

**SECTION 1 – MATERIAL IDENTIFICATION AND USE**

**Material Name:** LIQUIFIED NATURAL GAS (CRYOGENIC LIQUID)  
**Use:** Vehicle Fuel Gas  
**WHMIS Classification:** Class A; Class B, Div. 1  
**Fire:** 4      **Reactivity:** 0      **Health:** 1      **Inventory No.:**  
**TDG:**      **UN:** 1972      **Class:** 2.1      **Packing Group:** N.Av.  
**Shipping Name:** LIQUIFIED NATURAL GAS (CRYOGENIC LIQUID)  
**Manufacturer/Supplier:** ENCANA CORPORATION  
#1800, 855 - 2<sup>nd</sup> Street S.W., P.O. BOX 2850  
CALGARY, ALBERTA, T2P 2S5  
**Emergency Telephone:** 403-645-3333  
**Chemical Family:** Liquified aliphatic paraffinic hydrocarbon

**SECTION 2 – HAZARDOUS INGREDIENTS OF MATERIAL**

<b>Hazardous Ingredients</b>	<b>Approximate Concentrations %</b>	<b>C.A.S. Nos.</b>	<b>LD50/LC50 Specify Species &amp; Route</b>	<b>Exposure Limits</b>
Methane	>97%	74-82-8	N.Av.	1000 ppm (TLV <sup>1</sup> )
Ethane	2-3%	74-84-0	N.Av.	1000 ppm (TLV <sup>1</sup> )

(see also section 6)

TLV = Threshold Limit Value (8 hrs)

<sup>1</sup> As Aliphatic hydrocarbon gases**SECTION 3 – PHYSICAL DATA FOR MATERIAL**

**Physical State:** Liquified Gas      **Vapour Pressure (mmHg):** N.App.  
**Specific Gravity:** 0.422 to 0.546      **Odour Threshold (ppm):** N.Av.  
**Vapour Density (air=1):** 0.55 to 1.1      **Evaporation Rate:** N.Av.  
**Percent Volatiles, by volume:** 100      **Boiling Pt. (deg.C):** -88.15  
**Odour & Appearance:** colourless, odourless or mercaptan odour  
**Freezing Pt. (deg.C):** -172.15  
**pH:** N.App.      **Coefficient of Water/Oil Distribution:** <0.1  
(N.Av. = not available    N.App. = not applicable)

**SECTION 4 – FIRE AND EXPLOSION**

**Flammability:** Yes      **Conditions:** Material may ignite at normal temperatures.  
**Means of Extinction:** Foam, CO<sub>2</sub>, 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 gas if leak has not ignited. Do not direct water at spill or source of leak. If safe to do so, cut off fuel and allow flame to burn out. If flames are accidentally extinguished, explosive re-ignition may occur.  
**Flash Point (deg.C):** -187.78 to -135.15      **Hazardous Combustion Products:** Carbon monoxide  
**Upper Explosive Limit (% by vol.):** 12.4      **Sensitivity to Impact:** No  
**Lower Explosive Limit (% by vol.):** 3      **Sensitivity to Static Discharge:** Yes, may ignite  
**Auto-Ignition Temp. (deg.C):** 530      **TDG Flammability Classification:** 2.1

**SECTION 5 – REACTIVITY DATA**

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

## SECTION 6 – TOXICOLOGICAL PROPERTIES OF PRODUCT

**Routes of Entry:****Skin Absorption:** Yes**Skin Contact:** Yes (liquid)**Eye Contact:** Yes**Inhalation: Acute:** Yes**Chronic:** No**Ingestion:** No

**Effects of Acute Exposure:** Drowsiness, headache, dizziness and possibly unconsciousness at concentrations below those required for oxygen deficiency, for example 10% LEL and above. At higher concentrations can cause oxygen deficiency and possible asphyxiation. Contact can cause frostbite to skin and eyes.

**Effects of Chronic Exposure:** N.Av.**Occupational Exposure Limit:** 1000 ppm (TLV)**Sensitization to Product:** No**Exposure Limits of Product:** 1000 ppm (TLV)**Irritancy:** N.Av.**Synergistic Materials:** None reported**Carcinogenicity:** N.Av. **Reproductive Effects:** N.Av.**Teratogenicity:** N.Av. **Mutagenicity:** N.Av.

## SECTION 7 – PREVENTIVE MEASURES

**Personal Protective Equipment: Gloves:** Insulated gloves (e.g.: cryogenic) **Eye:** Splash goggles and face shield or equivalent

**Footwear:** Covered footwear such as steel-toed boots **Clothing:** Fire retardant coveralls. For situations or activities involving elevated risk of fluid contact, wear an insulated apron or smock.

**Respiratory Protection:** Use positive pressure self-contained breathing apparatus or supplied air breathing apparatus when entering areas where high concentrations may be present.

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

**Leaks & Spills:** If safe to do so, stop liquid flow. Remove all ignition sources. Provide explosion-proof clearing ventilation if possible. Prevent from entering confined spaces. Use personal protective equipment.

**Waste Disposal:** Controlled burning or venting in accordance with regulatory requirements.

**Handling Procedures & Equipment:** Avoid contact with liquid or liquid cooled equipment. Avoid inhalation. Bond and ground all transfers. Avoid sparking conditions.

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

**Special Shipping Information:** N.Av.

## SECTION 8 – FIRST AID MEASURES

**Skin:** If freeze burn occurs, gently bathe affected area in warm water (38 – 43 deg. C). Do not rub. Get medical attention. Seek immediate medical attention if blistering, tissue freezing or frost bite has occurred.

**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:** Remove to fresh air. Give oxygen, artificial respiration, or CPR if needed. Seek medical attention.

**Ingestion:** Ingestion of liquid causes freeze burns to mouth, throat, oesophagus and lungs. Get immediate medical attention.

## SECTION 9 – PREPARATION DATE OF MSDS

Prepared By: EnCana Environment, Health and Safety (EHS)

Phone Number: (403) 645-2000 Preparation Date: July 1, 2011 Expiry Date: July 1, 2014