SECTION I - CHEMICAL PRODUCT AND COMPANY INFORMATION

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>HIGH CALCIUM HYDRATED LIME</th>
<th>WHMIS – CLASSIFICATION:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>D2A: MATERIALS CAUSING OTHER TOXIC EFFECTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E: CORROSIVE MATERIAL</td>
</tr>
</tbody>
</table>

MANUFACTURER’S AND SUPPLIER’S NAME:

- **GRAYMONT (NB) INC**
  4634, Route 880, Havelock, New Brunswick, E4Z 5K8.

- **GRAYMONT (PA) INC.**
  194, Match Factory Place, Bellefonte, Pennsylvania, 16823

- **GRAYMONT (QC) INC.**

- **GRAYMONT (WESTERN CANADA) INC.**
  #260 – 4311, 12th Street N.E., Calgary, Alberta, T2E 4P9

- **GRAYMONT (WESTERN US) INC.**
  3950 South, 700 East, Suite 301, Salt Lake City, Utah, 84107

- **GRAYMONT (WI) INC.**
  Foot of Hill Avenue, Superior, Wisconsin, 54880

EMERGENCY TEL. No.: (613) 996 – 6666 CANUTEC (Canada) (800) 424 – 9300 CHEMTREC (US)

SECTION II - COMPOSITION AND INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Ingredients</th>
<th>Approximate Concentration (% by weight)</th>
<th>C.A.S. Number</th>
<th>Exposure limits (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL</td>
</tr>
<tr>
<td>(Complex Mixture) (%)</td>
<td></td>
<td></td>
<td>(TWA) 8/40h</td>
</tr>
<tr>
<td>Calcium hydroxide</td>
<td>92 to 100</td>
<td>1305-62-0</td>
<td>15 (T) 5 (R)</td>
</tr>
<tr>
<td>Crystalline Silica,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartz</td>
<td>0 à 0.1 Or 0.1 à 1</td>
<td>14808-60-7</td>
<td>30/(%SiO₂)+2 (T) 10/(%SiO₂)+2 (R)</td>
</tr>
</tbody>
</table>

(Note 1): Concentration of crystalline silica in a series of lime products will vary from source to source. It was not detected on some samples (< 0.1% w/w). Therefore two ranges are being disclosed. (Note 2): ACGIH TLV Version 1973 has been adopted by the Mine Safety Health Administration (MSHA) as the regulatory Exposure Standard. (Note 3): (T) Total Dust; (R): Respirable Dust.
### SECTION III - PHYSICAL AND CHEMICAL DATA

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Odor and Appearance</th>
<th>Odor Threshold (p.p.m.)</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas □ Liquid □ Solid ✓</td>
<td>Slight earthy odor – Fine white powder</td>
<td>Not applicable</td>
<td>2.3 – 2.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vapor Pressure (mm)</th>
<th>Vapor Density (Air = 1)</th>
<th>Evaporation Rate</th>
<th>Boiling Point (°C)</th>
<th>Melting Point (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solubility in Water (20°C)</th>
<th>Volatiles (% by volume)</th>
<th>pH (25 °C)</th>
<th>Bulk Density (kg/m³)</th>
<th>Coefficient of water/oil distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.165g/100g solution</td>
<td>Not applicable</td>
<td>Sat. soln Ca(OH)₂ 12.45</td>
<td>320 - 690</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

### SECTION IV - FIRE OR EXPLOSION HAZARD DATA

#### Flammability

<table>
<thead>
<tr>
<th>Yes □ No ✓ If yes, under which conditions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes □ No ✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extinguishing Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Hydroxide does not burn. Use extinguishing media appropriate to surrounding fire conditions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Fire Fighting Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flash point (°C) and Method</th>
<th>Upper flammable limit (% by volume)</th>
<th>Lower flammable limit (% by volume)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auto Ignition Temperature (°C)</th>
<th>TDG Flammability Classification</th>
<th>Hazardous Combustion Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Non-flammable</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dangerous Combustion Products</th>
<th>None</th>
</tr>
</thead>
</table>

#### EXPLOSION DATA

<table>
<thead>
<tr>
<th>Sensitivity to Chemical Impact</th>
<th>Rate of Burning</th>
<th>Explosive Power</th>
<th>Sensitivity to Static Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
SECTION V - REACTIVITY DATA

Chemical Stability
Yes ☑ No ☐ If no, under which conditions?
Absorbs carbon dioxide in the air to form calcium carbonate.

Incompatibility to other substances
Yes ☑ No ☐ If so, which ones?
Boron tri-fluoride, chlorine tri-fluoride, ethanol, fluorine, hydrogen fluoride, phosphorus pentoxide; and acids (violent reaction with generating heat and possible explosion in confined area).

Reactivity
Yes ☑ No ☐ If so, under which conditions?
Reacts violently with strong acids. Reacts chemically with acids and many other compounds and chemical elements to form calcium based compounds. Explosive when mixed with nitro organic compounds.

SECTION VI - TOXICOLOGICAL PROPERTIES

Route of Entry
☑ Skin Contact ☐ Skin Absorption ☑ Eye Contact ☑ Acute Inhalation ☐ Chronic Inhalation ☑ Ingestion

Effects of Acute Exposure to Product

Skin
Severe irritation of mucous and skin, removes natural skin oils.

Eyes
Severe eye irritation, intense watering of the eyes, possible lesions, possible blindness when exposed for prolonged period. Eye irritation data: Eye-Rabbit-10mg/24 h – Severe.

Inhalation
If inhaled in form of dust, irritation of breathing passages, cough, sneezing.

Ingestion
If ingested: pain, vomiting blood, diarrhea, collapse, drop in blood pressure (indicates perforation of esophagus or stomach).

Effects of Chronic Exposure to Product:

Contact dermatitis. Following repeated or prolonged contact, this product can cause redness, desquamation and fissures. This product may contain trace amounts of crystalline silica. Excessive inhalation of respirable crystalline silica dust may result in respiratory disease, including silicosis, pneumoconiosis and pulmonary fibrosis.

LD_{50} of Product (Specify Species and Route)
7340 mg/kg (Rat, Oral)
7300 mg/kg (Mouse, Oral)

LC_{50} of Product (Specify Species)
Unavailable

Irritancy of Product
Severe to moist tissues

Exposure limits of Product
Unavailable

Sensitization to Product
None

Synergistic materials
None reported
SECTION VI - TOXICOLOGICAL PROPERTIES (Cont’d)

- Carcinogenicity
- Reproductive effects
- Tératogenicity
- Mutagenicity

Calcium Hydroxide is not listed as a carcinogen by ACGIH, MSHA, OSHA, NTP, DFG, RSST or IARC. It may, however, contain trace amounts of Crystalline Silica listed carcinogens by these organizations.

Crystalline Silica, which inhaled in the form of quartz or crystobalite from occupational sources, is classified by IARC as carcinogenic to humans. (Group 1)

Silica, crystalline (Airborne particles of respirable size) is regulated under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Crystalline Silica is listed as a chemical known to the State to cause cancer.

NIOSH considers crystalline silica to be potential occupational carcinogen as defined by the OSHA carcinogen policy [29 CFR 1990]. (Ca).

NTP lists respirable Crystalline Silica as known to be human carcinogens based on sufficient evidence of carcinogenicity in humans. (K).

ACGIH lists respirable Crystalline Silica (quartz) as suspected human carcinogen. (A2).

DFG lists respirable Crystalline Silica as a substance that causes cancer in man (1)

RSST lists respirable Crystalline Silica (quartz) as suspected human carcinogen.

SECTION VII - PREVENTIVE MEASURES

Personal Protective Equipment (PPE)

Wear clean, dry gloves, full length pants over boots, long sleeved shirt buttoned at the neck, head protection and approved eye protection selected for the working conditions.

Gloves (Specify)

Gauntlets Cuff style.

Respiratory (Specify)

Respirator Recommendations for Calcium Hydroxide: Not available.
Respirator Recommendations for Calcium Oxide: NIOSH approved respirator.

- Up to 10 mg/m³: (APF = 5) Any quarter-mask respirator.
- Up to 20 mg/m³: (APF = 10) Any particulate respirator equipped with an N95, R95 or P95 filter except quarter-mask respirator. Any supplied-air respirator.
- Up to 25 mg/m³: (APF = 25) Any supplied-air respirator operated in a continuous-flow mode. Any powered, air purifying respirator with a high-efficiency particulate filter.

Eyes (Specify)

ANSI, CSA or ASTM approved safety glasses with side shields. Tight fitting dust goggles should be worn when excessive (visible) dust conditions are present. Do not wear contact lenses without tight fitting goggles when handling this chemical.

Footwear (Specify)

Resistant to caustics.

Clothing (Specify)

Fully covering skin. Remove when wet or contaminated. Change daily.

Other (Specify)

Evaluate degree of exposure and use PPE if necessary. After handling lime, employees must shower. If exposed daily, use oil, Vaseline, silicone base crème etc. to protect exposed skin, particularly neck, face and wrists.

Engineering Controls (e.g. ventilation, enclosed process, specify)

Enclose dust sources; use exhaust ventilation (dust collector) at handling points, keep levels below Max. Concentration Permitted.
## SECTION VII - PREVENTIVE MEASURES (Cont’d)

### Leak and Spill Procedure

Limit access to trained personnel. Use industrial vacuums for large spills. Ventilate area.

### Waste Disposal

Transport to disposal area or bury. Review Federal, Provincial and local Environmental regulations.

### Handling Procedures and Equipment

Avoid skin and eye contact. Minimize dust generation. Wear protective goggles and in cases of insufficient ventilation, use NIOSH approved dust respirator. An eye wash station and safety shower should be readily available where this material or its water dispersions are used. Contact lenses should not be worn when working with this chemical.

### Storage Requirements

Keep tightly closed containers in a cool, dry and well-ventilated area, away from acids. Keep out of reach of children.

### Special Shipment Information

Calcium Hydroxide is neither regulated by the Transportation of Dangerous Goods (TDG) Regulations (Canada) nor by the Hazardous Materials Regulations (USA).

## SECTION VIII - FIRST AID MEASURES

### Skin

Carefully and gently brush the contaminated body surfaces in order to remove all traces of lime. Use a brush, cloth or gloves. Remove all lime-contaminated clothing. Rinse contaminated area with lukewarm water for 15 to 20 minutes. Consult a physician if exposed area is large or if irritation persists.

### Eyes

Immediately rinse contaminated eye(s) with gently running lukewarm water (saline solution is preferred) for 15 to 20 minutes. In the case of an embedded particle in the eye, or chemical burn, as assessed by first aid trained personnel, contact a physician.

### Inhalation

Move source of dust or move victim to fresh air. Obtain medical attention immediately. If victim does not breathe, give artificial respiration.

### Ingestion

If victim is conscious, give 300 ml (10 oz) of water, followed by diluted vinegar (1 part vinegar, 2 parts water) or fruit juice to neutralize the alkali. Do not induce vomiting. Contact a physician immediately.

### General Advise

Consult a physician for all exposures except minor instances of inhalation.
SECTION IX - REGULATORY INFORMATION


Component Calcium Hydroxide has been reviewed against the following regulatory listings:

- **SARA Section 313 – Toxics Release Inventory (TRI).** Toxic Chemical List (40 CFR, Part 372). Not listed.
- **CERCLA – Hazardous Substance** (40 CFR, Part 302): Not listed in Table 302.4.


Calcium Hydroxide has been withdrawn from the Clean Water Act (CWA) list of hazardous substances. (11/13/79) (44FR65400)

California Proposition 65.

Component Calcium Hydroxide does not appear on the above regulatory listing. This product may contain small amounts of crystalline silica. Silica, crystalline (Airborne particles of respirable size) is regulated under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Crystalline silica is listed as a chemical known to the State to cause cancer.

Transportation - Hazardous Materials Regulations (USA) & Transportation of Dangerous Goods (TDG) Regulations (Can).

Calcium Hydroxide does not appear on the above regulatory listings

Toxic Substances Control Act (TSCA).

All naturally occurring components of this product are automatically included in the USEPA TSCA Inventory List per 40 CFR 710.4 (b). All other components are listed on the USEPA TSCA Chemical Substances Inventory. Calcium Hydroxide is subject to inventory update reporting (IUR).

Canadian Environmental Protection Act (CEPA) – Substances Lists (DSL/NDSL).

Calcium Hydroxide is specified on the public Portion of the Domestic Substances List (DSL).

ANSI/NSF 60 - Drinking Water Treatment Additives.

Hydrated Lime has been investigated with respect to elements identified by EPA as toxic and it has been classified for use in direct contact with drinking water (in accordance with Standard ANSI/NSF 60). For a list of classified products, refer to Underwriters Laboratories Inc.’s Online Certifications Directory.

FDA - U.S. Food and Drug Administration, Department of Health and Human Services.

Calcium Hydroxide has been determined as “Generally Recognized As Safe” (GRAS) by FDA. See 21CFR184.1205. (CFR Title 21 Part 184 - - Direct food substances affirmed as generally recognized as safe).
### SECTION X - OTHER INFORMATION

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Hazardous Materials Identification System" /></td>
<td><img src="image" alt="National Fire Protection Association (U.S.) NFPA 704" /></td>
</tr>
</tbody>
</table>

**WHMIS – Classification:**

- "E" Corrosive Materials.
- "D2A" Materials causing other toxic effects.

**Symbol:**

- ![Symbol](image)
- ![Symbol](image)

**Additional Information/Comments:**

The technical data contained herein is given as information only and is believed to be reliable. **GRAYMONT** makes no guarantee of results and assumes no obligation or liability in connection therewith.

**Sources Used:**


### SECTION XI - PREPARATION INFORMATION

<table>
<thead>
<tr>
<th>Prepared by:</th>
<th>Telephone number:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GRAYMONT (QC) INC.</strong> Quality Assurance &amp; Technical Services</td>
<td>(450) 449-2262</td>
<td>June 2011</td>
</tr>
</tbody>
</table>

An electronic version of this MSDS is available at: [www.graymont.com](http://www.graymont.com) under the PRODUCTS section.