



MISC0019

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Crude Oil

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

CAS Number 8002-05-9

Company Identification

MANUFACTURER/DISTRIBUTOR

CONOCO INC.

P.O. BOX 2197

HOUSTON, TX 77252

PHONE NUMBERS

Product Information 1-713-293-5550

Transport Emergency CHEMTREC 1-800-424-9300

Medical Emergency 1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components**Material****CAS Number****%**

Hydrocarbons (Aromatic, Naphthenic, & Paraffinic) >95

*Benzene

71-43-2

0.01-2

Hydrogen Sulfide

7783-06-4

0-3

* Regulated as a Toxic Chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Components (Remarks)

Hydrogen sulfide may accumulate in container head space.

(Continued)

HAZARDS IDENTIFICATION

Potential Health Effects

Acute Toxicity Data: None Available.

Other Toxicity Data:

Primary Route(s) of Exposure/Entry: Inhalation, skin.

Signs and Symptoms of Exposure/Medical Conditions Aggravated By Exposure:

It is highly unlikely that human exposure at or below the recommended exposure level poses a significant health hazard. In this regard, good workplace practices and proper engineering designs will minimize exposure. Animal studies show that prolonged or repeated inhalation exposure to high concentrations of some petroleum distillates has caused liver tumors in mice and adverse kidney effects in male rats. However, kidney effects were not seen in similar studies involving female rats, guinea pigs, dogs, or monkeys. Also, human studies do not indicate this peculiar sensitivity for kidney damage. The significance of liver tumors in exposed mice is highly speculative and not a good indicator for predicting a potential human health hazard.

Mouse skin painting studies have shown that some crude oils caused a low incidence of tumors. However, these studies involved repeated exposure of shaved skin which was never washed free of test material. The product contains petroleum hydrocarbons which may cause irritation to eyes, skin and lungs after prolonged or repeated exposure. Extreme exposure may cause weakness, headache, nausea, confusion, blurred vision, drowsiness, and other nervous system effects; greater exposure may cause dizziness, slurred speech, flushed face, unconsciousness, or convulsions.

This product may contain hydrogen sulfide which is irritating at low concentrations to the eyes, skin and lungs. At higher concentrations, loss of ability to smell hydrogen sulfide, respiratory paralysis and death may occur.

A few studies have indicated that workers exposed many years to high concentrations of benzene have a slightly higher incidence of leukemia. Benzene can also be toxic to the blood and blood-forming tissues (i.e., anemia, low blood cell count, and change in blood clotting).

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens. A "P" indicates a proposed carcinogen.

Material	IARC	NTP	OSHA	ACGIH
Benzene	X	X	X	X

Du Pont controls the following materials as potential carcinogens:
Benzene.

(Continued)

FIRST AID MEASURES

First Aid INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

If hydrogen sulfide could be present, review the Personal Protective Equipment Section.

SKIN CONTACT

In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

If irritation develops, consult a physician.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400 mL water and mix thoroughly. Administer 5 mL/kg, or 350 mL for an average adult.

FIRE FIGHTING MEASURES

Flammable Properties

Flammable limits in Air, % by Volume

LEL	<1
UEL	10

Flash Point: Less than Ambient (Variable)

Fire and Explosion Hazards:

Flash point is variable; handle and store in accordance with NFPA procedures. Could be as hazardous as Class IA Flammable Liquid - NFPA 30-1987.

Extinguishing Media

Foam, Dry Chemical, CO2.

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FIRE FIGHTING MEASURES

(Continued)

Fire Fighting Instructions

Special Fire Fighting Procedures: Water may be ineffective to extinguish, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Water spray may be used to flush spills away from areas of potential ignition.

Unusual Fire and Explosion Hazards: Products of combustion may contain carbon monoxide, carbon dioxide and other toxic materials. Do not enter enclosed or confined space without proper protective equipment including respiratory protection.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

Spill Clean Up

Soak up with sawdust, sand, oil dry or other absorbent material. Shovel or sweep up.

Accidental Release Measures

Remove source of heat, sparks, flame, impact, friction or electricity including internal combustion engines and power tools. If equipment is used for spill cleanup, it must be explosion proof and suitable for flammable liquid and vapor.

NOTE: Vapors released from the spill may create an explosive atmosphere.

HANDLING AND STORAGE

Handling (Personnel)

Do not breathe vapor or mist. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use.

Storage

Store in accordance with National Fire Protection Association recommendations.

(Continued)

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

VENTILATION

Wherever necessary, engineering controls should be utilized to minimize possible exposure to hydrogen sulfide. Properly designed local exhaust ventilation may be useful to remove hydrogen sulfide from a specific work area.

Personal Protective Equipment

RESPIRATORY PROTECTION

In atmospheres where the concentrations of hydrogen sulfide may exceed any of the exposure levels shown in the Health Hazard Section:

Type C respiratory protection such as an airline respirator with full facepiece and an escape bottle, or a SCBA with full facepiece should be used. Such respiratory protection must be operated in pressure-demand, positive-pressure, or continuous-flow mode. Use of negative pressure respirators should be avoided because of the possibility of olfactory fatigue which can be caused by hydrogen sulfide.

In all other situations:

Select appropriate NIOSH-approved organic vapor respiratory protection where necessary to maintain exposures to petroleum distillates and benzene below the acceptable levels shown in the Health Hazard Section.

Proper respirator selection should be determined by adequately trained personnel and based on the contaminant(s), the degree of potential exposure, and published respirator protection factors.

PROTECTIVE GLOVES

Neoprene or NBR gloves should be worn to protect against chronic skin contact.

EYE PROTECTION

Safety glasses with side shields and/or face shield where splashing is present. Full facepiece if respiratory protection is required for hydrogen sulfide.

OTHER PROTECTIVE EQUIPMENT

Coveralls if splashing is present. Launder contaminated clothing before reuse.

Exposure Guidelines

Exposure Limits

Crude Oil

PEL (OSHA)	500 ppm, 2000 mg/m ³ , 8 Hr. TWA
TLV (ACGIH)	None Established
AEL • (Du Pont)	None Established

(Continued)

EXPOSURE CONTROLS/PERSONAL PROTECTION(Continued)

Other Applicable Exposure Limits

Benzene

PEL (OSHA)

1 ppm, 8 Hr. TWA

5 ppm, STEL

0.5 ppm, Action Level

TLV (ACGIH)

10 ppm, A2, 32 mg/m³, A2, 8 Hr. TWA

Notice of Intended Changes (1993-1994)

0.1 ppm, 0.3 mg/m³, 8 Hr. TWA, Skin, A1

BEI (ACGIH)

Determinate

Sampling Time

BEI

Notation

Total phenol in
urine

End of shift

50 mg/g creatinine

B, Ns

Benzene in exhaled
air:

Prior to next shift

Mixed-exhaled

0.08 ppm

Sq

End-exhaled

0.12 ppm

Sq

AEL * (Du Pont)

1 ppm, 8 & 12 Hr. TWA

5 ppm, 15 minute TWA

Hydrogen Sulfide

PEL (OSHA)

20 ppm, Ceiling

50 ppm - 10 Min. Max.

TLV (ACGIH)

10 ppm, 14 mg/m³, 8 Hr. TWASTEL 15 ppm, 21 mg/m³

AEL * (Du Pont)

10 ppm, 8 & 12 Hr. TWA

* AEL is Du Pont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point

>50-1100 F (10-593 C)

Vapor Pressure

100-800 mm Hg @ 68 F (20 C)

(Variable)

Evaporation Rate

(Ether = 1)

Variable

Odor

Aromatic or sulfide

Form

Liquid

Color

Usually greenish-black

Specific Gravity

0.7-1.1 (Water = 1)

STABILITY AND REACTIVITY

Chemical Stability

Stable.

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STABILITY AND REACTIVITY(Continued)

Incompatibility with Other Materials

Incompatible with oxidizing materials. Avoid heat and flame.

Decomposition

Normal combustion forms carbon dioxide; incomplete combustion may produce carbon monoxide.

Polymerization

Polymerization will not occur.

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

By itself, the liquid is expected to be a RCRA ignitable hazardous waste.

TRANSPORTATION INFORMATION

Shipping Information

DOT

Proper Shipping Name Not regulated if flash point is >200 F;
if <200 F see below.

DOT/IMO

Proper Shipping Name Not restricted if flash point is >141 F;
if <141 F see below.

DOT:

Flashpoint -	<100 F	>100 F - <200 F
Proper Shipping Name	Crude Oil, Petroleum	Crude Oil, Petroleum
Hazard Class	Flammable Liquid	Combustible Liquid
UN/NA No.	UN 1267	UN 1267
DOT Label	Flammable Liquid	None
DOT Placard	Flammable	Combustible
Note	See below	

IATA/IMO:

Flashpoint -	<73 F	>73 F - <141 F
Proper Shipping Name	Petroleum crude oil	Petroleum crude oil
Hazard Class	3 (3.2 IMO)	3 (3.3 IMO)
UN No.	UN 1267	UN 1267
IMO/ICAO Label	Flammable liquid	Flammable liquid
Packaging Group	II	III
Note	See below	

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TRANSPORTATION INFORMATION(Continued)

NOTE : May contain potentially harmful concentrations of hydrogen sulfide, which can accumulate in the head space of storage vessel.

Shipping Information -- Canada

TDG

Proper Shipping Name Not regulated if flash point is >141 F;
if <141 F see below.

REGULATORY INFORMATION**U.S. Federal Regulations**

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : Yes
Fire : Yes
Reactivity : No
Pressure : No

OSHA HAZARD DETERMINATION

The material is hazardous as defined by OSHA's Hazard Communication Standard, 29 CFR 1910.1200.

EPA DETERMINATIONS

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, & LIABILITY ACT (CERCLA/SUPREFUND), 40 CFR 302
Not applicable; this material is covered by the CERCLA petroleum exclusion. Releases are not reportable.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986, TITLE III (SARA) - SECTION 302/304 - Extremely Hazardous Substances, 40 CFR 355
The material contains extremely hazardous substances at greater than 1.0% concentration as listed below; it is possible that this material may contain other extremely hazardous substances at a lower concentration.

Extremely Hazardous Substances: Hydrogen Sulfide
Threshold Planning Quantity: 500 lbs of H₂S
Reportable Quantity: 100 lbs of H₂S

TOXIC SUBSTANCES CONTROL ACT (TSCA), 40 CFR 710
The material is in the TSCA Inventory of Chemical Substances (40 CFR 710) and/or is otherwise in compliance with TSCA.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261, SUBPART C AND D
The material, when discarded or disposed of, is not

(Continued)

REGULATORY INFORMATION(Continued)

specifically listed as a hazardous waste in Federal regulations; however, it could be considered hazardous if it meets criteria for being toxic, corrosive, ignitable or reactive according to U.S. EPA definitions (40 CFR 261). This material could also become a hazardous waste if it is mixed with or comes in contact with a listed hazardous waste. If it is a hazardous waste, regulations 40 CFR 262-266 and 268 may apply.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT,
40 CFR 116.4A, Section 311

The material contains the following ingredient(s) which is considered hazardous if spilled in navigable waters.

Ingredient	Reportable Quantity
Petroleum Hydrocarbon	Film or sheen upon or discoloration of the water surface or adjoining shoreline

HAZARDOUS MATERIALS TRANSPORTATION REGULATIONS,
49 CFR 171-178
Not Applicable

STATE REGULATIONS

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT
OF 1986 ("PROPOSITION 65")

The material contains ingredient(s) known to the State of California to cause cancer, birth defects or other reproductive harm. Read and follow label directions and use care when handling or using all petroleum products.

Ingredient:
Benzene

PENNSYLVANIA WORKER AND COMMUNITY RIGHT TO KNOW ACT

The material contains the following hazardous substances:
Categories: S - Special Hazardous Substance (> or = 0.01%)
H - Hazardous Substance (> or = 1.0%)
E - Environmental Hazard (> or = 1.0%)

Ingredient	CAS Registry Number	Category
Benzene	71-43-2	E,S
Hydrogen Sulfide	7783-06-4	E
Petroleum Distillates	Mixture	H

Nonhazardous ingredient(s) information is withheld as trade secret in accordance with Section 11 of the Act.

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REGULATORY INFORMATION(Continued)

Canadian Regulations

CLASS B Division 2 - Flammable Liquid.

CLASS D Division 1 Subdivision A - Very Toxic Material/Acute Lethality.

CLASS D Division 2 Subdivision A - Very Toxic Material. Chronic Toxic Effects, Carcinogen.

CLASS D Division 2 Subdivision B - Toxic Material. Skin or Eye Irritant.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating	
Health	1
Flammability	3
Reactivity	0

NPCA-HMIS Rating	
Health	2
Flammability	3
Reactivity	0

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information**CANADIAN TDG**

Proper Shipping Name:	Petroleum Crude Oil
TDG Classes	: 3.1 (Flash <0 deg F)
	: 3.2 (Flash 0 to <73 deg F)
	: 3.3 (Flash 73 deg F to <141 F)
PIN Number	: UN 1267
TDG Label	: Flammable liquid
TDG Placard	: Flammable

NOTE : May contain potentially harmful concentrations of hydrogen sulfide, which can accumulate in the head space of storage vessels.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS	MSDS Administrator, SHEA
Address	Conoco Inc.
	PO Box 2197
	Houston, TX 77252

(Continued)

Telephone

713-293-5550

Indicates updated section.

End of MSDS

