

SECTION 1 – MATERIAL IDENTIFICATION AND USE**Material Name:** SULPHUR (SOLID)**Use:** Process stream, chemical feedstock**WHMIS Classification:** Not controlled**Fire: Reactivity: Health:****TDG*:** **UN:** 1350 **Class:** 4.1 **Packing Group:** III**Shipping Name:** Sulphur*(However, **not** controlled by TDG if the material:**(a)** is in a quantity less than or equal to 400 kg per; or**(b)** has been formed to a specific shape such as prills, granules, pellets, pastilles or flakes.)**Manufacturer/Supplier:** CENOVUS ENERGY INC.
421 - 7 Ave SW PO Box 766
Calgary, AB T2P 0M5**Emergency Telephone:** 1-877-458-8080**Chemical Family:** Elemental sulphur**SECTION 2 – HAZARDOUS INGREDIENTS OF MATERIAL**

Hazardous Ingredients	Approximate Concentrations (%)	C.A.S. Nos.	LD50/LC50 Specify Species & Route	Exposure Limits
Sulphur	100	7704-34-9	N.Av.	10 mg/m3 (OEL)

OEL = 8 hr. Alberta Occupational Exposure Limit

SECTION 3 – PHYSICAL DATA FOR MATERIAL**Physical State:** Solid**Specific Gravity:** 1.96**Vapour Density (air=1):** N.Av.**Percent Volatiles, by volume:** N.Av.**pH:** N.Av.**Coefficient of Water/Oil Distribution:** N.Av.**Odour & Appearance:** Yellow solid, sulphurous odour

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

Vapour Pressure (mmHg): 1 @ 183 deg. C.**Odour Threshold (ppm):** 0.13 (H2S)**Evaporation Rate:** N.Av.**Boiling Pt. (deg.C):** 444**Freezing Pt. (deg.C):** 119**SECTION 4 – FIRE AND EXPLOSION****Flammability:** Yes **Conditions:** Solid will burn. Dust may form explosive concentrations in air. Hazardous hydrogen sulphide concentrations may accumulate in poorly ventilated locations.**Means of Extinction:** Foam, CO2, steam, dry chemical**Flash Point (deg. C):** 207**Upper Explosive Limit :** 1400 g/m3**Lower Explosive Limit:** 35 g/m3**Auto-Ignition Temp. (deg.C):** 232**Hazardous Combustion Products:** Sulphur oxides**Special Procedures:** Use water spray to cool fire-exposed containers, and to disperse toxic gases.**Sensitivity to Impact:** No**Sensitivity to Static Discharge:** Yes, may ignite**TDG Flammability Classification:** N. App.**SECTION 5 – REACTIVITY DATA****Chemical Stability:** Yes **Conditions:** Heat**Incompatibility:** Yes **Substances:** Oxidizing agents (reaction may be violent), halogens, mineral acids and alkalis, zinc, tin, copper and alloys**Reactivity:** Yes **Conditions:** Heat**Hazardous Decomposition Products:** Hydrogen sulphide, sulphur oxides.

SECTION 6 – TOXICOLOGICAL PROPERTIES OF PRODUCT

Routes of Entry:

Skin Absorption: No

Skin Contact: Yes

Eye Contact: Yes

Inhalation: Acute: Yes

Chronic: N.Av.

Ingestion: Yes

Effects of Acute Exposure: Airborne dust can cause irritation of the eyes, nose, throat and lungs. Hydrogen sulphide may build up in poorly ventilated storage areas.

Hydrogen sulphide can cause irritation of the eyes, nose, throat and lungs. Unconsciousness and respiratory failure can occur with high exposures. Death may result if not promptly revived.

Effects of Chronic Exposure: N.Av.

Sensitization to Product: No.

Exposure Limits of Product: 10 mg/m³ (8 hr OEL)

Irritancy: Yes

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: Neoprene, nitrile, rubber or leather, as appropriate.

Respiratory Protection: Air purifying respirator approved for dusts. Use positive pressure self-contained breathing apparatus or supplied air breathing apparatus where hydrogen sulphide build-up is suspected.

Eye: Dust goggles.

Footwear: As per safety policy

Clothing: Fire retardant clothing

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

Leaks & Spills: Remove all ignition sources. Use respiratory and personal protective equipment as necessary. Stop further discharge if safe to do so. Contain material and drum for recycling or disposal.

Waste Disposal: Dispose according to regulatory requirements.

Handling Procedures & Equipment: Avoid inhalation and contact with skin, eyes and clothing. Minimize dust generation during handling. Material may accumulate static charge, which may cause a spark and ignition of airborne dust/gas. Avoid other ignition sources.

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

Special Shipping Information: Not regulated by TDG if the material:

(a) is in a quantity less than or equal to 400 kg per; or

(b) has been formed to a specific shape such as prills, granules, pellets, pastilles or flakes.

SECTION 8 – FIRST AID MEASURES

Skin: Flush area thoroughly with water. Remove severely contaminated clothing, and launder before reuse. Get medical attention if irritation persists.

Eye: Flush with luke warm water for 15 minutes, lifting upper and lower lids at intervals. Get medical attention if irritation persists.

Inhalation: Ensure own safety. Remove victim to fresh air. Give oxygen, artificial respiration, or CPR if needed. Get immediate medical attention if hydrogen sulphide exposure is suspected. Maintain watch for delayed pulmonary oedema.

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

Phone Number: 1-877-458-8080

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