

**TEST 1**

A 30-inch pipeline leaked heavy crude oil into a creek that flowed into a river. Initial estimates were that 19,500 barrels were released. (1 barrel = 42 gallons)

The MSDS for Crude Oil, Sour is on the back.

**1. Who should you call?****2. How many pounds of crude oil were released to navigable waters?**

Hint: The formula to convert gallons to pounds is on pg. 6-15 of the SARA guidebook.

**3. How many pounds of benzene were released to navigable waters?****4. What is the CERCLA RQ for Benzene?****5. What regulations apply?**

Hint: The reporting criteria might reference the oil, or the benzene (i.e. as a CERCLA chemical).

**6. Why is this release not reportable under SARA Title III sect 304 or CERCLA sect 103?**

Hint: Look at pg 6-2.

**7. Why is this release not reportable under 49 CFR 171 (Transportation of Hazardous Materials)?****8. Why is this release not reportable under the Part 5 Rules?**

Hint: Look at the definitions in the Part 5 Rules - Appendix C.

# Crude Oil, Sour

## (Modified) Material Safety Data Sheet

### 1. Product and Company Identification

<b>Product Name:</b>	<b>Crude Oil, Sour</b>
<b>MSDS Number:</b>	<b>999999</b>
<b>Synonyms/Other Means of Identification:</b>	Crude Oils; Desalted, Sour; Field Crude, Sour; Petroleum Crude, Sour; Petroleum Oil, Sour; Rock Oil, Sour; Sour Crude
<b>Intended Use:</b>	Refinery Feed
<b>Manufacturer:</b>	Houston, Texas 77079
<b>Emergency Health and Safety Number:</b>	Chemtrec: 800-424-9300 (24 Hours)
<b>MSDS Information:</b>	<b>Phone: 800-555-5555 Email: MSDS@none.com</b>

### 2. Hazards Identification

#### Emergency Overview

#### NFPA

#### DANGER

Extremely Flammable Liquid and Vapor  
 May Contain or Release Poisonous Hydrogen Sulfide Gas  
 Aspiration Hazard  
 Possible Cancer Hazard (Component)



**Appearance:** Amber to Black

**Physical Form:** Liquid

**Odor:** Petroleum; Rotten egg / sulfurous

### 3. Composition / Information on Ingredients

Component	CASRN	Concentration <sup>1</sup>
Crude Oil (Petroleum)	8002-05-9	100
Benzene	71-43-2	<1
Hydrogen Sulfide	7783-06-4	<1
Naphthalene	91-20-3	0-0.9

<sup>1</sup> All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Crude oil, natural gas and natural gas condensate can contain minor amounts of sulfur, nitrogen and oxygen containing organic compounds as well as trace amounts of heavy metals like mercury, arsenic, nickel, and vanadium. Composition can vary depending on the source of crude.

### 4. First Aid Measures

### 5. Fire-Fighting Measures

#### **NFPA 704 Hazard Class**

**Health:** 2    **Flammability:** 3    **Instability:** 0

(0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

**Unusual Fire & Explosion Hazards:** Extremely flammable....

**Extinguishing Media:** Dry chemical, carbon dioxide, or foam is recommended....

**Fire Fighting Instructions:** For fires beyond the initial stage....

**Hazardous Combustion Products:** Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Hydrogen sulfide and oxides of nitrogen and sulfur may also be formed.

## 6. Accidental Release Measures

**Personal Precautions:** Extremely flammable....

**Environmental Precautions:** Stop spill/release if it can be done safely. Prevent spilled material from entering sewers.... Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

**Methods for Containment and Clean-Up:** Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended....

## 7. Handling and Storage

**Precautions for safe handling:** Keep away from ignition sources...

**Conditions for safe storage:** This material may contain or release poisonous hydrogen sulfide gas....

## 8. Exposure Controls / Personal Protection

## 9. Physical and Chemical Properties

**Note:** Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

<b>Appearance:</b>	Amber to Black
<b>Physical Form:</b>	Liquid
<b>Odor:</b>	Petroleum; Rotten egg / sulfurous
<b>Odor Threshold:</b>	No data
<b>pH:</b>	Not applicable
<b>Vapor Pressure:</b>	0.6-10 psia (Reid VP) @ 100°F / 37.8°C
<b>Vapor Density (air=1):</b>	>1
<b>Initial Boiling Point/Range:</b>	-128 to 1000°F / -89 to 538°C
<b>Melting/Freezing Point:</b>	No data
<b>Solubility in Water:</b>	Negligible
<b>Partition Coefficient (n-octanol/water) (Kow):</b>	No data
<b>Specific Gravity (water=1):</b>	0.7-1.03 @ 60°F (15.6°C)
<b>Bulk Density:</b>	5.83-8.58 lbs/gal
<b>Evaporation Rate (nBuAc=1):</b>	No data
<b>Flash Point:</b>	<20°F / <-7°C
<b>Test Method:</b>	(estimate)
<b>Lower Explosive Limits (vol % in air):</b>	1.1
<b>Upper Explosive Limits (vol % in air):</b>	6.0
<b>Auto-ignition Temperature:</b>	590°F / 310°C

## 10. Stability and Reactivity

## 11. Toxicological Information

**Crude Oil (Petroleum):** ... It has not been listed as a carcinogen by NTP or OSHA.

**n-Hexane:** Excessive exposure to n-hexane can result in peripheral neuropathies....

**Ethyl Benzene:** ... Ethyl benzene has been listed as a possible human carcinogen by IARC.

**Benzene:** ... Benzene has been identified as a human carcinogen by IARC, the US National Toxicology Program and the US-Occupational Safety and Health Administration.

**Naphthalene:** ... Naphthalene has been identified as a carcinogen by IARC and NTP.

## 12. Ecological Information

## 13. Disposal Considerations

### EPA Waste Number(s)

D001 - Ignitability characteristic

D018 - Toxicity characteristic (Benzene)

