

SECTION 1 – MATERIAL IDENTIFICATION AND USE**Material Name:** NATURAL GAS (SWEET)**Use:** Process stream, sales gas**WHMIS Classification:** Class A; Class B, Div. 1**Fire:** 4 **Reactivity:** 0 **Health:** 1 **Inventory No.:****TDG:** **UN:** 1971 **Class:** 2.1 **Packing Group:** N. App.**Shipping Name:** NATURAL GAS, COMPRESSED (with high methane content)**Manufacturer/Supplier:** CENOVUS ENERGY INC.

421 - 7 Ave SW PO Box 766

Calgary, AB T2P 0M5

Emergency Telephone: 1-877-458-8080**Chemical Family:** Mixture of light paraffin hydrocarbon gases**SECTION 2 – HAZARDOUS INGREDIENTS OF MATERIAL**

Hazardous Ingredients	Approximate Concentrations %	C.A.S. Nos.	LD50/LC50 Specify Species & Route	Exposure Limits
Butanes	0 – 10	106-97-8	LC50, rat, 4 hr., 658 g/m ³	1000 ppm (OEL, TLV ¹)
Ethane	0 – 15	74-84-0	N.Av.	1000 ppm (OEL, TLV ¹)
Methane	70 - 90	74-82-8	N.Av.	1000 ppm (TLV ¹)
Propane	0 – 10	74-98-6	N.Av.	1000 ppm (OEL, TLV ¹) (see also section 6)

OEL = 8 hr. Alberta Occupational Exposure Limit TLV = Threshold Limit Value (8 hrs)

¹ As Aliphatic hydrocarbon gases**SECTION 3 – PHYSICAL DATA FOR MATERIAL****Physical State:** Gas**Specific Gravity:** 0.3 – 0.5**Vapour Density (air=1):** 0.5 – 0.94**Percent Volatiles, by volume:** 100**Odour & Appearance:** colourless, odourless or mercaptan odour**Freezing Pt. (deg.C):** -180**pH:** N.App.

(N.AV. = not available N.App. = not applicable)

Vapour Pressure (mmHg): Gas (usually 300 – 600 psi in pipeline)**Odour Threshold (ppm):** N.Av.**Evaporation Rate:** N.Av.**Boiling Pt. (deg.C):** -150**Coefficient of Water/Oil Distribution:** <0.1**SECTION 4 – FIRE AND EXPLOSION****Flammability:** Yes **Conditions:** Material 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 gas if leak has not ignited. If safe to do so, cut off fuel and allow flame to burn out.**Flash Point (deg.C) & Method:** <-150 deg.C.**Upper Explosive Limit (% by vol.):** 15**Lower Explosive Limit (% by vol.):** 3**Auto Ignition Temp. (deg.C):** 285 - 537**Hazardous Combustion Products:** Carbon monoxide**Sensitivity to Impact:** No**Sensitivity to Static Discharge:** Yes, may ignite**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:** N.Av.**Skin Contact:** Yes (liquid)**Eye Contact:** Yes**Inhalation: Acute:** Yes**Chronic:** N.Av.**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.

Rapidly expanding gas or vaporized liquid may cause frostbite to skin and eyes.

Effects of Chronic Exposure: N.Av.**Sensitization to Product:** No**Exposure Limits of Product:** 1000 ppm (OEL, 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: Use positive pressure self-contained breathing apparatus or supplied air breathing apparatus when entering areas where high concentrations may be present.

Gloves: Insulated gloves**Respiratory:** SCBA or SABA**Eye:** Full facepiece SCBA or SABA**Footwear:** As per safety policy. **Clothing:** As per fire protection policy.

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 gas flow. Remove all ignition sources. Provide clearing ventilation if possible. Prevent from entering confined spaces. Use appropriate 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.

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: N.App.

SECTION 9 – PREPARATION DATE OF MSDS

Prepared By: Cenovus Energy Inc. Environment, Health and Safety (EHS)

Phone Number: 1-877-458-8080

Preparation Date: July 10, 2011 Expiry Date: July 10, 2014