For Emergency Assistance
Involving Chemicals Call CHEMTREC
(800) 424-9300

WHMIS (Classification)
CLASS D-1B: Material causing
immediate and serious toxic effects
(TOXIC).
CLASS D-2A: Material causing other
toxic effects (VERY TOXIC).

**Section I. Chemical Product Identification**

Distributed by:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Product Name: Cobalt sulfate        Code: LA1783
CAS#: 010124433

Synonym: Not available.
Chemical Name: Cobalt sulfate, monohydrate
Chemical Family: Not available.
Chemical Formula: COO4S
Material Uses: Not available.

**Section II. Composition and Information on Ingredients**

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>% by Weight</th>
<th>LC50/LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt sulfate</td>
<td>010124433</td>
<td>100</td>
<td>ORAL (LD50): Acute: 424 mg/kg [Rat]. 584 mg/kg [Mouse].</td>
</tr>
</tbody>
</table>

**Section III. Hazards Identification**

Potential Acute
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Hazardous in case of inhalation (lung sensitizer).
Chronic Health Effects: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC.

MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.

The substance is toxic to kidneys. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

**Section IV. First Aid Measures**

Eye Contact IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.

Skin Contact In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Hazardous Skin Contact In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion If swallowed, induce vomiting as directed to do so by medical personnel. Have conscious person drink several glasses of water or milk. Never give anything by mouth to an unconscious person. Seek medical attention.

**Section V. Fire and Explosion Data**

The Product is: May be combustible at high temperature.

Auto-Ignition Temperature Not available.

Flash Points Not available.

Flammable Limits Not available.

Products of Combustion These products are carbon oxides (CO, CO2), sulfur oxides (SO2, SO3...).

Fire Hazards in Presence of Various Substances Not available.

Explosion Risks of explosion of the product in presence of mechanical
**Section VI. Accidental Release Measures**

Small Spill
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill
Use a shovel to put the material into a convenient waste disposal container. Avoid creating dust. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Section VII. Handling and Storage**

Precautions
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. DO NOT ingest. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Avoid creating dust.

Storage
Keep container tightly closed. Keep container in a cool, well-ventilated area.

**Section VIII. Exposure Controls/Personal Protection**

Engineering Controls
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection
Gloves (impervious). Lab coat. Splash goggles. In case of insufficient ventilation, wear suitable respiratory equipment. Be sure to use a MSHA/NIOSH approved respirator or equivalent.

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Boots. A self-contained breathing apparatus should be used to avoid inhalation of the product. Gloves (impervious). Be sure to use a MSHA/NIOSH approved respirator or equivalent.

Exposure Limits
TWA: 0.1 (mg/m3) from OSHA (PEL) [United States]
TWA: 0.02 (mg/m3) from ACGIH (TLV) [United States]
Consult local authorities for acceptable exposure limits.

**Section IX. Physical and Chemical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State and Appearance</td>
<td>Solid. (Crystalline solid.)</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless.</td>
</tr>
<tr>
<td>Taste</td>
<td>Not available.</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>155 g/mole</td>
</tr>
<tr>
<td>pH (1% soln/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Color</td>
<td>Pink</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting Point</td>
<td>989°C (1812.2°F)</td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>3.07 (Water = 1)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Volatility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Water/Oil Dist. Coeff.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Ionicity (in Water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Dispersion Properties</td>
<td>See solubility in water.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in cold water, hot water.</td>
</tr>
</tbody>
</table>

**Section X. Stability and Reactivity Data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Instability</td>
<td>Not available.</td>
</tr>
<tr>
<td>Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Not available.</td>
</tr>
<tr>
<td>Incompatibility with various</td>
<td>Not available.</td>
</tr>
<tr>
<td>substances</td>
<td></td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Special Remarks</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
**Section XI. Toxicological Information**

**Routes of Entry**
- Eye contact.
- Inhalation.
- Ingestion.

**Toxicity to Animals**
- Acute oral toxicity (LD50): 424 mg/kg [Rat].

**Chronic Effects on Humans**
- Hazardous in case of inhalation (lung sensitizer).
  - CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC.
  - MUTAGENIC EFFECTS: Not available.
  - TERATOGENIC EFFECTS: Not available.
  - DEVELOPMENTAL TOXICITY: Not available.

- The substance is toxic to kidneys.
- Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

**Other Toxic Effects on Humans**
- Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Special Remarks on Toxicity to Animals**
- Not available.

**Special Remarks on Chronic Effects on Humans**
- Not available.

**Special Remarks on Other Toxic Effects on Humans**
- May cause allergic reactions to certain individuals. Causes dermatitis.

**Section XII. Ecological Information**

- Ecotoxicity: Not available.
- BOD5 and COD: Not available.
- Products of Biodegradation: Not available.
- Toxicity of the Products of Biodegradation: Not available.
**Section XIII. Disposal Considerations**

Waste Disposal  Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.

**Section XIV. Transport Information**

TDG  Not controlled under TDG (Canada).

Classification

Shipping name  Not applicable.

PIN  Not applicable.

Packing Group  Not applicable.

Special Provisions for Transport  No additional remark.

**Section XV. Other Regulatory Information**


**Section XVI. Other Information**

References  -Manufacturer's Material Safety Data Sheet.

Other Special Considerations  Not available.

Validated by Hardev Bendick on 1/26/2001.

Verified by Hardev Bendick.

Tel. number for non-emergency questions concerning MSDS: 1-866-686-4827

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==================== END OF MSDS ====================