

Material Safety Data Sheet

Product Name: **Calcium Oxide / Quicklime**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	CALCIUM OXIDE / QUICKLIME
Supplier Name	Golden Lime Public Company Limited
Synonym(s)	Calcium Oxide, Quick Lime, Lime, Burnt Lime, Unslaked Lime, Pepper Lime, Lump Lime
Use(s)	Quicklime is used to produce calcium hydroxide (hydrated lime), pH control, soil stabilisation, neutralizing water, and sewerage treatment, flux in steel industry, sugar refining, alumina refining, mineral processing. Quicklime is also used in gold production to keep cyanide solutions alkaline.

2. HAZARD IDENTIFICATION

RISK PHRASES

- R14 Reacts violently with water
- R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- R40 Limited evidence of a carcinogenic effect.
- R43 May cause sensitisation by skin contact.
- R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

SAFETY PHRASES

- S20/21 When using do not eat, drink or smoke.
- S22 Do not breathe dust.
- S24/25 Avoid contact with skin and eyes.
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S29 Do not empty into drains.
- S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S38 In case of insufficient ventilation, wear suitable respiratory equipment.
- S39 Wear eye/face protection

ONLY CLASSIFIED AS DANGEROUS GOODS BY THE CRITERIA OF THE ADR CODE WHEN TRANSPORTED BY AIR

UN No	1910	Hazchem Code	4W	Pkg Group	III
DG Class	8	Subsidiary Risk(s)	None Allocated	EPG	None Allocated

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Formula	Conc.	CAS No.
Calcium Oxide	CaO	82-90%	1305-78-8
Magnesium Oxide	MgO	1-3%	1309-48-4
Silicon Dioxide	SiO ₂	0-1%	14808-60-7
Calcium Carbonate	CaCO ₃	0-6%	1317-65-3
Aluminium Oxide	Al ₂ O ₃	0-2%	1344-28-1
Iron(III) Oxide	Fe ₂ O ₃	0-1%	1309-37-1

4. FIRST AID MEASURES

Eye	Flush thoroughly with flowing water for at least 15 minutes. Seek medical attention if symptoms persist.
Inhalation	Remove from dusty area to fresh air. If symptoms persist, seek medical attention.
Skin	Quickly but gently, wipe material off skin. Immediately remove all contaminated clothing and footwear. Wash skin thoroughly with copious amounts of water.
Ingestion	Rinse mouth and lips with water. Do not induce vomiting. Give water to drink to dilute stomach contents. If symptoms persist, seek medical attention.
First Aid Facilities	Eyewash facilities should be provided.

Additional Information- Aggravated Medical Conditions

Inhalation	Inhalation of dust through prolonged, repeated exposure can cause membrane irritation, bronchitis, pneumonia, silicosis (scarring of the lung). It may also increase the risk of scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels) and cancer. Epidemiological studies have shown that smoking increases the risk of bronchitis, silicosis (scarring of the lung) and lung cancer.
Skin	Irritating to the skin. Prolonged and repeated skin contact with Quicklime can cause irritant dermatitis.

5. FIRE FIGHTING

Flammability	Non flammable. Does not support combustion of other materials, but on contact with water or acids may generate sufficient heat to ignite surrounding materials. DO NOT USE WATER for fire fighting. USE DRY CHEMICAL OR CO ₂ TYPE EXTINGUISHERS.
Fire and Explosion	Non flammable. No fire or explosion hazard exists.
Extinguishing	Non flammable.
Hazchem Code	None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage	If spilled (bulk), contact emergency services if appropriate. Wear dust-proof goggles, PVC/rubber gloves, a Class P2 respirator (where an inhalation risk exists), coveralls and rubber boots. Clear area of fall unprotected personnel. Prevent spill entering drains or waterways. Collect and place in sealable containers for disposal or reuse. Avoid generating dust. Quicklime should be slowly hydrated by SLOW addition to water then neutralized with diluted Hydrochloric Acid (eg 6M) before disposal.
Emergency Procedures	Follows safety requirements for personal protection under Section 8 Exposure Controls/Personal Protection.

7. HANDLING AND STORAGE

Storage	Steel silos and airtight trailer road tankers are the usual forms of storage and transport. Common storage and handling equipment must NOT be used for Quicklime. Enclosed conveyors with extraction equipment and dust collection are required for safe handling. Quicklime must NOT come into contact with materials containing water or water of crystallization, e.g. copper, alum, ferric sulfates. Quicklime must be kept away from moisture, steam, acid or acid fumes to prevent violent reactions.
Handling	Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.
Property/ Environmental	Refer to Section 13.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation	Avoid generating dust. All work with Quicklime should be carried out in such a way as to minimize exposure to dust and repeated skin contact. Where dust could be generated whilst handling Quicklime, use local mechanical ventilation or extraction in areas where dust could escape into the work environment. For bulk deliveries, closed pumping systems are recommended.
Exposure Standards	STEL 10mg/m ³ per 30 minutes as inspirable dust. CALCIUM OXIDE (1305-78-8) ES-TWA: 2mg/m ³ (Peak Level) WES- TWA: 2mg/m ³ MAGNESIUM OXIDE (1309-48-4) ES- TWA: 10mg/m ³ (FUME) ES-TWA: 10mg/m ³ inspirable dust WES- TWA: 10mg/m ³ ALUMINIUM OXIDE (1344-28-1) ES-TWA: 10mg/m ³ (Total Dust) WES- TWA: 10mg/m ³ CALCIUM CARBONATE (1317-85-3) ES- TWA: 10mg/m ³ WES-TWA: 10mg/m ³ SILICA, CRYSTALLINE-QUARTZ (14808-60-7) ES-TWA: 0.1mg/m ³ (Silica Quartz, irrespirable, NOHSC) ES- TWA: 0.1mg/m ³ (QLD); 0.15mg/m ³ (NSW) WES-TWA: 0.1mg/m ³ IRON (III) OXIDE (1309-37-1) WES-TWA: 5mg/m ³
PPE	Wear dust-proof goggles and rubber or PVC gloves. Where an inhalation risk exists, wear a Class P2 respirator. If there is potential for prolonged and/or excessive skin contact, wear coveralls. At high dust levels, wear a Class P3 respirator or a Powered Air Purifying Respirator (PAPR) with Class P3 Filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Granular off-white amorphous powder	Solubility (water)	Sparingly soluble, reacts vigorously with water
Odour	Slight Odour	Specific Gravity	3.2 to 3.4
pH	Approximately 12	% Volatiles	Not Available
Vapour Pressure	Not Available	Flammability	Non Flammable
Vapour Density	Not Available	Flash Point	Not Relevant
Boiling Point	2850°C	Upper Explosion Limit	Not Relevant
Melting Point	2570°C	Lower Explosion Limit	Not Relevant
Evaporation Rate	Not Available	Autoignition	Not Available
Bulk Density	750-1000 kg/m ³		
Particle Size	95% < 600 microns		

10. STABILITY AND REACTIVITY

Reactivity	Incompatible with hydrofluoric acid (violently) and phosphorus pentoxide. Reacts (potentially vigorously) with water generating heat and producing a calcium hydroxide solution. Reacts with aluminium and brass metals in the presence of water to produce hydrogen gas.
Decomposition Products	May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Corrosive. Use safe work practices to avoid eye-skin contact and dust generation-inhalation. Once water is added, an inhalation hazard is not anticipated. Chronic respiratory effects are not anticipated with overexposure at high levels due to the immediate irritant and/or corrosive effects.
Eye	Corrosive. Severe irritant upon contact with powder/dust. Overexposure may result in pain, redness, corneal burns and ulceration with possible permanent damage.
Inhalation	Corrosive. Overexposure to powder-dust (when mixing) may result in severe mucous membrane irritation of nose and throat, coughing and bronchitis at high levels.
Skin	Irritating and drying to skin. May cause alkaline burns and irritant or allergic dermatitis.
Ingestion	Corrosive. Ingestion may result in ulceration and burns to the mouth and throat, nausea, vomiting, abdominal pain and diarrhoea.
Toxicity Data	SILICA, CRYSTALLINE- QUARTZ (14808-60-7) 1 Carcinogenicity: Classified as a human carcinogen (IARC Group 1) CALCIUM HYDROXIDE (1305-62-0) LD50 (Ingestion): 7300 mg/kg (mouse) MAGNESIUM HYDROXIDE (1309-42-8) LD50 (Ingestion): 8500 mg/kg (rat, mouse)

12. ECOLOGICAL INFORMATION

Environment	Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.
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13. DISPOSAL CONSIDERATIONS

Waste Disposal	For small amounts; VERY SLOWLY, hydrate (add water) and then neutralize with diluted hydrochloric acid (eg 6M HCl) to pH of 7-8. Dilute and flush to sewer or landfill. For large amounts, material can be recycled. Contact manufacturer for additional information.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Not classified as dangerous goods by the criteria of the ADG Code.					
Shipping Name	None Allocated				
UN No	None Allocated	Hazchem Code	None Allocated	Pkg Group	None Allocated
DG Class	None Allocated	Subsidiary Risk(s)	None Allocated	EPG	None Allocated
IATA (INTERNATIONAL AIR TRANSPORT DANGEROUS GOODS)					
Shipping Name	Calcium Oxide				
UN No	1910	Hazchem Code	4W	Pkg Group	III
DG Class	8	Subsidiary Risk	None Allocated	EPG	None Allocated
IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)					
Shipping Name	None Allocated				
UN No	None Allocated	Hazchem Code	None Allocated	Pkg Group	None Allocated
DG Class	None Allocated	Subsidiary Risk(s)	None Allocated	EPG	None Allocated

15. OTHER INFORMATION

Additional Information

IARC -GROUP 1-PROVEN HUMAN CARCINOGEN. This product contains an ingredient for which there is sufficient evidence to have been classified by the International Agency for Research into Cancer as a human carcinogen. The use of products known to be human carcinogens should be strictly monitored and controlled.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn, ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES: The Recommendation for protective equipment contained within this MSDS report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE: It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare an MSDS report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

ABBREVIATIONS:

mg/m³ - Milligrams per cubic metre ppm-

Parts Per Million

ES-TWA- Exposure Standard - Time Weighted Average

pH- relates to hydrogen ion concentration- this value will relate to a scale of 0-14, where 0 is highly acidic and 14 is highly alkaline.

CAS#- Chemical Abstract Service Number-used to uniquely identify chemical compounds.

IARC - International Agency for Research on Cancer.

WES-TWA- Workplace Exposure Standard- Time Weighted Average M-

Moles per litre, a unit of concentration.

Report Status

This document has been compiled by Golden Lime Public Company

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