

# PETRO STAR INC.

## MATERIAL SAFETY DATA SHEET

Date: Jan. 15, 1993

<b>SECTION I</b>	
Manufacturer's Name: <b>Petro Star Inc.</b>	Emergency Telephone No: <b>(907) 488-0730</b>
Address: <b>1200 H &amp; H Lane, North Pole, Alaska 99705</b>	
Chemical Name and Synonyms: <b>Crude Oil, Petroleum, Flammable Liquid</b>	Trade Name and Synonyms: <b>ANS Crude Oil (Derived From Various Production Fields)</b>
Chemical Family: <b>Petroleum Hydrocarbons</b>	Formula: <b>Complex Mixture of Petroleum Hydrocarbons, Along With Sulfur-And Nitrogen Compounds</b>

<b>SECTION II - HAZARDOUS INGREDIENTS</b>		
<p>Petroleum Crude Oil, Flammable Liquid: A naturally occurring mixture of Hydrocarbons, along with gases and sulfur &amp; nitrogen compounds.</p> <p>Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids &amp; vapors of petroleum products should be minimized. Crude oil may contain hydrogen sulfide gas which may accumulate in bulk transport compartments. Therefore, personnel should stand upwind, keep their face at least two feet from compartment openings, &amp; avoid breathing vapors when opening hatches &amp; dome covers. 10 ppm is the ACGIH recommended TLV for H<sub>2</sub>S gas. OSHA recommends a ceiling of 20 ppm &amp; a peak of 50 ppm for 10 minutes once per day. Sense of smell can be lost in 3 to 15 minutes exposure to low (100 ppm) concentration of hydrogen sulfide, or in 60 seconds or less to higher (200 + ppm) concentrations. (Breathing may stop after a few seconds of greater than 700 ppm, with immediate loss of consciousness exposure to hydrogen sulfide concentrations and subsequent death.) NIOSH-approved respiratory equipment should be used when permissible concentrations exceeded. Crude oils &amp; especially heavier crude oil fractions with high-boiling aromatics, have increased the incidence of skin cancer in laboratory tests where mice were painted over their lifespan without washing between applications. Contains light hydrocarbons which may include a low percentage of Benzene. Light hydrocarbons have produced kidney damage in laboratory animals &amp; certain components may affect the nervous system. Benzene can cause Leukemia &amp; other blood diseases after repeated or prolonged exposures at high concentrations.</p>	<b>%</b>	<b>TLV (Units)</b>
	100	Not Established See Below and Section V

<b>SECTION III - PHYSICAL DATA</b>		
Boiling Range: (Degrees F) Variable, depending on individual crude oils	Specified Gravity (H <sub>2</sub> O=1):	Varies 0.7 to 0.85
Vapor Pressure (P.S.I.): 0-10	Percent Volatile by Volume (%):	Varies up to 50 + %
Vapor Density (Air @ 1): Varies	Evaporation Rate (n - Butylacetate = 1):	High to Low
Solubility In Water: Negligible		
Appearance and Odor:	Appearance may range from clear, light color to dark, viscous liquid. Odor may range from mild, pleasant hydrocarbon odor to pungent, offensive, or strong sulfurous odor.	

<b>SECTION IV - FIRE &amp; EXPLOSION HAZARD DATA</b>			
Flash Point (Method Used): Below 39°C (100°F)	Flammable or Explosive Limits (% By Volume In Air)	Upper <u>Limit</u>	Lower <u>Limit</u>
	Estimated	15%	0.6%
Extinguishing Media:	Foam, water mist or spray, dry chemical, or CO <sub>2</sub> .		
Special Fire-Fighting Procedures:	Use supplied-air breathing equipment for enclosed areas or high fume concentrations. Cool exposed containers with water spray. Minimize skin contact; minimize breathing vapor or fumes.		
Unusual Fire & Explosion Hazards:	<p><b>DO NOT</b> mix or store with strong oxidants such as liquid chlorine or concentrated oxygen. Sulfur compounds present may result in emission of hydrogen sulfide gas. Burning may result in SO<sub>2</sub> and SO<sub>3</sub> fumes. "Empty" product containers retain product residue. Do not pressurize, cut, heat, weld or expose such containers to flame - they may explode and cause injury or death.</p>		