



**MATERIAL SAFETY DATA SHEET (MSDS)
CRUDE OIL – LOW AROMATIC, SWEET**

IDENTITY (As Used on Label and List) Crude Oil – Low Aromatic, Sweet		(Hazard Rating: Health-1/Fire-3/Reactivity-0) DOT Hazard Classification: Flammable Liquid, 3.3		
Section I – Chemical Product and Company Identification				
Manufacturer's Name MARKWEST		Emergency Phone Number Markwest (800) 730-8388 / CHEMTREC (800) 424-9300		
Address (Number, Street, City, State and ZIP code) 1515 Arapahoe Street		Telephone Number for Information: (800) 730-8388		
Tower 2, Suite 700		Date Prepared October 1, 2004		
Denver, Colorado 80202-2126		Signature of Preparer (optional) N/A		
Section II – Hazardous Ingredients/Identity Information				
Hazardous Components (Specific Chemical Identity; Common Name (s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Crude Oil (8002-05-9)	?	?		100
n-Hexane (100-54-3)	500 ppm	50 ppm		0 - 1.4
Hydrogen Sulfide (7783-06-4)	10 ppm	10 ppm		Varies (<1)
Benzene (71-43-2)	1 ppm	1 ppm		0.0 - 0.1
Section III – Physical/Chemical Characteristics				
Boiling Point 85-1000° F		Specific Gravity (H ₂ O = 1): 0.74 to 0.99 @ 39.2° F		
Vapor Pressure (mm Hg): No data		Melting Point: N/A		
Vapor Density (AIR = 1): No data		Evaporation Rate (Butyl Acetate = 1): N/A		
Solubility in Water: 0%				
Appearance and Odor: Color may vary – light tan, yellowish or greenish to dark black. Petroleum odor.				
Section IV – Fire and Explosion Hazard Data				
Flash Point (Method Used): <100° F	Flammable Limits Flammable Liquid	LEL 0.9%	UEL 7.0%	

Health Hazards (Acute or Chronic):

Skin cancer hazard. Overexposure to a component may cause injury to the peripheral nervous system. There is limited evidence from animal studies that overexposure may cause injury to the male reproductive system. (This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 – CA Health and Safety Code Section 25249.5)

Carcinogenicity: NTP? **Yes*** IARC Monographs? **Yes*** OSHA Registered **Yes***

Chronic application of crude oil to mouse skin resulted in an increased incidence of skin tumors. IARC concluded in its Crude Oil Monograph that there is limited evidence of carcinogenicity in animals, and that crude oil is not classifiable as to its carcinogenicity in humans (Group 3). It has not been listed as a carcinogen by NTP or OSHA. However, a trace component of crude oil – benzene has been considered by NTP, OSHA and IARC and a carcinogen.

Signs and Symptoms of Exposure:

Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, diarrhea, and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, and fatigue).

Medical Conditions Generally Aggravated by Exposure:

Conditions aggravated by exposure may include skin, respiratory (asthma-like) male reproductive and peripheral nerve disorders.

Emergency and First Aid Procedures:

Eyes: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Wipe material from skin and remove contaminated shoes and clothing. Cleanse affected area(s) thoroughly by washing with mild soap and water and, if necessary, a waterless skin cleanser. If irritation or redness develops, seek medical attention.

Swallowed: First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Inhaled: If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Section VII – Precautions for Safe Handling and Use

Steps to be taken in Case Material is Released or Spilled:

This material, if discarded as produced, would be a RCRA “characteristic” hazardous waste due to the characteristic(s) of ignitability (D001), benzene (D018) and possibly reactivity (D003). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restriction in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Waste Disposal Method:

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

Precautions to Be Taken in Handling and Storing:

N/A

Other Precautions:

N/A

Section VIII – Control Measures

Respiratory Protection (Specify Type):

Wear a positive pressure air supplied respirator in situations where there may be potential for airborne exposure to H2S above exposure limits. H2S has poor warning properties, and appropriate air purifying cartridges are not commercially available. A NIOSH certified air-purifying respirator with an organic vapor cartridge may be used under conditions where H2S is not detected, and airborne concentrations of hydrocarbons are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Ventilation:	Local Exhaust	Special
	Mechanical (General)	Other Ventilation/exhaust system to maintain airborne concentrations below the exposure limits where explosive mixtures may be present, electrical system safe for such locations must be used.
Protective Gloves Wear gloves impermeable to crude oil.	Eye Protection Wear approved eye protection to safeguard against potential eye contact. A face shield may be necessary, depending on conditions.	
Other Protective Clothing or Equipment: Impervious clothing		
Work/Hygienic Practices A source of clean water should be available in the work area for flushing eyes and skin.		

N/A – Not Applicable

N/D – Not Determined

~ -- Approximately

* -- Based on LP (Gas)