SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Lime Slurry**

Synonym/s: **Hydrated Lime Slurry; Calcium Hydroxide Slurry; Slurry; Milk of Lime**

Chemical Name: **Calcium hydroxide** **Chemical Formula:** **$Ca(OH)_2$**

Product Use/s: **Water treatment, pH adjustment, FGT, Construction, Pulp/Paper**

Manufacturer:	**US Operations:** Lhoist North America 3700 Hulen St. Fort Worth, TX 76107 817-732-8164	**Canadian Operations:** Lhoist North America of Canada, Inc. 20303-102B Ave. Langley, BC V1M 3H1 604-888-4333

Emergency Phone: **Chemtrec 1-800-424-9300**

SECTION 2: HAZARDS IDENTIFICATION

Emergency Overview: Lime Slurry is an odorless, low viscosity suspension of calcium hydroxide in water. Contact can cause irritation to eyes, skin, gastrointestinal tract. In mist form or if material becomes dry, it will irritate the respiratory system.

Hazard Pictograms:

Potential Health Effects

Eyes: Contact can cause severe irritation or burning of eyes, including permanent damage.

Skin: Contact can cause severe irritation or burning of skin, especially in the presence of moisture.

Ingestion: This product can cause severe irritation or burning of gastrointestinal tract if swallowed.

Inhalation: This product can cause severe irritation of the respiratory system. Long-term exposure may cause permanent damage. Lime slurry is not listed by MSHA, OSHA, or IARC as a carcinogen. However, this product may contain trace amounts of crystalline silica in the form of quartz or crystobalite, which has been classified by IARC as a Group I carcinogen to humans when inhaled. Inhalation of silica can also cause a chronic lung disorder, silicosis.

Potential Environmental Effects: This material is alkaline and if released into water or moist soil will cause an increase in pH.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Chemical Formula	Common Name	Conc. (%)	CAS
Calcium Hydroxide	$Ca(OH)_2$	Hydrated Lime	**20 - 55**	**1305-62-0**
Magnesium Oxide	MgO	Periclase	**< 3**	**1309-48-4**
Calcium Carbonate	$CaCO_3$	Limestone	**< 3**	**1317-65-3**
Crystalline Silica	SiO_2	Quartz	**< 2**	**14808-60-7**
Water	H_2O	Water	**Balance**	**7732-18-5**

(Crystalline Silica is reported as total silica and not just the respirable fraction)

SECTION 4: FIRST AID MEASURES

Eyes:	Immediately flush eyes with generous amounts of water or eye wash solution if water is unavailable. Pull back eyelid while flushing to ensure that lime slurry has been washed out. Seek medical attention promptly if the initial flushing of the eyes does not remove the irritant. Do not rub eyes.
Skin:	Brush off or remove as much lime slurry as possible. Wash exposed area with large amounts of water. If burned seriously or if irritation persists, seek medical attention promptly.
Inhalation:	Move victim to fresh air. Seek medical attention. If breathing has stopped, give artificial respiration.
Ingestion:	Do not induce vomiting. Seek medical attention immediately. Never give anything by mouth unless instructed to do so by medical personnel.
Medical Conditions Aggravated by Exposure:	Contact may aggravate disorders of the eyes, skin, gastrointestinal tract, and respiratory system.

SECTION 5: FIREFIGHTING MEASURES

Fire Hazards:	Lime slurry is not combustible or flammable. However, it reacts vigorously with acids, and may release heat sufficient to ignite combustible materials in specific instances. Lime slurry is not considered to be an explosion hazard, although reaction with acids or other incompatible materials may rupture containers.
Extinguishing Media:	Use extinguishing agent suitable for surrounding fire. Do not use water or halogenated compounds, except that large amounts of water may be used to deluge small quantities of lime slurry.
Fire Fighting Instructions:	Keep personnel away from and upwind of fire. Avoid skin contact or inhalation of dust. Wear full fire-fighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).
Hazardous Combustion Products:	Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill / Leak Procedures:	**Do Not** use water on bulk material spills. Use proper personal protective equipment.
Small Spills:	Use wet material containment methods. Do not clean up with compressed air. Store collected materials in sealed plastic or non-aluminum metal containers. Residue on surfaces may be water washed.
Large Spills:	Use wet containment/collection techniques to collect spilled materials. If material has sufficiently dried to generate dust, evacuate area downwind of clean-up operations to minimize dust exposure. Store spilled materials in sealed plastic or non-aluminum metal containers.
Containment:	Minimize dust generation and prevent bulk release to sewers or waterways.
Clean-up:	Residual amounts of material can be flushed with large amounts of water. Equipment can be washed with either a mild vinegar and water solution, or detergent and water.

SECTION 7: HANDLING AND STORAGE

Handling:	Keep in tightly closed plastic or non-aluminum metal containers. Protect containers from physical damage. Avoid direct skin contact with the material. Avoid breathing any dust.

Storage: Store in a cool, dry, and well-ventilated location. Do not store near acids or other incompatible materials. Keep away from moisture. Do not store or ship in aluminum containers.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Ingredient	OSHA PEL, TWA 8/40h (mg/m3)	ACGIH TLV, TWA 8/40h (mg/m3)	NIOSH REL, TWA 8/40h (mg/m3)	NIOSH IDLH (mg/m3)
Calcium Hydroxide	**15** (total dust) **5** (respirable)	**5**	**5**	**n/a**
Magnesium Oxide	**10**	**10**	**n/a**	**n/a**
Calcium Carbonate	**15** (total dust) **5** (respirable)	**10**	**10** (total dust) **5** (respirable)	**n/a**
Crystalline Silica	**10/(SiO2% + 2)** (respirable)	**0.025** (respirable)	**0.05** (respirable)	**50**

Engineering Controls: Provide ventilation adequate to maintain PELs.

Respiratory Protection: Use NIOSH/MSHA approved respirators if airborne concentration exceeds PELs.

Skin Protection: Use appropriate gloves and footwear to prevent skin contact and the potential for burns. Clothing should fully cover arms and legs. Should lime get inside clothing or gloves, remove the clothing and the lime promptly.

Eye Protection: Use safety glasses with side shields or safety goggles. Contact lenses should not be worn when working with lime products.

Other: Eye wash fountain/stations and emergency showers should be available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White liquid suspension	**Odor:** Odorless	**Physical State: Liquid**

Melting Point (°C/°F): dec 580/ 1076	**Boiling Point (°C/°F):** 100/ 212

Specific Gravity g/cc	1.2 - 1.5

Vapor Pressure (mm Hg): n/a	**Vapor Density:** n/a	**Evaporation Rate:** n/a

pH (25°C/77°F): 12.4	**Solubility in Water:** Material is a suspension of calcium hydroxide in water

SECTION 10: STABILITY AND REACTIVITY

Stability: Chemically stable, but decomposes at 580°C to form calcium oxide.
See also Incompatibility below.

Hazardous Decomposition/ Products: Does not occur

Hazardous Polymerization: Does not occur

Incompatibility/ Conditions to Avoid: Lime slurry should not be mixed or stored with the following materials, due to the potential for vigorous reaction and release of heat:

Acids (unless in a controlled process)	Organic Acid Anhydrides
Reactive Fluoridated Compounds	Nitro-Organic Compounds
Reactive Brominated Compounds	Reactive Phosphorous Compounds
Reactive Powdered Metals	Interhalogenated Compounds

SECTION 11: TOXICOLOGICAL INFORMATION

If product becomes dry and is in its calcium hydroxide form, the following toxicological characteristics apply:

ORL-RAT LD50: 7,340 MG/KG

ORL-MUS LD50: 7,300 MG/KG

Lime slurry is not listed by MSHA, OSHA, or IARC as a carcinogen, but this product may contain trace amounts of crystalline silica, which has been classified by IARC as carcinogenic to humans when inhaled in the form of quartz or crystobalite.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Because of the high pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems in high concentrations (> 2 g/L).

Environmental Fate: This material shows no bioaccumulation effect or food chain concentration toxicity. High pH values will rapidly decrease over time as a result of recarbonation. This material may be used in soil stabilization or remediation and will show very little mobility in soils.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with all applicable federal, state, and local environmental regulations. If this product as supplied, and unmixed, becomes a waste, it will not meet the criteria of a hazardous waste as defined under the U.S. Resource Conservation and Recovery Act (RCRA).

SECTION 14: TRANSPORTATION INFORMATION

Lime slurry is not classified as a hazardous material by US DOT and is not regulated by the Transportation of Dangerous Goods (TDG) when shipped by any mode of transport.

SECTION 15: REGULATORY INFORMATION

U.S. EPA Regulations:

RCRA Hazardous Waste Number (40 CFR 261.33): not listed
RCRA Hazardous Waste Classification (40 CFR 261): not classified
CERCLA Hazardous Substance (40 CFR 302.4) unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311(b)(4); CWA, Sec. 307(a), CAA, Sec. 112
CERCLA Reportable Quantity (RQ), not listed
SARA 311/312 Codes: not listed
SARA Toxic Chemical (40 CFR 372.65): not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): not listed, Threshold Planning Quantity (TPQ): not listed
All chemical ingredients are listed on the US EPA TSCA Inventory List.

OSHA/MSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): 5mg/M^3 TWA-8
MSHA: not listed
OSHA Specifically Regulated Substance (29 CFR 1910): not listed

State Regulations: Consult state and local authorities for guidance. Components found in this product may contain trace amounts of inherent naturally occurring elements (such as, but not limited to arsenic and cadmium) that may be regulated under California Proposition 65 and other States regulations.

Canada: WHMIS Classification: "D2A" Materials Causing Other Toxic Effects
WHMIS Classification: "E" Corrosive Materials (listed due to corrosive effect on aluminum)
Canada DSL: Listed

SECTION 16: OTHER INFORMATION

Prepared By: **Lhoist North America, Technical Services**
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NFPA Hazard Class:	Health: 2	Flammability: 0	Instability: 0	
HMIS Hazard Class:	Health: 2*	Flammability: 0	Physical Hazard: 0	Personal Protection: E

Abbreviations:	N/A	Not Available or Not Applicable
	IARC	International Agency for Research on Cancer
	IATA	International Air Transport Association
	ACGIH	American Conference of Governmental Industrial Hygienists
	TWA	Time Weighted Average
	PEL	Permissible Exposure Limit
	TLV	Threshold Limit Value
	REL	Recommended Exposure Limit
	dec	Decompose

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