



SONG DOC MARINE TERMINAL

Crude Oil Material Safety Data Sheet

PRODUCT IDENTIFICATION	
PRODUCT IDENTIFIER CRUDE OIL	PIN UN 1267
SUPPLIER NAME TRUONG SON JOINT OPERATING COMPANY	CLASSIFICATION Class B Div 2, D Div 1A, D Div 2A, D Div 2B
ADDRESS SUITE 801, 8TH FLOOR, THE METROPOLITAN 235 DONG KHOI, DISTRICT 1, HO CHI MINH CITY TEL: +84 8 38247260 FAX: +84 8 38247250	  

COMPOSITION/INFORMATION ON INGREDIENTS				
COMPONENT	CAS NUMBER	% (VOLUME)	LD 50 (SPECIES & ROUTE)	LC 50 (SPECIES & ROUTE)
Heptanes	142-82-5	3.228	222 mg/kg (mouse intravenous)	75 g/m ³ (mouse, 2hour)
Octanes	111-65-9	2.228	Not available	Not available
Nonanes	111-84-2	1.627	218 mg/kg (mouse intravenous)	3200 ppm (rat, 4hour)
Hexanes	110-54-3	2.180	28710 mg/kg (rat, oral)	35,000-40,000 ppm (mouse)
Methyl Cyclohexane	108-87-2	1.523	2250 mg/kg (mouse, oral) Not available	41500 mg/m ³ (mouse, 2hour)
Butane	106-97-8	0.255	446 mg/kg (mouse, intravenous)	658 g/m ³ (rat, 4hour)
Pentane	109-66-0	1.049	5 g/kg (rat, oral)	Not available
1,2,4 Trimethyl Benzene	95-63-6	0.673	Not available	18 g/m ³ (rat, 4hour)
Propane	74-98-6	0.000	813 mg/kg (mouse, oral)	Not available
Cyclohexane	119-87-7	0.468	2.5-10ml/kg (rat,oral)	Not available
Xylene	1330-20-7	2.943	4894 mg/kg (rat,oral)	6700 ppm (rat, 4hour)
Benzene	71-43-2	0.483	5000 mg/kg (rat,oral)	16,000 ppm (rat,4hour)
Toluene	108-88-3	2.069	Not available	5320 ppm(mouse, 8hour)
Cyclopentane	287-92-3	0.098	Not available	Not available
Ethylbenzene	100-41-4	0.205	Not available Not available	17,360 mg/m ³ (rats, 4hour)
Hydrogen Sulfide	7783-06-4	0.000		444 ppm, 4 hours, rat

PHYSICAL INFORMATION				
PHYSICAL STATE Liquid	COLOUR AND APPEARANCE Varies in colour from Light Brown to Brown		ODOR Characteristic hydrocarbon odour.	
VAPOUR PRESSURE < 4.25 psi	POUR POINT (°C) 27	EVAPORATION RATE Not available	BOILING POINT (°C) 80 to 360	FREEZING POINT (°C) Not available
MERCURY CONC. 5.8 mg/1000 kg	SPECIFIC GRAVITY 0.8297	COEFFICIENT OF WATER/OIL DISTRIBUTION < 1; Product floats on water, soluble in benzene, chloroform and ether		

FIRE OR EXPLOSION INFORMATION**FLAMMABLE MATERIAL**NO YES
 IF YES UNDER WHAT CONDITION?

In the presence of heat, sparks, flame and air

MEANS OF EXTINCTIONFoam, Dry Chemical, CO₂

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 vapours and to protect personnel attempting to stop a leak. Water spray may be used to flush spills away from sources of potential ignition.

FLASHPOINT (°C)

- 1 deg. C

AUTOIGNITION TEMPERATURE (°C)

> 400 (estimated)

LOWER FLAMMABLE LIMIT (% BY VOLUME)

0.5 (estimated)

UPPER FLAMMABLE LIMIT (% BY VOLUME)

10 (estimated)

HAZARDOUS COMBUSTION PRODUCTS

Carbon monoxide (CO), Carbon dioxide (CO₂), sulphur oxides such as sulphur dioxide(SO₂), nitrogen oxides such as nitrogen dioxides(NO₂) and H₂S

EXPLOSION DATA: SENSITIVITY TO MECHANICAL IMPACT

Not sensitive to mechanical impact

SENSITIVITY TO STATIC DISCHARGE

Material may build up static charge; vapours may ignite if exposed to static discharge.

REACTIVITY INFORMATION**CHEMICALLY STABLE MATERIAL?**NO YES
 CONDITIONS OF CHEMICAL INSTABILITY?

However, the vapours of the various components may be released when the product is agitated or heated (including direct sunlight)

INCOMPATIBLE WITH OTHER SUBSTANCES?NO YES
 IF SO, WHICH OTHER SUBSTANCES?

Incompatible or can react with oxidizers, such as chlorine, peroxides, nitric acid and sulphuric acids.

REACTIVE MATERIAL?NO YES
 CONDITIONS OF REACTIVITY?

Not known to react with common materials

HAZARDOUS DECOMPOSITION MATERIAL

Normal combustion forms carbon dioxide, incomplete combustion may produce carbon monoxide. SO₂, NO₂ and H₂S can be formed on reaction with oxidizers. Polymerization will not occur.

PRODUCT IDENTIFIER CRUDE OIL

HEALTH HAZARD INFORMATION			
ROUTES OF ENTRY	TOXICOLOGICAL PROPERTIES	FIRST AID MEASURES	
INHALATION	Oil mist may cause respiratory tract irritation, or, in the case of chronic exposure, chemical pneumonitis. Overexposure may cause weakness, headache, nausea, confusion, blurred vision, drowsiness and other nervous system effects. Greater overexposure may cause dizziness, slurred speech, flushed face, unconsciousness and convulsions. H ₂ S can cause death. Chronic exposure to Benzene is associated with blood disorders, including leukemia. Presence of PAHs constitutes a cancer hazard.	If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician. (Note: Rescuer must wear positive pressure full facepiece, self-contained or supplied air NIOSH approved respirators)	
SKIN ABSORPTION	Benzene and xylene may be absorbed across intact skin. They produce the same effects by this route as by inhalation.	Not applicable	
INGESTION	Based on the presence of light hydrocarbon, ingestion of crude oil may cause vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even small quantities may result in aspiration pneumonitis.	If swallowed do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call physician.	
SKIN CONTACT	Crude oil is presumed to be moderately irritating to the skin. Prolonged and repeated contact can cause dermatitis, folliculitis, oil acne and skin tumor. Contact in hot product may result in thermal burns.	In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.	
EYE CONTACT	Crude oil is presumed to be moderately irritating to the eyes. Contact in hot product may result in thermal burns.	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.	
EXPOSURE LIMITS			
ACGIH TLV (TLV-TWA/TLV-STEL IN PPM)	n-Hexane 50/- Trimethylbenzene 25/- Butane 800/- Octane 300/375 Propane 2500/-	Pentane 600/650 Other Hexanes 500/1000 Xylene 100/150 Toluene 100/150	Benzene 10/- 1,2,4 Methylcyclohexane 400/-C ₉ Hydrogen Sulphide 10/15C
TERATOGENICITY No information available		IRRITANCY Crude oil is a skin, eye and respiratory tract irritant. H ₂ S irritates the eyes and respiratory tract.	
REPRODUCTIVE TOXICITY Some epidemiological evidence that benzene exposure may be associated with reduced male fertility		SENSITIZING PROPERTIES Some evidence of photosensitization.	
MUTAGENICITY Some evidence of chromosomal changes in workers exposed to benzene.		CARCINOGENICITY Animal testing and epidemiological studies have shown that some crude oils caused a low incidence of skin tumors. Benzene has been shown to cause leukemia.	

CORROSIVITY Sulphur compounds may cause product to be corrosive	SYNERGISTIC PRODUCTS Sunlight may increase the effects on skin.	
PREVENTIVE MEASURES		
PERSONAL PROTECTIVE EQUIPMENT		
RESPIRATOR(SPECIFY) In atmospheres where the concentrations of H ₂ S may exceed any of the exposure levels. 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. Positive pressure, pressure demand or continuous flow mode must be used.	GLOVES (SPECIFY) Neoprene or NBR gloves should be worn to protect against chronic skin contact. Top of gloves should extend over shirt sleeves.	EYE(SPECIFY) Safety glasses with side shields, or CSA- approved goggles or faceshield
CLOTHING (SPECIFY) Coveralls or long sleeved shirts with long legged pants	FOOTWEAR (SPECIFY) Suitable footwear with closed tops	OTHER (SPECIFY) No specific additional requirements
ENGINEERING CONTROLS Enclose process to avoid skin contact and to avoid inhalation of fumes and gases. Use explosion proof ventilation (local exhaust type where possible) for non-enclosed processes to minimize concentrations of vapour and oil mist in air. Supply an equal volume of tempered make-up air.		
HANDLING PROCEDURES AND EQUIPMENT Use of non-sparking and explosion-proof equipment may be necessary depending on type of operation. Keep away from heat, sparks and flames. Do not pressurized, cut, weld, braze, solder, grind, or drill on or near full or empty container. Empty container retains residue (liquid and/or vapour) and may explode in heat of fire. For personnel, do not breathe vapours or mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. Wash clothing after use.		
STORAGE REQUIREMENTS Store in a cool, well ventilated area at normal atmospheric pressure. Keep away from heat, sparks and flames.		
SPECIAL SHIPPING INFORMATION Department of Transportation Classification, Class 3 (Flammable Liquid), III. DOT proper shipping name: Petroleum Crude Oil. Other requirements: UN 1267, Guide 128.		
SPILL AND LEAK PROCEDURES Caution. Combustible, Large Spill- eliminate sources of ignition. Wear appropriate respirator and other protective clothing. Shut off source of leak only if safe to do so. Dike and contain. Remove with vacuum truck or pump to storage/salvage vessel. Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking containers and seal tightly for proper disposal. Flush area with water to remove trace residue, dispose of flush solution as above. Small Spill- Take up with an absorbent material and place in non-leaking containers for proper disposal.		
ECOLOGICAL INFORMATION Aquatic Toxicity: Benzene: 96 hours LC50-Fathead minnows: 12 mg/L, n-Hexane: 48 hour LC50-Golden orfe: 150-210 mg/L, H ₂ S: Aquatic concentrations below 2 ppm should not be environmentally toxic to aquatic plants.		
WASTE DISPOSAL Recycle to process facilities or dispose at approved waste processing facility.		

PREPARATION INFORMATION		
PREPARED BY	TELEPHONE NUMBER	DATE
TRUONG SON JOINT OPERATING COMPANY 235 Dong Khoi street, District 1, Ho Chi Minh City, Vietnam	+84 – 8 – 38247260	31 AUGUST 2009

TRUONG SON JOINT OPERATING COMPANY assume no responsibility for personal injury or damages whatsoever caused by the material, if reasonable safety procedures are not adhered to as stipulated in this Material Safety data Sheet. Additionally, TRUONG SON JOINT OPERATING COMPANY assumes no responsibility for subject injury and/or damage caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, all persons assume the risk in their use of the material