



Material Safety Data Sheet (Canada) Crude Oil (Sweet)

Section 1 – Material Identification and Use

Material Name: CRUDE OIL (SWEET)
Use: Process stream, fuels and lubricants production
WHMIS Classification: Class B, Div. 2; Class D, Div. 2, Sub-Div. A and B
TDG: UN: 1267 Class: 3
Packing Group: I (Boiling Point $\leq 35^{\circ}\text{C}$)
Shipping Name: PETROLEUM CRUDE OIL
Manufacturer/Supplier: ENCANA SERVICES COMPANY LTD.
500 Centre Street SE
CALGARY, ALBERTA, T2P 2S5
Emergency Telephone: CANUTEC: 1-613-996-6666
Chemical Family: Complex mixture of aliphatic and aromatic hydrocarbons.

Section 2 – Hazardous Ingredients of Materials

Hazardous Ingredients	Approximate Concentrations %	C.A.S. Nos.	LD50/LC50 Specify Species & Route	Exposure Limits
Crude oil	100	8002-05-9	LD50, rat, skin, >2 g/kg	N/A
Toluene	<1	108-88-3	LC50, rat, 4 hrs, 49000 mg/m ³	50 ppm/ 20 ppm (AB/ TLV & BC)
Benzene	$<0.1-1$	71-43-2	LD50, rat, oral, 930 mg/kg LC50, rat, 4 hrs, 13200 ppm	0.5 & 2.5 ppm (STEL) (AB, TLV & BC)
Naphthalene	<0.1	91-20-3	LD50, rat, oral, 490 mg/kg	10 & 15 ppm (STEL) (AB, TLV & BC)
Coal Tar Pitch Volatiles	<0.1	65996-93-2	LD50, rat, oral, 1.8 g/kg	0.2 mg/m ³ (AB, TLV & BC)
Butane	1-10	106-97-8	LC50, rat, 4 hrs, 658 g/m ³	1000/ 600 (750) ppm (AB & TLV/ BC (STEL))

All exposure levels are 8-hour time-weighted exposure limits unless otherwise indicated. STEL is a short-term exposure limit over a 15 minute time-weighted average.

Section 3 – Physical Data for Material

Physical State: Liquid
Specific Gravity: 0.7 - 0.95
Vapour Density (air=1): 2.5 -5.0
Percent Volatiles, by volume: N.Av.
pH: N.Av.
Coefficient of Water/Oil Distribution: <0.1
(N.AV. = not available N.App. = not applicable)
Vapour Pressure (mmHg): 0.5-200 @ 20 deg. C.
Odour Threshold (ppm): N.Av.
Evaporation Rate: N.Av.
Boiling Pt. (deg.C): See Section 1.0
Freezing Pt. (deg.C): <-40
Appearance & Odour: gold/brown/black/green viscous liquid, hydrocarbon odour

Section 4 – Fire and Explosion

Flammability: Yes **Conditions:** Product will ignite at normal temperatures.
Means of Extinction: Foam, CO₂, dry chemical. Explosive accumulations can build up in areas of poor ventilation.
Special Procedures: Use water spray to cool fire-exposed containers, and to disperse vapors if spill has not ignited. Cut off fuel and allow flame to burn out.
Flash Point (deg.C): <23 (TCC)
Upper Explosive Limit (% by vol.): 15
Lower Explosive Limit (% by vol.): 1.2
Auto-Ignition Temp. (deg.C): >260
Hazardous Combustion Products: Carbon monoxide and carbon dioxide
Sensitivity to Impact: No
Sensitivity to Static Discharge: Yes, may ignite
TDG Flammability Classification: 3

Section 5 – Reactivity Data

Chemical Stability: Yes **Conditions:** Heat
Incompatibility: Yes **Substances:** Chlorine and other strong oxidizing agents.
Reactivity: Yes **Conditions:** Heat, strong sunlight
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide



Material Safety Data Sheet (Canada) Crude Oil (Sweet)

Section 6 – Toxicological Properties of Product

Routes of Entry:

Skin Absorption: Yes

Skin Contact: Yes (liquid)

Eye Contact: Yes

Inhalation: Acute: Yes

Chronic: Yes

Ingestion: Yes

Effects of Acute Exposure: Vapour may cause irritation of eyes, nose and throat, dizziness and drowsiness. Contact with skin may cause irritation and possibly dermatitis. Absorbed through intact skin. Contact of liquid with eyes may cause severe irritation.

Effects of Chronic Exposure: Due to presence of benzene, long term or high dose rate exposures may increase the risk of anemia and leukemia. Due to the presence of toluene, long term exposure may increase the risk of hearing loss (ototoxic).

Sensitization to Product: No.

Irritancy: Yes

Synergistic Materials: None reported

Carcinogenicity: Yes **Reproductive Effects:** Possibly **Teratogenicity:** Possibly **Mutagenicity:** Possibly

Section 7 – Preventative Measures

Personal Protective Equipment: Use a NIOSH-approved positive pressure self-contained breathing apparatus, supplied air breathing apparatus or cartridge air purifying respirator equipped with combination organic vapour and P100 cartridges when concentrations may exceed exposure limits. A cartridge respirator is not suitable for oxygen deficiency or IDLH situations. Use approved gas detectors; however, note that combustible gas detection will likely not offer warning against overexposure to this product.

Gloves: Viton for full hand immersion, nitrile adequate for incidental contact.

Respiratory: SCBA, SABA or cartridge APR

Eye: Splash Goggles

Footwear: Covered footwear such as steel-toed boots.

Clothing: Fire retardant garments that meet NFPA 2112.

Engineering Controls: Use only in well ventilated areas. Mechanical ventilation required in confined areas. Equipment must be explosion proof.

Leaks & Spills: Stop leak if safe to do so. Use appropriate personal protective equipment. Use water spray to cool containers. Remove all ignition sources. Provide explosion-proof clearing ventilation, if possible. Prevent from entering confined spaces. Dyke and pump into containers for recycling or disposal. Notify appropriate regulatory authorities.

Waste Disposal: Contact regulatory authorities for disposal requirements.

Handling Procedures & Equipment: Avoid contact with liquid. Avoid inhalation. Bond and ground all transfers. Avoid sparking conditions. Examples of when concentrations may exceed exposure limits, but not limited to, include handling product in reduced ventilation environments like indoor settings, when face is in close proximity to source (<2 feet) or when quantities such as numerous gallons or more of product are in use in well ventilated outdoor environments. Higher benzene content dictates a proportionally lower handling volume. These examples are for general guidance only to brief task-based exposures in relation to the benzene STEL and are not a replacement for proper risk assessment that includes industrial hygiene monitoring. Industrial hygiene monitoring such as that detailed in NIOSH Methodology 1501 is required when handling or working near this product. In addition to the individual constituents, the gasoline exposure levels of 300 ppm and 500 ppm (STEL) are recommended.

Storage Requirements: Store in a cool, dry, well-ventilated area away from heat, strong sunlight, and ignition sources.

Special Shipping Information: N.App.

Section 8 – First aid Measures

Skin: Flush skin with water, removing contaminated clothing. Get medical attention if irritation persists or large area of contact. Decontaminate clothing before re-use.

Eye: Immediately flush with large amounts of luke warm water for 15 minutes, lifting upper and lower lids at intervals. Seek medical attention if irritation persists.

Inhalation: Ensure own safety. Remove victim to fresh air. Give oxygen, artificial respiration, or CPR if needed. Seek medical attention immediately.

Ingestion: Give 2-3 glasses of milk or water to drink. DO NOT INDUCE VOMITING. Keep warm and at rest. Get immediate medical attention.

Section 9 – Preparation Date of MSDS

Prepared By: Encana Environment, Health and Safety (EH&S)

Phone Number: (403) 645-2000 Preparation Date: July 1, 2014

Revision Date: July 1, 2017