

Material Safety Data Sheet

METALLURGICAL QUICKLIME

Rev. Date:5/1/2008

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Metallurgical Quicklime (all sizes and blends)

Synonym/s: Blended Metallurgical Quicklime, MQL

Manufacturer:	US Operations: Chemical Lime Co. 3700 Hulen St. Fort Worth, TX 76107 817-732-8164	Canadian Operations: Chemical Lime Co. of Canada Inc. 20302-102B Ave. Langley, BC V1M 3H1 604-888-4333
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Emergency Phone: Chemtrec 1-800-424-9300

Chemical Name: Calcium Oxide and Calcium Magnesium Oxide	WHMIS Classification: D2A, E
Chemical Family: Alkaline Earth Oxides	
Chemical Formula: CaO + CaO-MgO	

Product Use/s: Steel

Prepared By: Chemical Lime Co.
R&D/Technical Services, KSA

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS	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)	Conc. (%)
Calcium Oxide, CaO (Quicklime)	1305-78-8	5	2	2	25	60 - 90
Magnesium Oxide, MgO (Periclase)	1309-48-4	10	10	N.A.	N.A.	6 - 35
Calcium Carbonate, CaCO ₃ (Limestone)	1317-65-3 (471-34-1)	15 (total dust) 5 (respirable)	10	10 (total dust) 5 (respirable)	N.A.	< 3
Crystalline Silica, SiO ₂ (Quartz)	14808-60-7	10/(SiO ₂ % + 2) (respirable)	0.025 (respirable)	0.05 (respirable)	50	< 2

OSHA Regulatory Status: This material is subject to 29 CFR 1910.1200 (Hazard Communication).

SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: Metallurgical Quicklime (MQL) is an odorless white or grayish-white material that ranges from pebble to a granular powder. Contact can cause irritation to eyes, skin, respiratory system, and gastrointestinal tract. MQL reacts vigorously with water, releasing heat which may ignite combustible materials in specific instances.

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. MQL 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 cristobalite, 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.

Medical

Conditions Aggravated by Exposure:

Contact may aggravate disorders of the eyes, skin, gastrointestinal tract, and respiratory system.

Potential

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

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 all lime dust 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 dry lime 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.

SECTION 5: FIRE FIGHTING MEASURES

Fire Hazards:	MQL is not combustible or flammable. However, MQL reacts vigorously with water, and may release heat sufficient to ignite combustible materials in specific instances. MQL is not considered to be an explosion hazard, although reaction with water or other incompatible materials, such as acids, may rupture containers.
Hazardous Combustion Products:	None
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 MQL.
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).

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill / Leak Procedures:	Do Not use water on bulk material spills. Lime reacts vigorously 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 non-aluminum 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 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.
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.

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SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

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 or grayish-white lumps or powder	Odor: Odorless	Physical State: Solid
Boiling Point (°C/°F): 2850 / 5162	Melting Point (°C/°F): 2570 / 4658	Specific Gravity (Apparent) g/cc: 1.6 - 2.8 (True) g/cc: 3.0 - 3.4
Vapor Pressure (mm Hg): N.A.	Vapor Density: N.A.	Evaporation Rate: N.A.
Solubility in Water Reacts with water to produce Ca(OH) ₂ , Mg(OH) ₂ and large amounts of heat.	pH (25°C/77°F): 12.4	

SECTION 10: STABILITY AND REACTIVITY

Stability: Chemically stable, but reacts vigorously with water to form calcium hydroxide and magnesium hydroxide, while generating heat. MQL reacts with carbon dioxide to form calcium and magnesium carbonates. See also Incompatibility below.

Incompatibility/

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

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

Hazardous Decomposition Products: None

Hazardous Polymerization: None

SECTION 11: TOXICOLOGICAL INFORMATION

No LD50/LC50 have been identified for this product's components. MQL 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 cristobalite.

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.

Environmental Fate: This material shows no bioaccumulation effect or food chain concentration toxicity.

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

MQL is not classified as a hazardous material by US DOT and is not regulated by the Transportation of Dangerous Goods (TDG) when shipped by means other than air.

When being transported by air, MQL (because it contains calcium oxide) 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 25kg. For cargo aircraft, the maximum net quantity allowed per container is 100kg. For quantities greater than 25kg up to and including 100kg, 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, MQL 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 calcium oxide containing product for air transport.

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SECTION 15: REGULATORY INFORMATION

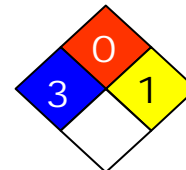
U.S. EPA Regulations: RCRA Hazardous Waste Number (40 CFR 261.33): not listed
RCRA Hazardous Waste Classification (40 CFR 261): not classified
CERCLA Hazardous Substance (40 CFR 302.4) unlisted specific per RCRA, Sec. 3001;
CWA, Sec. 311(b)(4); CWA, Sec. 307(a), CAA, Sec. 112
CERCLA Reportable Quantity (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 USEPA TSCA Inventory List.

OSHA/MSHA Regulations: Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): 5mg/M³ 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.

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

NFPA Hazard Class: Health: 3 Flammability: 0 Reactivity: 1
HMIS Hazard Class: Health: 3 Flammability: 0 Reactivity: 1 Personal Protection: E



SECTION 16: OTHER INFORMATION

Prepared By: Chemical Lime Company, R&D/Technical Services, KSA

Chemical Lime Company provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person. Individuals receiving this information must consult their own technical and legal advisors and/ or exercise their own judgment in determining its appropriateness for a particular purpose. Chemical Lime Company makes no representations or warranties, either express or implied, including without limitation and warranties of merchantability or fitness for a particular purpose with respect to the information set forth herein or the product(s) to which the information refers. Accordingly, Chemical Lime Company will not be responsible or liable for any claims, losses or damages resulting from the use of or reliance upon or failure to use this information.