



**WATER SPECIALIST SUPPLY CO.,LTD.**

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## MATERIAL SAFETY DATA SHEET

### CALCIUM OXIDE

**PRODUCT:CALCIUM OXIDE, LIME.**

#### SECTION 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**WATER SPECIALIST SUPPLY CO.,LTD.**

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PREPARED BY..... Water Specialist Supply CO.,LTD

PREPARATION DATE..... 20/September/16

PRODUCT NAME.....Calcium Oxide

OTHER NAME..... Quick Lime, Lime , Burnt Lime,  
. Unslaked Lime , Pepper Lime , Lump Lime

CHEMICAL FORMULA.....CaO.

PRODUCT USE.....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.

MOLECULAR WEIGHT.....56.0774 g/mol

CHEMICAL FAMILY..... Inorganic base .

EMERGENCY PHONE NO..... (+66)34-440-851 to 3 or (+66)95-367-5790

## SECTION 02 : COMPOSITION/INFORMATION ON INGREDIENT

Content Ingredients	Formula	Concentrate%.	CAS No.
Calcium Oxide	CaO	82 – 90%	1305-78-8
Magnesium Oxide	MgO	1 – 3%	1309-48-4
Silicon Dioxide	SiO <sub>2</sub>	0 – 1%	14808-60-7
Calcium Carbonate	CaCO <sub>3</sub>	0 – 6%	1317-65-3
Aluminium Oxide	Al <sub>2</sub> O <sub>3</sub>	0 – 2%	1344-28-1

## SECTION 03: HAZARDS 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

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 ADG 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**

## SECTION 04 : FIRST AID MEASURES

### **INSTRUCTIONS:**

#### **EYE CONTACT:**

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 CONTACT:**

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:**

Eye wash 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 internal organs) and lung 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.

## SECTION 05 : FIRE FIGHTING MEASURES

### 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<sub>2</sub> TYPE EXTINGUISHERS.**

### FIRE AND EXPLOSION :

Non flammable. No fire or explosion hazard exists.

### EXTINGUISHING:

Non flammable.

**HAZCHEM CODE:**None Allocated

## SECTION 06 : ACCIDENTAL RELEASE MEASURES

### SPILLAGE:

If spilt (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 all 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 PROCEDURE:

Follow safety requirements for personal protection under Section 8 Exposure Controls/ Personal Protection.

## SECTION 07 : HANDLING AND STORAGE

**STORAGE:** Steel silos and airtight rail or 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, eg 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.



## SECTION 08 : EXPOSE CONTROL/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 10 mg/m<sup>3</sup> per 30 minutes as inspirable dust.

CALCIUM OXIDE (1305-78-8)

ES-TWA: 2 mg/m<sup>3</sup>( Peak Level )

WES-TWA: 2 mg/m<sup>3</sup>

MAGNESIUM OXIDE (1309-48-4)

ES-TWA: 10 mg/m<sup>3</sup>( FUME )

ES-TWA: 10 mg/m<sup>3</sup> Inspirable dust

WES-TWA: 10 mg/m<sup>3</sup>

ALUMINIUM OXIDE (1344-28-1)

ES-TWA: 10 mg/m<sup>3</sup> (Total Dust )

WES-TWA: 10 mg/m<sup>3</sup>

CALCIUM CARBONATE (1317-85-3)

ES-TWA: 10 mg/m<sup>3</sup>

WES-TWA: 10 mg/m<sup>3</sup>

SILICA, CRYSTALLINE – QUARTZ (14808-60-7)

ES-TWA: 0.1 mg/m<sup>3</sup> (Silica Quartz, irrespirable, NOHSC)

ES-TWA: 0.1 mg/m<sup>3</sup> (QLD): 0.15 mg/m<sup>3</sup> (NSW)

WES-TWA: 0.1 mg/m<sup>3</sup>

IRON (III )OXIDE (1309-37-1)

WES-TWA: 5 mg/m<sup>3</sup>

### **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.

## SECTION 09 :PHYSICAL AND CHEMICAL PROPERTIES

<b>PHYSICAL STATE :</b>	Granular off-white amorphous powder.
<b>ODOUR :</b>	Slight Odour.
<b>PH :</b>	Approximately 12.
<b>VAPOUR PRESSURE (MMHG):</b>	Not Available.
<b>VAPOUR DENSITY (AIR=1) :</b>	Not Available.
<b>BOILING POINT :</b>	2850°C.
<b>MELTING POINT (C) :</b>	2570°C.
<b>EVAPORATION RATE :</b>	Not Available.
<b>BULK DENSITY:</b>	750 – 1000 kg/m <sup>3</sup> .
<b>PARTICLE SIZE:</b>	95% 600 microns.
<b>SPECIFIC GRAVITY (WATER=1):</b>	3.2 to 3.4
<b>SOLUBILITY IN WATER (% W/W):</b>	Sparingly soluble, reacts vigorously with water.
<b>%VOLATILES :</b>	Not Available.
<b>FLAMMABILITY:</b>	Non Flammable.
<b>FLASH POINT:</b>	Not Relevant.
<b>UPPER EXPLOSION LIMIT:</b>	Not Relevant.
<b>LOWER EXPLOSION LIMIT:</b>	Not Relevant.
<b>AUTOIGNITION :</b>	Not Available.

## SECTION 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 PRODUCT:

May evolve toxic gases if heated to decomposition.

## SECTION 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 over exposure at high levels due to the immediate irritant and/or corrosive effects.

### EYE :

Corrosive. Severe irritant upon contact with powder/dust. Over exposure may result in pain, redness, corneal burns and ulceration with possible permanent damage.

### INHALATION :

Corrosive. Over exposure 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)**

1Carcinogenicity: 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)

## SECTION 12 : ECOLOGICAL CONSIDERATION

### 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.

## SECTION 13 : DISPOSAL CONSIDERATION

### 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.

## SECTION 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** None Allocated

**UN No.** 1910 **Hazchem Code** 4W **Pkg Group** III

**DG Class:** 8 **Subsidiary Risk(s)** None Allocated **EPG** None Allocated

### IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

**UN No.** None Allocated **Hazchem Code** None Allocated **Pkg Group** None Allocated

**DG Class:** None Allocated **Subsidiary Risk(s)** None Allocated **EPG** None Allocated



## SECTION 15 :REGULATORY 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/m<sup>3</sup> – 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.

## SECTION 16 :OTHER INFORMATION

### **Disclaimer :**

**Water Specialist Supply(WSS THAILAND) CO.,Ltd provide information contained here in good faith but make 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 using this product.Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.**