignition. Isolate hazard areas and deny entry.

If material is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released material. Notify local authorities and the National Response Center, if required.

### SPILL OR LEAK PROCEDURE

Keep unnecessary people away. Isolate area for at least 25-50 meters (80-160 feet) to preserve public safety. For large spills, consider initial evacuation for at least 300 meters (1000 feet).

Keep ignition sources out of the area and shut off all ignition sources. Absorb spill with inert material (e.g. dry sand, or earth) then place in chemical waste container. Large spills: Dike far ahead of liquid spill for later disposal. Stop leak when safe to do so.

See Exposure Control/Personal Protection (Section 8).

## 7 HANDLING AND STORAGE

### HANDLING

Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Use non-sparking tools. Do not cut, grind, drill, weld, or reuse containers unless adequate precautions are taken against these hazards.

Do not eat, drink, or smoke in areas of use or storage.

### STORAGE

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Avoid contact with strong oxidizers.

Empty containers may contain product residue. Do not reuse without adequate precautions.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### ENGINEERING CONTROLS

Ventilation and other forms of engineering controls are the preferred means of controlling exposures.

### EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Wear chemical safety goggles and face shield. Have eye wash facilities readily available where eye contact can occur.

### SKIN PROTECTION: PERSONAL PROTECTIVE EQUIPMENT (PPE)

Avoid skin contact with this material. Use appropriate chemical protective gloves when handling.

Use good personal hygiene.

### RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

A NIOSH approved air purifying respirator with an appropriate cartridge or canister, such as full face piece air purifying respirator equipped with an organic vapor cartridge, may be used in circumstances where airborne concentrations may exceed exposure limits. The use of air purifying respirators is not recommended where hydrogen sulfide levels may exceed exposure limits.

Air purifying respirators are limited by the oxygen levels in the work environment. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

## 9 PHYSICAL & CHEMICAL PROPERTIES

### ODOR AND APPEARANCE

CRYSTAL CLEAR LIQUID WITH KEROSENE-LIKE ODOR; FOR TAX EXEMPT PURPOSES, THIS FUEL MAY CONTAIN RED DYE

Boiling Point	280 – 572 *F (138-300 *C)
Specific Gravity	0.77 –0.84 at 60/60 *F
Melting Point	-53 TO 0 *F –47 TO -18 *C)
Percent Volatile	100%
Vapor Pressure	22 mmHg AT 158 *F (70 *C)
Vapor Density	4.5 (AIR=1)
Bulk Density	ND
Solubility in Water	NEGLIGIBLE
Octanol/Water Partn	ND
Volatile Organic	ND
Pour Point	ND
pH Value	ESSENTIALLY NEUTRAL
Freezing Point	ND
Viscosity	8 cSt AT –4 *F (-20 *C)
Evaporation Rate	VERY SLOW
Molecular Formula	NA

Molecular Weight	ND
Chemical Family	PETROLEUM HYDROCARBON
Odor Threshold	ND

## 10 STABILITY & REACTIVITY

### STABILITY/INCOMPABILITY

Incompatible with oxidizing agents. See precautions under handling & Storage (Section 7).

### HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Combustion may produce CO<sub>x</sub>, NO<sub>x</sub>, SO<sub>x</sub>, reactive hydrocarbons, irritating vapors and hydrogen sulfide.

## 11 TOXICOLOGICAL INFORMATION

### ROUTES OF EXPOSURE

Inhalation, ingestion, skin and eye contact

### LD50

LD50; Fuel Oil No.1, Rat, Oral, >5g/kg

### TOXICOLOGICAL DATA

Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: liver and kidney, bone marrow, blood, adrenals, thymus, pituitary, thyroid, respiratory and central nervous systems.

Exposure to components of this material may cause the following specific symptoms, depending on the concentration and duration of exposure: anemia, burning sensation in chest, insomnia, pallor, loss of appetite and anxiety.

Exposure to high concentrations of petroleum mists or vapors may lead to oil chemical pneumonia.

**WARNING;** The use of any hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels.

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage (sometimes referred to as solvent or painter's syndrome). Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal.

This material may contain benzene. Benzene is carcinogenic to laboratory animals when given by intubation or by inhalation. There is an association between occupational exposure to benzene and human leukemia. carcinogenic determination: IARC human positive and Animal suspected carcinogen; NTP known carcinogen; ACGIH suspected carcinogen; OSHA carcinogen. Acute benzene poisoning causes central nervous system depression. Chronic exposure affects the hematopoietic system causing blood disorders including anemia and pancytopenia. Mutagenic and clastogenic in mammalian and non-mammalian test systems. Reproductive or developmental toxicant only at doses that are maternally toxic, based on tests with animals.

This material may contain naphthalene. Naphthalene can be harmful by any route of exposure. Humans may be more sensitive to naphthalene than laboratory animals. Naphthalene can cause skin and eye irritation and acute central nervous system effects. It can also cause blood effects, including hemolytic and aplastic anemia, cataracts, liver and kidney damage. Following maternal exposure, naphthalene has also been reported to cause fetal blood system, liver and possible eye damage. In a 2-year lifetime inhalation bioassay, female mice

showed a significantly increased incidence of pulmonary alveolar and bronchiolar adenomas. On this basis, NTP has determined that there is some evidence of naphthalene carcinogenicity in female mice. Both male and female mice showed evidence of chronic inflammation and its associated response in the respiratory system.

This material has not been tested as a whole for all potential health effects. Use caution in handling to avoid exposure.

### **CARCINOGENICITY**

In an NTP skin painting study on Fuel Oil No. 1 there was no evidence of carcinogenicity in male of female mice

Lifetime exposure to whole diesel exhaust has been shown to cause cancer in laboratory animals. NIOSH recommends that whole diesel exhaust be regarded as a potential occupational carcinogen.

IARC has determined that there is inadequate evidence for the carcinogenicity of light fuel oils in humans and experimental animals. IARC has determined there is limited evidence for the carcinogenicity of straight run kerosene in experimental animals and inadequate evidence in humans.

This material may contain ethylbenzene. Ethylbenzene has shown clear evidence of carcinogenicity in male rats and some evidence of carcinogenicity in female rats and male and female mice.

This material may contain naphthalene. IARC has determined that there is sufficient evidence for the carcinogenicity of naphthalene in experimental animals (IARC Class 2B).

### **TERATOGENICITY, MUTAGENICITY, OTHER REPRODUCTIVE EFFECTS**

This material contains components which may damage genetic material in some short-term test systems. This material contains components, which may cause adverse reproductive and/or developmental effects.

Has been shown to be positive in mutagenicity assays. Pregnant women may be at increased risk from exposure.

### **PRE-EXISTING CONDITIONS AGGRAVATED BY EXPOSURE**

Pre-existing medical conditions which may be aggravated by exposure, include disorders of the kidney, liver blood, skin, eye, cardiovascular, respiratory system, neurological and hemopoietic systems.

## **12 ECOLOGICAL INFORMATION**

**ND**

## **13 DISPOSAL CONSIDERATIONS**

### **WASTE DISPOSAL**

This material, as supplied, when discarded or disposed of, is a hazardous waste according to Federal regulations (40CFR 261) due to its ignitability and benzene content. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine, at the time of disposal, whether the material is a hazardous waste subject RCRA.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268, and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make waste management information presented in this MSDA incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

## 14 TRANSPORT INFORMATION

### BILL OF LADING – BULK (U.S. DOT)

Fuel oil (No. 1), Combustible Liquid, NA 1993, PG III

### BILL OF LADING – NON-BULK (U.S. DOT)

Non-Regulated

#### U.S. Department of Transportation (DOT) Requirements

##### General Transportation Information for Bulk Shipments

Proper Shipping Name	Fuel Oil (No.1)		
Hazard Class	3	UN/NA Code	NA 1993
Packaging Group	PG III		
Labels Required	None		
Placards Required	Combustible Liquid, NA 1993		
Reportable Quantity	See Regulatory Information (Section 15)		

##### General Transportation Information for Non-Bulk Shipments

Proper Shipping Name	Non-Regulated		
Hazard Class	NA	UN/NA Code	NA
Packaging Group	NA		
Labels Required	NA		
Placards Required	NA		
Reportable Quantity	NA		

#### COMMENTS

Non-bulk shipments of this material are non-regulated for domestic ground transportation when they meet requirements of 49 CFR 173.150(f).

The above description may not cover shipping in all cases, please consult 49 CFR 100-185 for specific shipping information.

## 15 REGULATORY INFORMATION

### FEDERAL REGULATIONS

All ingredients are on the TSCA inventory, or are not required to be listed on the TSCA inventory.

Consult OSHA's Benzene standard 29 CFR 1910.1028 for provisions on air monitoring, employee training, medical monitoring, etc.

A release of this material, as supplied, is exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) by the petroleum exclusion. Releases may be reported to the National Response center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321 (b)(3) and (5). Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to report may result in substantial civil and criminal penalties.

This material contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.5). Any unpermitted introduction of this material into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this material into the aforementioned discharges.

This material contains one or more substances listed as hazardous, toxic, or flammable air pollutants under Section 112 of the Clean Air Act.

There may be specific regulations at the local, regional or state/provincial level that pertain to this material.

## STATE REGULATIONS

WARNING: This material contains a chemical known to the State of California to cause cancer and birth Defects or other reproductive harm.

## SARA TITLE III RATINGS

Immediate Hazard: X      Delayed Hazard: X      Fire hazard: X      Pressure Hazard: -  
Reactivity Hazard: -

## NFPA RATINGS

Health 1      Flammability 2      Reactivity 0      Special Hazards

## HMIS RATINGS

Health 2\*      Flammability 2      Reactivity 0

Following ingredients of this material are listed in SARA 313 above the de minimus concentration

<u>SARA Listed Ingredient Name</u>	<u>CAS number</u>	<u>Maximum %</u>
1,2,4-TRIMETHYLBENZENE	95-63-6	6.0
ETHYLBENZENE	100-41-4	4.0
TOULENE	108-88-3	2.0
XYLENES	1330-20-7	1.0
BENZENE	71-43-2	0.1

## 16 OTHER INFORMATION

### DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of the preparation of this Material Safety Data Sheet. However, an MSDS may not be used as a commercial specification sheet of manufacture or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.