



MATERIAL SAFETY DATA SHEET

| SECTION I - CHEMICAL PRODUCT AND COMPANY INFORMATION | | |
|--|---|--|
| Product Name: HYDRAULIC LIME | WHMIS – CLASSIFICATION: D2A / D2B: MATERIALS CAUSING OTHER TOXIC EFFECTS E: CORROSIVE MATERIAL | |
| MANUFACTURER'S AND SUPPLIER'S NAME: | | |
| GRAYMONT DOLIME (OH) INC 21880, West State, Route163, Genoa, Ohio 43430-0158. | | |
| EMERGENCY TEL. No.: (613) 996 – 6666 CANUTEC (Canada) (800) 424 – 9300 CHEMTREC (US) | | |
| Chemical Name Calcium Magnesium Hydroxide, Calcium Carbonate and Anhydrous Aluminum Silicate | Chemical Family Alkaline earth Hydroxides and Carbonates and Calcined Kaolin | Chemical Formula Complex mixture – mostly CaMg(OH)₄ CaCO₃ and Al₂O₃•2SiO₂ |
| Molecular Weight CaMg(OH)₄ = 132.41 Al₂O₃•2SiO₂ = 222.13 CaCO₃ = 100.09 | Trade Name and Synonyms Blended Hydraulic Lime, Artificial Hydraulic Lime, Synthetic Hydraulic Lime | Material Use Masonry Mortar, Plaster, Stucco and Whitewash. |

| SECTION II - COMPOSITION AND INFORMATION ON INGREDIENTS | | | | | | | | |
|---|---------------------------------------|---|---|-----------------------------------|---------------------------------|---|----------------------------------|------------|
| Hazardous Ingredients | Approximate Concentration | C.A.S. Number | Exposure limits (mg/m ³) | | | | | |
| | | | OSHA PEL | ACGIH TLV | RSST VEMP | MSHA PEL (Note2) | NIOSH REL | NIOSH IDLH |
| (Complex Mixture) | (% by weight) | | (TWA) 8/40h | (TWA) 8/40h | (TWA) 8/40h | (TWA) 8/40h | (TWA) 10/40h | |
| Calcium Magnesium Hydroxide | 40 to 70 | 39445-23-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Anhydrous Aluminum Silicate (Calcined Kaolin) (Note 5) | 15 to 40 | 1332-58-7 15123-81-6 66402-68-4 92704-41-1 | 15 (tot dust) 5 (resp dust) | 2 (respirable) (Note3) | 5 (respirable) (Note3) | 10 (total dust) | 10 (tot dust) 5 (resp dust) | N/A |
| Calcium Carbonate (Limestone) | 7 to 13 | 471-34-1 (1317-65-3) | 15 (tot dust) 5 (resp dust) | 10 (Note3) (total dust) | 10 (Note3) (total dust) | 15 (tot dust) 5 (resp dust) | 10 (tot dust) 5 (resp dust) | N/A |
| Crystalline Silica, Quartz | 0 to 0.1 & 0.1 to 1 (Note 1) | 14808-60-7 | 10/(%SiO ₂)+2 (respirable silica dust) | 0.025 (respirable silica dust) | 0.1 (respirable silica dust) | 10/(%SiO ₂)+2 (respirable silica dust) | 0.05 (respirable free silica) | 50 |

(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): The value is for particulate matter containing no asbestos and less than 1 % crystalline silica. (Note 4): ACGIH issued a new Notice of Intended Change (NIC) for calcium carbonate, in which it would "Withdraw Documentation and adopted TLV" due to insufficient data. (Note 5): No data available for Calcined Kaolin. Data is for Kaolin (CAS#1332-58-7).

| SECTION III – PHYSICAL AND CHEMICAL DATA | | | | |
|--|--|---|---|--|
| Physical State Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Solid <input checked="" type="checkbox"/> | Odor and Appearance Slight earthy odor - White to dark grey solid powder | | Odor Threshold (p.p.m.) Not applicable | Specific Gravity 2.2 - 3.2 |
| Vapor Pressure (mm) Not applicable | Vapor Density (Air = 1) Not applicable | Evaporation Rate Not applicable | Boiling Point (°C) Not applicable | Melting Point (°C) Not applicable |
| Solubility in Water (20°C) < 0.1g/100g Sat. soln | Volatiles (% by volume) Not applicable | pH (25 °C) Sat. solution Ca(OH)₂ 12.45 | Bulk Density (kg/m ³) 400 - 800 | Coefficient of water/oil distribution Not applicable |

| SECTION IV - FIRE OR EXPLOSION HAZARD DATA | | | |
|--|--|--|--|
| Flammability Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, under which conditions? | | | |
| Extinguishing Media Blended Hydraulic Lime does not burn. Use extinguisher appropriate for material burning. | | | |
| Special Fire Fighting Procedures Firefighters should use self-contained NIOSH approved breathing apparatus with full face piece. | | | |
| Flash point (°C) and Method Not applicable | Upper flammable limit (% by volume) Not applicable | Lower flammable limit (% by volume) Not applicable | |
| Auto Ignition Temperature (°C) Not applicable | TDG Flammability Classification Non-flammable | Hazardous Combustion Products None | |
| Dangerous Combustion Products None | | | |
| EXPLOSION DATA | | | |
| Sensitivity to Chemical Impact Not applicable | Rate of Burning Not applicable | Explosive Power Not applicable | Sensitivity to Static Discharge Not applicable |

| SECTION V - REACTIVITY DATA | | |
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| Chemical Stability Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | If no, under which conditions? | Calcium Magnesium Hydroxide absorbs carbon dioxide in the air to form calcium magnesium carbonate. |
| Incompatibility to other substances Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | If so, which ones? | Calcium Magnesium Hydroxide will react with boron tri-fluoride, chlorine tri-fluoride, ethanol, fluorine, hydrogen fluoride, phosphorus pentoxide; water and acids (violent reaction with generating heat and possible explosion in confined area). |
| Reactivity Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | If so, under which conditions? | Calcium Magnesium Hydroxide reacts violently with Maleic Anhydride, strong acids. Reacts chemically with acids and many other compounds and chemical elements to form calcium and magnesium based compounds. Explosive when mixed with nitro organic compounds. Calcium Carbonate is a very stable chemical substance. Decomposition does not occur at normal temperatures (inferior to 600°C). Reacts chemically with strong acids to form calcium based compounds and to liberate carbon dioxide. Calcined Kaolin Clay is stable. |
| Hazardous Decomposition Products | | Calcium Carbonate decomposes at 870°C to produce calcium oxide and carbon dioxide. Calcium Hydroxide decomposes at 540°C and Magnesium Hydroxide decomposes at 345°C to produce calcium oxide, magnesium oxide and water. |
| Hazardous Polymerization Products | | Will not occur. |

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, and possible blindness when exposed for prolonged period. Eye-Rabbit-10mg/ 24 h – Severe.**

Inhalation **If inhaled in form of dust, may cause respiratory tract irritation / inflammation, coughing and sneezing. Large amounts may cause chemical pneumonitis.**

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. Inhalation of dust: dry cough, short of breath, dyspnea, headaches, stiffness and pains of joints, anorexia and pulmonary fibrosis. 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.

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| LD ₅₀ of Product (Specify Species and Route) Unavailable | Irritancy of Product Severe to moist tissues | Exposure limits of Product Unavailable |
| LC ₅₀ of Product (Specify Species) Unavailable | Sensitization to Product None | Synergistic materials None reported |

Carcinogenicity Reproductive effects Tératogenicity Mutagenicity

Blended Hydraulic Lime is not listed as a carcinogen by ACGIH, MSHA, OSHA, NTP 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 (Group 1) carcinogenic to humans.

Silica, crystalline (Airborne particles of respirable size) is regulated under California's Safe Drinking Water and Toxic Enforcement Act of 1986. (Proposition 65).

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

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

ACGIH lists respirable Crystalline Silica (quartz) as suspected human carcinogen (A-2).

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

ACGIH lists respirable Kaolin dust as not classifiable as a human carcinogen (A-4). No data for calcined Kaolin.

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.**

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| Gloves (Specify) Gauntlets Cuff style | Respiratory (Specify) NIOSH approved (N/R/P95) dust respirator | 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 |
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| Clothing (Specify) Fully covering skin | Other (Specify) Evaluate degree of exposure and use PPE if necessary. After handling Blended Hydraulic Lime, employees must shower. If exposed daily, use oil, Vaseline, silicone base creme etc. to protect exposed skin, particularly neck, face and wrists. |
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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.

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 anti-dust mask. 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
Blended Hydraulic Lime 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 Blended Hydraulic Lime. Use a brush, cloth or gloves. Remove all Blended Hydraulic 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

Superfund Amendments and Reauthorization Act of 1986 (**SARA Title III**). / The Emergency Planning and "Community Right-to-Know" Act (**EPCRA**). / Comprehensive Environmental Response, Compensation and Liability Act (**CERCLA**). / Resource Conservation and Recovery Act (**RCRA**).

Components Limestone, Calcium Carbonate, Dolomitic Hydrated Lime and Calcined Kaolin have been reviewed against the following regulatory listings:

- **SARA Section 302 – Emergency Planning Notification. Extremely Hazardous Substances (EHS) List and Threshold Planning Quantity (TPQ). (40 CFR, Part 355, Section 30) : Not listed.**
- **SARA Section 304 – Emergency Release Notification. Extremely Hazardous Substances (EHS) and Reportable Quantity (RQ) List. (40 CFR, Part 355, Section 40) : Not listed.**
- **SARA Section 311/312 – Hazard Categories (40 CFR, Part 370) : This product is regulated under CFR 1910.1200 (OSHA Hazard Communication) and by definition meets the requirements of the following categories: Immediate (Acute) Health Hazard and Chronic Health Hazard.**
- **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.**
- **RCRA – Hazardous Waste Number (40 CFR, Part 261, Subpart D): Not listed.**
- **RCRA – Hazardous Waste Classification (40 CFR, Part 261, Subpart C): Not classified.**

CWA 311. - Clean Water Act List of Hazardous Substances.

Limestone, Calcium Carbonate, Dolomitic Hydrated Lime and Calcined Kaolin don't appear on the Clean Water Act (CWA) list of hazardous substances.

California Proposition 65.

Components Limestone, Calcium Carbonate, Dolomitic Hydrated Lime and Calcined Kaolin don't 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)

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

Blended Hydraulic Lime 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 on the USEPA TSCA Inventory List. Limestone, Calcium Carbonate, Calcium Magnesium Hydroxide and Kaolin are exempt from reporting under the inventory update rule.

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

Calcium Carbonate appears on the Domestic Substances List (DSL). Limestone appears on the Non-Domestic Substances List (NDSL). Dolomitic Hydrated Lime (Calcium Magnesium Hydroxide & Calcium Magnesium Hydroxide Oxide) appears on the Non-Domestic Substances List (NDSL). Calcined Kaolin appears on the Domestic Substances List (DSL).

ANSI/NSF 60 - Drinking Water Treatment Additives.

Not applicable

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

Not applicable

SECTION X - OTHER INFORMATION

| | | | |
|---|--|---|---|
| <p>Hazardous Materials Identification System (U.S.)</p> | | <p>National Fire Protection Association (U.S.)</p> <p>Health Hazard</p> | <p>Fire Hazard</p> <p>Instability / Thermal Hazard</p> <p>Specific hazard</p> |
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| <p>WHMIS – Classification: “E” Corrosive Material.</p> | <p>WHMIS – Classification: “D2A and D2B”: Materials causing other toxic effects.</p> |
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| <p>Symbol:</p> | <p>Symbol:</p> |
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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:

NFPA, NLA, TDG, CSST, RSST, (LSRO-FASEB), Hazardous Products Act, Environment Canada, Enviroguide, OSHA, ACGIH, IARC, NIOSH, CFR, NTP, HSDB, EPA SRS, Chemistry and Technology of Lime and Limestone (John Wiley and Sons, Inc.), Lime and Limestone (WILEY-VCH).

SECTION XI - PREPARATION INFORMATION

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|---|---|-------------------------------------|
| <p>Prepared by: GRAYMONT (QC) INC. Technical Services</p> | <p>Telephone number: (450) 449-2262</p> | <p>Date : July 2007</p> |
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