

PETRO STAR VALDEZ REFINERY

MATERIAL SAFETY DATA SHEET

Date: Jan. 15, 1993

SECTION I			
Manufacturer's Name: Petro Star Valdez Refinery		Emergency Telephone No: (907) 835-5063	
Address: 2 ½ Mile Dayville Road, Valdez, Alaska 99686			
Chemical Name and Synonyms: Crude Oil, Petroleum, Flammable Liquid		Trade Name and Synonyms: ANS Crude Oil (Derived From Various Production Fields)	
Chemical Family: Petroleum Hydrocarbons		Formula: Complex Mixture of Petroleum Hydrocarbons, Along With Sulfur-And Nitrogen Compounds	
SECTION II - HAZARDOUS INGREDIENTS			
<p>Petroleum Crude Oil, Flammable Liquid: A naturally occurring mixture of Hydrocarbons, along with gases and sulfur & 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 & 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, & avoid breathing vapors when opening hatches & dome covers. 10 ppm is the ACGIH recommended TLV for H₂S gas. OSHA recommends a ceiling of 20 ppm & 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 & 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 & certain components may affect the nervous system. Benzene can cause Leukemia & other blood diseases after repeated or prolonged exposures at high concentrations.</p>		%	TLV (Units)
		100	Not Established See Below and Section V
SECTION III - PHYSICAL DATA			
Boiling Range: (Degrees F) Variable, depending on individual crude oils		Specified Gravity (H ₂ 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.			
SECTION IV - FIRE & EXPLOSION HAZARD DATA			
Flash Point (Method Used): Below 39°C (100°F)		Flammable or Explosive Limits (% By Volume In Air)	
		Estimated	Upper Limit 15% Lower Limit 0.6%
Extinguishing Media: Foam, water mist or spray, dry chemical, or CO ₂ .			
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: DO NOT 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 ₂ and SO ₃ fumes. "Empty" product container s retain product residue. Do not pressurize, cut, heat, weld or expose such containers to flame - they may explode and cause injury or death.			

SECTION V - HEALTH HAZARD DATA**Threshold Limit Value:**

Recommended occupational exposure limit for Benzene is 5 ppm for an 8-hour period, or 250 ppm-minutes over a 5 to 30 minute period. H₂S gas may be present. See Section II.

Effects of Overexposure:

Inhalation of high vapor concentrations may have results ranging from eye and respiratory irritation, dizziness, and headaches to unconsciousness, depending on concentration and length of exposure. Prolonged or repeated liquid contact with the skin will dry and de-fat the skin, leading to skin irritation, dermatitis, and an increased possibility of skin cancer. See Section II regarding H₂S gas and additional health effects information.

Emergency and First Aid Procedures:

If overcome by vapor, remove from exposure immediately; call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. If ingested, do not induce vomiting; call a physician. In case of skin contact, remove any contaminated clothing and wash skin with soap and warm water. If splashed into the eyes, flush eyes with clear water for 15 minutes or until irritation subsides; get medical attention if irritation persists. Caution: Some crudes are hot. Protect against burns.

SECTION VI - REACTIVITY DATA**Stability:**

Unstable []

Stable [X]

Conditions To Avoid:**Incompatibility (Materials to Avoid):**

Strong oxidants such as liquid chlorine, concentrated oxygen sodium, or calcium hypochlorite.

Hazardous Decomposition Products:

Fumes, smoke, and carbon monoxide in the case of incomplete combustion. Also H₂S, SO₂, and SO₃.

Hazardous Polymerization:

May Occur []

Will Not Occur [X]

Conditions To Avoid:**SECTION VII - SPILL OR LEAK PROCEDURES****Steps To Be Taken In Case Material Is Released Or Spilled:**

Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent (sand, earth, sawdust, etc.) to spill area. Minimize breathing vapors. Ventilate confined spaces. Open all windows and doors. Keep petroleum products out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.

Waste Disposal Method:

Assure conformity with applicable disposal regulations. Dispose of absorbed materials at an approved disposal site or facility. Continue to observe precautions for volatile, flammable vapors from absorbed material.

SECTION VIII - SPECIAL PROTECTION INFORMATION**Respiratory Protection (Specify Type):**

Use supplied air respiratory protection in confined or enclosed spaces if needed.

Ventilation:

No smoking or open lights. Ventilate area to avoid accumulation of explosive vapors. Use explosion-proof equipment and non-sparking tools in areas where explosive vapor concentrations may form. Keep people away.

Protective Gloves:

Use chemical-resistant gloves to avoid skin contact.

Eye Protection:

Use splash goggles or face shield when eye contact may occur.

Other Protective Equipment:

Use chemical-resistant apron, or other clothing, if needed, to avoid contaminating regular clothing.

SECTION IX - HANDLING & STORAGE/SPECIAL PRECAUTIONS**Precautions To Be Taken In Handling & Storing:**

Keep containers closed when not in use. Do not handle or store near heat, sparks, flame, or strong oxidants. Ventilation must be sufficient to prevent build-up of toxic or explosive concentration of vapor in air.

Other Precautions:

Minimize breathing vapors. Avoid prolonged or repeated contact with skin. Remove contaminated clothing, launder before reuse. Remove contaminated shoes & thoroughly dry before reuse; discard oil soaked shoes. Wash skin thoroughly with soap and water after contact.

FOR ADDITIONAL SAFETY INFORMATION
CONTACT:

Operations Manager: (907) 835-5063

FOR OTHER PRODUCT INFORMATION
CONTACT:

Marketing Manager: (907) 344-2661