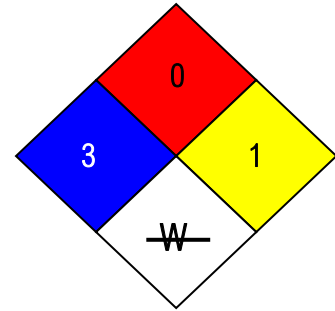




Linwood Mining & Minerals Corp.

HIGH CALCIUM LIME

SDS



LINWOOD MINING & MINERALS CORP.

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Date of Preparation: 10/5/16

Updated: 4/7/2021

Updated by: Curt Shipman

Reviewed by: Lime Plant Safety Committee

Emergency Contact: Mark Looman 563-529-1063

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SECTION 1: PRODUCT IDENTIFIER

Product Identifier: High Calcium Lime, HiCal Pebble, HiCal Fines, Bag HiCal,

Other means of identification: Commercial Quicklime, Lime, CaO, Calcium Carbonates and Oxides; Mix of CaO and CaCO₃,

Recommended use of the chemical and restrictions on use: Steel Making, Construction, Masonry & Mortars, Water Treatment, Chemical Processes, Mining Industry, Paper & Pulp, PCC, Remediation of Sludge's and Wastes, Glass Manufacturing, Flue Gas De-Sulfurization, Soil Stabilization

24 hour emergency telephone number: CHEMTREC 800-424-9300

SECTION 2 HAZARD(S) IDENTIFICATION

Hazard Classification: Eye Damage Category 1, Skin Irritation Category 2, Specific Target Organ Toxicity Single Exposure Category 3 (Respiratory System), Carcinogen Category 1A

Label Elements:

Signal word: Danger

Hazard statements:

Causes skin irritation. Causes serious eye damage. May cause cancer through inhalation. May cause respiratory irritation. *Reacts violently with water, releasing heat which can ignite combustible materials.*

Symbols



Precautionary Statements:

Wear protective gloves and eye protection. Wash exposed skin thoroughly after handling. Avoid breathing dust. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

If on skin: wash exposed skin with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention immediately.

If inhaled: Remove person to fresh air and keep comfortable for breathing. Seek medical attention if you feel unwell.

If exposed or concerned: Get medical advice.

Store locked up.

Dispose of contents or containers in accordance with applicable regulations. *Do not use water on material spills.*

Hazards not otherwise classified:

Calcium oxide reacts violently with water, releasing heat which can ignite combustible materials.

Ingredients with unknown toxicity: Not applicable.

SECTION 3:	COMPOSITION INFORMATION ON INGREDIENTS
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Chemical Name: Calcium Oxide

Common name and synonyms: Quicklime, CaO, HiCal Lime

CAS numbers and concentrations of ingredients:

Component	CAS #	% by weight
Calcium Oxide	1305-78-8	0 - 90
Magnesium Oxide	1309-48-4	0 - 5

Crystalline Silica	14808-60-7	0 - 2
Calcium Carbonate	1317-65-3	0 - 5

SECTION 4:	FIRST AID MEASURES
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Description of First Aid Measures:

Eyes: Contact can cause severe irritation or burning of eyes, including permanent damage. Immediately flush eyes with generous amounts of water for at least 15 minutes. Pull back the eyelid to ensure that all lime dust has been washed out. Seek medical attention immediately. Do not rub eyes.

Skin: Contact can cause severe irritation or burning of skin, especially in the presence of moisture. Wash exposed area with large amounts of water. Seek medical attention immediately.

Ingestion: This product can cause severe irritation or burning of gastrointestinal tract if swallowed. Do not induce vomiting. Seek medical attention immediately. Never give anything by mouth unless instructed to do so by medical personnel.

Inhalation: This product can cause severe irritation of the respiratory system. Move victim to fresh air. Seek medical attention if necessary. If breathing has stopped, give artificial respiration.

Most important symptoms and effects, both acute and delayed: Irritation of skin, eyes, gastrointestinal tract or respiratory tract. Long-term exposure by inhalation may cause permanent damage. This product contains crystalline silica, which has been classified by IARC as (Group I) carcinogenic to humans when inhaled. Inhalation of silica can also cause a chronic lung disorder, silicosis.

Indication of any immediate medical attention and special treatment needed: See first aid information above. Note to Physicians: Provide general supportive measures and treat symptomatically.

SECTION 5:	FIRE FIGHTING MEASURES
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Extinguishing Media: Use dry chemical fire extinguisher. Do not use water or halogenated compounds, except that large amounts of water may be used to deluge small quantities of quicklime.

Fire Hazards: Quicklime is not combustible or flammable. However, quicklime reacts violently with water, and can release heat sufficient to ignite combustible materials. Quicklime is not considered to be an explosion hazard, although reaction with water or other incompatible materials may rupture containers.

Hazardous Combustion Products: None.

Special Protective Equipment and Fire Fighting Instructions: Keep personnel away from and upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

SECTION 6:**ACCIDENTAL RELEASE MEASURES****Personal precautions, protective equipment, and emergency procedures**

Spill /Leak Procedures: Do NOT use water on bulk material spills. Lime reacts violently with water, releasing heat. Use proper protective equipment.

Small Spills: Use dry methods to collect spilled materials. Avoid generating dust. Do not clean up with compressed air. Store collected materials in dry, sealed plastic or metal containers. Residue on surfaces may be water washed.

Large Spills: Use dry methods to collect spilled materials. Evacuate area downwind of clean-up operations to minimize dust exposure. Store spilled materials in dry, sealed plastic or metal containers.

Methods and materials for containment and cleaning up

Containment: For large spills, as much as possible, avoid the generation of dusts. Prevent release to sewers or waterways.

Cleanup: 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****Precautions for Safe Handling**

Keep in tightly closed containers. Protect containers from physical damage. Avoid direct skin contact with the material.

Conditions for Safe Storage, including incompatibilities

Store in a cool, dry, and well-ventilated location. Do not store near incompatible materials (see Section 10 below). Keep away from moisture. Long-term storage in aluminum containers is not recommended, as calcium oxide may corrode aluminum over long periods of time.¹

SECTION 8:**EXPOSURE CONTROLS / PERSONAL PROTECTION**

Component	CAS #	Exposure Limits
Calcium Oxide	1305-78-8	OSHA PEL: 5 mg/m ³ ACGIH TLV: 2 mg/m ³
Magnesium Oxide	1309-48-4	OSHA PEL: 15 mg/m ³ ACGIH TLV: 10 mg/m ³
Crystalline Silica	14808-60-7	OSHA PEL: 50 ug/m ³ ACGIH TLV: 0.025 mg/m ³

¹ This language is revised from the prior version. Tests performed on behalf of NLA indicate that calcium oxide can corrode aluminum at a rate of less than 1 mm per year.

Calcium Carbonate	1317-65-3	OSHA PEL: 5 mg/m ³ Respirable Fraction OSHA PEL: 15 mg/m ³ Total Dust ACGIH TLV: 10 mg/m ³
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Engineering Controls: Provide ventilation adequate to maintain PELs.

Individual Protection Measures

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

Skin Protection: Use appropriate gloves to prevent skin contact. When there is a risk of skin contact, wear suitable clothing to prevent such contact.

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 and emergency showers are recommended.

SECTION 9:	PHYSICAL AND CHEMICAL PROPERTIES
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Appearance: White, Grayish-White, Gray, Dark Gray, or Tan

Odor: Odorless, Possible slight sulfurous odor.

Odor threshold: Not applicable

pH at 25 degrees C: 12.45

Melting point: 4658° F, 2570° C

Initial boiling point and boiling range: 5162° F, 2850° C, [Boiling range?]

Flash Point: Not applicable

Evaporation rate: Not Applicable

Flammability: Not Applicable

Upper/lower flammability or explosive limits: Not applicable

Vapor pressure: Not applicable

Vapor density: Not applicable

Relative density: Final Product Dependent

Solubility in water: Negligible, but reacts with water to produce calcium hydroxide and heat

Partition co-efficient: n-octanol/water: Not applicable

Auto-ignition temperature: Not applicable

Decomposition temperature: Not applicable

Viscosity: Not Applicable

SECTION 10:	STABILITY AND REACTIVITY
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Reactivity: Quicklime reacts violently with water to form calcium hydroxide, releasing heat. See also Incompatibility below.

Chemical stability: Quicklime is chemically stable.

Possibility of hazardous reactions: See a above.

Conditions to avoid: Do not allow quicklime to come into contact with incompatible materials.

Incompatibility: Quicklime should not be mixed or stored with the following materials, due to the potential for violent reaction and release of heat:

WATER (unless in a controlled process)

ACIDS

REACTIVE FLUORIDATED COMPOUNDS

REACTIVE BROMINATED COMPOUNDS

REACTIVE POWERED METALS

ALUMINUM POWDER

ORGANIC ACID ANHYDRIDES

NITRO-ORGANIC COMPOUNDS

REACTIVE PHOSPHOROUS COMPOUNDS

INTERHALOGENATED COMPOUNDS

Hazardous decomposition products: None

SECTION 11:	TOXICOLOGICAL INFORMATION
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Information on the likely routes of exposure: See First Aid discussion above.

Symptoms related to the physical, chemical, and toxicological characteristics: See First Aid discussion above.

Delayed and immediate effects and chronic effects from exposure: See First Aid discussion above.

Numerical measures of toxicity: No LD50/LC50 has been identified for this product's components.

Carcinogen listing: Quicklime is not listed by MSHA, OSHA, or IARC as a carcinogen, but this product contains crystalline silica, which has been classified by IARC as (Group IA) carcinogenic to humans when inhaled.

SECTION 12:	ECOLOGICAL INFORMATION
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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.

Persistence and degradability:

Bioaccumulate potential: This material shows no bioaccumulation effect or food chain concentration toxicity.

Mobility in soil: No data available

Other adverse effects (such as hazardous to the ozone layer): This material is alkaline and if released into water or moist soil will cause an increase in pH.

SECTION 13:	DISPOSAL CONSIDERATIONS
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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 Resource Conservation and Recovery Act.

SECTION 14:	TRANSPORTATION INFORMATION
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UN number: UN1910

UN proper shipping name: Calcium Oxide

Transport hazard class: When transported by air only: Hazard Class 8-Corrosive

Packing group: When transported by air only: Packing Group III

Environmental hazards (e.g., Marine pollutant (Yes/No): This material is alkaline and if released into water or moist soil will cause an increase in pH.

Transport in bulk (according to Annex II of MARPOL 73/79 and the IBC Code:

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises: When being transported by air, quicklime is classified in the Department of Transportation (DOT) regulations as a hazardous material. (49 CFR 172.101). For aircraft transport only, Calcium Oxide is classified as Hazard Class 8-Corrosive, UN1910, Packing Group III. For passenger aircraft, the maximum net quantity allowed per container is 25 kg. For cargo aircraft, the maximum net quantity allowed per container is 100 kg. For quantities greater than 25 kg up to and including 100 kg, the container shall be labeled with CARGO AIRCRAFT ONLY. Because express carriers (i.e., Federal Express, Airborne Express, and United Parcel Service) ship by air, quicklime presented to these carriers for shipment must be packaged, marked, and labeled in accordance with IATA requirements, and must be accompanied by the appropriate shipping documentation. Only personnel trained and certified under applicable DOT Hazardous Materials Regulations (contained in Title 49 of the Code of Federal Regulations) may prepare any quicklime product for air transport. Quicklime is not classified as a hazardous material by DOT when transported by means other than by air.

SECTION 15:	REGULATORY INFORMATION
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EPA Regulations:

RCRA Hazardous Waste Number: not listed (40 CFR 261.33)

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 USEPA TSCA Inventory List.

OSHA/MSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): 5 mg/M³ TWA-8

MSHA: not listed.

OSHA Specifically Regulated Substance (29CFR 1910) not listed.

State Regulations: Consult state and local authorities for guidance.

Canada DSL: Listed.

HMIS: Health Risks 3, Flammability 0, Reactivity 1, Personal Protection, E

NFPA: Health Hazard 3, Fire Hazard 0, Reactivity 1, Specific Hazard – Use No Water

WHMIS Classification: “E” Corrosive Materials [listed due to corrosive effect on aluminum]

WHMIS Classification: “D2A” Materials causing other toxic effects [include Canadian “toxic symbol”]

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List:

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR68.130):

Not regulated.

Safe Drinking Water Act (SDWA) US state regulations

Not regulated.

U.S. Massachusetts RTK - Substance List

Crystalline Silica (Quartz) (CAS 14808-60-7)

Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

U.S. New Jersey Worker and Community Right-to-Know Act

Crystalline Silica (Quartz) (CAS 14808-60-7)

Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

U.S. Pennsylvania Worker and Community Right-to-Know Law

Crystalline Silica (Quartz) (CAS 14808-60-7)

Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

U.S. Rhode Island RTK

Not regulated.

U.S. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

U.S - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance Crystalline Silica (Quartz)
(CAS 14808-60-7)

International Inventories

Country(s) or region Inventory name on inventory (yes/no)*

United States & Puerto Rico Toxic Substances Control Act (TSCA) Inventory Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).A

"No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

SECTION 16:

OTHER INFORMATION

Prepared By: Linwood Mining and Minerals Corp.

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Version #1

Disclaimer:

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