



## MATERIAL SAFETY DATA SHEET

MSDS nr:

CALCIUM HYDROXIDE

CH001

### 1. COMPANY AND PRODUCT IDENTIFICATION

**Company Information:** Bontebok Lime Works (pty) Ltd t/a P & B Lime Works  
: Swellendam Road, PO Box 2, Bredasdorp, 7280  
: [www.pandblime.co.za](http://www.pandblime.co.za) / [sales@pandblime.co.za](mailto:sales@pandblime.co.za)  
: 028 424 1157 (tel) / 028 424 1428 (fax)

**Product names:** Water Purification Lime, Calim, Building Lime (SANS 523),  
Road Lime (SANS 824), iSikhuseli, Decarb Lime, Nature All, Concrim™,  
Agricultural Hydrated Lime

**Synonyms:** Calcium hydrate, Slaked lime, Hydrated lime

**Molecular Weight:** 74.09

**Chemical Formula:** Ca(OH)<sub>2</sub>

### 2. COMPOSITION AND INFORMATION ON HAZARDS

Ingredient	Percentage	Hazardous
Calcium Hydroxide	90%	Yes

### 3. HAZARDS IDENTIFICATION

**DANGER:** HARMFUL IF SWALLOWED OR INHALED. CAUSES BURNS TO SKIN AND EYES. CAUSES SEVERE IRRITATION TO RESPIRATORY TRACT

**Inhalation:** Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. Can cause chemical bronchitis.

**Ingestion:** Gastric irritant. Ingestion may be followed by severe pain, vomiting, diarrhea, and collapse. If death does not occur in 24 hours, esophageal perforation may occur, as evidenced by fall in blood pressure and severe pain. A narrowing of the esophagus may occur weeks, months, or years after ingestion, making swallowing difficult.

**Skin Contact:** Corrosive. May cause severe burns and blistering, depending on duration of contact.

**Eye Contact:** Corrosive. May cause severe irritation and pain. May induce ulcerations of the corneal epithelium. Can cause blindness.

**Chronic Exposure:** Prolonged or repeated skin contact may produce severe

irritation or dermatitis.

**Aggravation of existing Conditions:** Persons with existing skin problems or impaired respiratory function may be more susceptible to the effects of this substance.

#### 4. FIRST AID MEASURES

**Inhalation:** If inhaled remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

**Ingestion:** Do NOT induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a physician immediately.

**Skin Contact:** In case of contact, wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

**Eye Contact:** Check for and remove any contact lenses, immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Cold water may be used. Call a physician immediately.

#### 5. FIRE FIGHTING MEASURES

**Fire:** Not considered to be a fire hazard. Alkaline hydroxides boiled with phosphorus yields mixed phosphines which may ignite spontaneously in air.

**Explosion:** Not considered to be an explosion hazard.

**Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire.

#### 6. ACCIDENTAL RELEASE MEASURES

Ventilate area of leak or spill.

Keep unnecessary and unprotected people away from area of spill.

Wear appropriate personal protective equipment as specified in Section 8.

Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

Do not flush caustic residues to the sewer.

Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric.

Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.

#### 7. HANDLING AND STORAGE

Keep in a tightly closed container, stored in a cool, dry, ventilated area.

Protect against physical damage. Isolate from incompatible substances.

Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### **Airborne Exposure Limits:**

OSHA Permissible Exposure Limit (PEL): 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction)

ACGIH Threshold Limit Value (TLV): 5 mg/m<sup>3</sup>

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

**Personal Respirators:** If the exposure limit is exceeded and engineering controls are not feasible, a full face piece particulate respirator may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Crystals or powder.

**Colour:** White

**Odor:** Odorless.

**Solubility:** 0.185 g/100 cc water @ 0C.

**Specific Gravity:** 2.24

**pH:** 12.4 (saturated solution)

**% Volatiles by volume @ 21C (70F):** 0

**Boiling Point:** Decomposes.

**Melting Point:** 580C (1076F)

**Vapor Density (Air=1):** No information found.

**Vapor Pressure (mm Hg):** No information found.

**Evaporation Rate (BuAc=1):** No information found.

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under ordinary conditions of use and storage. Readily absorbs carbon dioxide from air to form calcium carbonate.

**Hazardous Decomposition Products:** Caustic fumes of calcium oxide form when heated to decomposition (580°C; 1076°F).

**Hazardous Polymerization:** Will not occur.

**Incompatibilities:** Violent reactions with maleic anhydride, nitroethane, nitromethane, nitroparaffins, nitropropane, phosphorus. As a strongly alkaline material, it is incompatible with acids.

**Conditions to Avoid:** Air, dusting, and incompatibles.

## 11. TOXICOLOGICAL INFORMATION

**Routes of Entry:** Absorbed through skin. Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 7300 mg/kg [Mouse].

**Chronic Effects on Humans:** Not available.

**Other Toxic Effects on Humans:**

Extremely hazardous in case of eye contact (irritant) Hazardous in case of skin contact (irritant), of eye contact (corrosive), of ingestion, inhalation Slightly hazardous in case of skin contact (corrosive, permeator).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

Mutagenicity: Cytogenic analysis [Rat]: Cell type: Ascities tumor; Dose: 1200 mg/kg

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects:

Skin - Causes skin irritation. Alkalies penetrate skin slowly. The extent of damage depends on the duration of contact.

Eyes - Causes severe irritation of the eyes. Can cause "Lime Burns" of the eye. Clumps may lodge deep in the recesses of the eye, releasing calcium hydroxide over a long period of time. Severe burns of the cornea with possible damage to corneal nerves can occur.

Ingestion - Causes gastrointestinal tract irritation with vomiting, diarrhea, severe pain.

Vomit may contain blood and desquamated mucosal lining. May cause delayed gastrointestinal burns and perforation (gastric or esophageal) with severe abdominal pain and rapid fall in blood pressure.

Inhalation - Causes severe irritation of the respiratory tract (nose, throat, lungs), and mucous membranes with coughing, wheezing and/or shortness of breath. Material is destructive to tissue of the mucous membranes and upper respiratory tract.

Chronic Potential Health Effects - Prolonged or repeated skin contact may produce severe irritation or dermatitis.

## 12. ECOLOGICAL INFORMATION

**Environmental Fate:**

This material is not expected to significantly bioaccumulate.

**Environmental Toxicity:**

No information found.

## 13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility.

Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements.

Processing, use or contamination of this product may change the waste management options.

State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. TRANSPORT INFORMATION

Not regulated

## 15. REGULATION AND LEGISLATION

National Environmental Management: Air Quality Act, 39 of 2004 prescribes maximum emission levels of SO<sub>2</sub> and NO<sub>x</sub>

Mine Health and Safety Act, 29 of 1996 prescribes the personal protective equipment to be worn

SANS 9001:2008 (ISO 9001:2008) – Quality Management Systems (ISBN 978-0-626-22214-7)

SANS 523 (SABS 523) – Lime for use in building (Permit number 7380/10943)

SANS 824 (SABS 824) – Lime for use in soil stabilization (Permit number 7380/10944)

## 16. DISCLAIMER

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