

# Safety Data Sheet

## Quicklime

### Section 1: Material and Supplier Information

<b>Product Name:</b>	Quicklime (calcium oxide)
<b>Applicable in:</b>	Australia
<b>Chemical Name:</b>	Calcium oxide
<b>Other Names:</b>	CaO; calcium oxide, calcium monoxide, burnt lime; burnt unslaked lime; high calcium lime; unslaked lime; fluxing lime; burned lime; rocklime; soft burned lime
<b>Recommended use:</b>	Used as a flux in the steel production, aluminium, magnesium, uranium gold and silver smelting and for the flotation of non-ferrous ores; in glass production and water and sewage treatment. It is used to make chemicals such as sodium alkalis, calcium hypochlorite and petro chemicals. It is used in road stabilization.
<b>Chemical Formula:</b>	CaO
<b>CAS Number:</b>	1305-78-8
<b>Company details:</b>	Independent Cement & Lime Pty Ltd, 750 Lorimer Street Port Melbourne, VIC 3207 ABN 49 005 829 550
<b>Emergency contact details</b>	Contact person: Technical manager Telephone: office hours 03 9676 0000 or Poison Information Center 13 11 26
<b>Phone:</b>	VIC 03 9676 0000
<b>Fax</b>	VIC 03 9646 4954

This Safety Data Sheet (SDS) is issued by Independent Cement and Lime Pty Ltd in accordance with the code and guidelines from the Australian Safety and Compensation Council (ASCC). The information in it must not be altered, deleted or added to. Independent Cement and Lime Pty Ltd will not accept any responsibility for any changes made to its SDS by any other person or organization. Independent Cement and Lime Pty Ltd will issue a new MSDS when there is a change in product specifications and/or ASCC standards, guidelines or regulations.

### Section 2: Hazards Identification

#### GHS Classifications

Skin corrosion/irritation	Category 2
Serious Eye Damage/ Eye irritation	Category 1
Specific Target Organ Systemic Toxicity (Single Exposure)	Category 3

#### Hazard Pictogram(s)



**Signal Word**      **Danger**

#### Hazard Statement(s)

H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation



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**Prevention Statement(s)**

P261	Do no breathe dust/fume
P264	Wash skin thoroughly after handling
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/protective clothing/eye protection/face protection
P234	Keep only in original container

**Response Statement(s)**

P301+P330+P331	If swallowed: rinse mouth, do not induce vomiting
P302+P303+P361+P353	If on skin (or hair): remove/take off immediately all contaminated clothing. Rinse skin with soap and water.
P305+P351+P338	If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a Poison Center or doctor/physician.
P321	Specific treatment (see advice on this label).
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P304+P340	If inhaled: remove victim to fresh air and keep at rest in a position comfortable for breathing.

**Storage Statement(s)**

P405	Store locked up
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**Disposal Statement(s)**

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation
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**Section 3: Composition / Information on Ingredients**

Ingredient	Formula	Conc.	CAS Number
CALCIUM OXIDE	CaO	90 – 95%	1305-78-8
MAGNESIUM OXIDE	MgO	0.5 - 1.5%	1309-48-4
CRYSTALLINE SILICA	SiO <sub>2</sub>	1 - 4%	14808-60-7
LIMESTONE	CaCO <sub>3</sub>	0 – 2%	1317-65-3
ALUMINIUM OXIDE	Al <sub>2</sub> O <sub>3</sub>	0 – 1.5%	1344-28-1
IRON (III) OXIDE	Fe <sub>2</sub> O <sub>3</sub>	0 – 1%	1309-37-1

**Section 4: First Aid Measures****Eye Contact**

If this product comes in contact with the eyes:  
Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.  
Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

**Skin Contact**

If skin or hair contact occurs:  
Immediately flush body and clothes with large amounts of water, using safety shower if available. Quickly remove all contaminated clothing, including footwear. Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. Transport to hospital, or doctor.

**Inhalation**

If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial



respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor. Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema. Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs). As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested. Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

**This must be left to a doctor or person authorised by him/her.**

(ICSC13719)

## Ingestion

For advice, contact a Poisons Information Centre or a doctor at once. Urgent hospital treatment is likely to be needed. If swallowed do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness. i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Transport to hospital or doctor without delay.

## Indication of any immediate medical attention and special treatment needed

Treat symptomatically

For acute or short-term repeated exposures to highly alkaline materials:

Respiratory stress is uncommon but present occasionally because of soft tissue oedema. Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary. Oxygen is given as indicated. The presence of shock suggests perforation and mandates an intravenous line and fluid administration. Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilization of proteins allow deep penetration into the tissue. Alkalis continue to cause damage after exposure. Ingestion: Milk and water are the preferred diluents. No more than 2 glasses of water should be given to an adult. Neutralising agents should never be given since exothermic heat reaction may compound injury. Catharsis and emesis are absolutely contra-indicated. Activated charcoal does not absorb alkali. Gastric lavage should not be used. Supportive care involves the following:

Withhold oral feedings initially. If endoscopy confirms transmucosal injury start steroids only within the first 48 hours. Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention. Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

Skin and eye:

Injury should be irrigated for 20-30 minutes. Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

## Section 5:

## Fire Fighting

### Extinguishing Media

Foam, water spray or fog, BCF (where regulations permit), carbon dioxide, water spray or fog, dry chemical powder

### Special hazards arising from the substrate or mixture

#### Fire Incompatibility

None known

### Advice for firefighters

#### Fire Fighting

Alert fire brigade and tell the location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Use fire-fighting procedures suitable for surrounding area. Do not approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use. If large amounts of calcium oxide are involved in a fire, flood with large amounts of water to absorb heat generated by exothermic reaction between calcium oxide and water

#### Fire/Explosion Hazard

Non-combustible. Not considered a significant fire risk, however containers may burn. May emit corrosive fumes. When in contact with acidic material, water or steam, a vigorous exothermic reaction may result which can evolve considerable heat

#### HAZCHEM

2X



## Section 6: Accidental Release Measures

### Methods and material for containment and cleaning up

#### Minor Spills

Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. Check regularly for spills and leaks. Remove all ignition sources. Clean up all spills immediately. Avoid contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Use dry clean up procedures and avoid generating dust. Place in a suitable, labelled container for waste disposal.

#### Major Spills

Clear area of personnel and move upwind. Alert fire brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Consider evacuation (or protect in place). Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect recoverable product into labelled containers for recycling. Neutralise/decontaminate residue (see Section 13 for specific agent). Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. After clean-up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. If contamination of drains or waterways occurs, advise emergency services

## Section 7: Handling and Storage

### Precautions for Safe Handling

#### Safe Handling

Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid contact with moisture. Avoid contact with incompatible materials. When handling, do not eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained

#### Other Information

Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS. Do not store near acids, or oxidizing agents. No smoking, naked lights, heat or ignition sources

### Conditions for safe storage, including any incompatibilities

#### Suitable Container

Lined metal can, lined metal pail/ can. Plastic pail. Polyliner drum. Packing as recommended by manufacturer. Check all containers are clearly labelled and free from leaks. For low viscosity materials. Drums and jerricans must be of the non-removable head type. Where a can is to be used as an inner package, the can must have a screwed enclosure. For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. And 40 deg C): Removable head packaging. Cans with friction closures and low pressure tubes and cartridges. Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

#### Storage Incompatibility

Calcium oxide: Reacts violently with water, evolving high quantities of heat. Reacts violently, with possible ignition or explosion, with acids, anilinium perchlorate, bromine pentafluoride, chlorine trifluoride, fluorine, hydrogen fluoride, hydrazine, hydrogen sulfide, hydrogen trisulfide, isopropyl isocyanide dichloride, light metals, lithium, magnesium, powdered aluminium, phosphorus, potassium, sulfur trioxide. Increase the explosive sensitivity of azides, nitroalkanes (e.g. nitroethane, nitromethane, 1-nitropropane etc.). Is incompatible with boric acid, boron trifluoride, carbon dioxide, ethanol, halogens (such as fluorine), metal halides, phosphorus pentoxide, selenium oxychloride, sulfur dioxide and many organic materials. Avoid strong acids, acid chlorides, acid anhydrides and chloroformates. Avoid contact with copper, aluminium and their alloys.

## Section 8: Exposure Controls / Personal Protection

### Control Parameters

Occupational Exposure Limits (OEL)



**Ingredient Data**

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australian Exposure Standards	Calcium oxide	Calcium oxide	2 mg/m <sup>3</sup>	Not available	Not available	Not available

**Emergency Limits**

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Calcium Oxide	Calcium oxide	6 mg/m <sup>3</sup>	110 mg/m <sup>3</sup>	660 mg/m <sup>3</sup>

Ingredient	Original IDLH	Revised IDLH
Calcium Oxide	25 mg/m <sup>3</sup>	Not available

**Material Data**

For calcium oxide:

The TLV-TWA is thought to be protective against undue irritation and is analogous to that recommended for sodium hydroxide.

**Appropriate Engineering Controls**

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure. Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction. If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of: Particle dust respirators, if necessary, combined with an absorption cartridge; Filter respirators with absorption cartridge or canister of the right type; Fresh-air hoods or masks. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant. Within each range the appropriate value depends on: Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore, the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

**Personal Protection****Eye and Face Protection**

Chemical goggles.

Full face shield may be required for supplementary but never for primary protection of eyes. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

**Skin Protection**

See Hand protection below

**Hands/Feet Protection**

Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber. The selection of suitable gloves does not only depend on the material, but



also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: frequency and duration of contact;

chemical resistance of glove material; glove thickness and dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves are rated as: Excellent when breakthrough time > 480 min; Good when breakthrough time > 20 min; Fair when breakthrough time < 20 min; Poor when glove material degrades; For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary dependent on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. Where there is abrasion or puncture potential. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Neoprene rubber gloves. Avoid contact with moisture.

#### Body Protection

See other protection below

#### Other Protection

Overalls. PVC Apron. PVC protective suit may be required if exposure severe. Eyewash unit. Ensure there is ready access to a safety shower.

#### Respiratory Protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
Up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
Up to 50 x ES	Air-line**	P2	PAPR-P2
Up to 100 x ES	-	P3 Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

Legend:

\* - Negative pressure demand \*\* - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

## Section 9: Physical and Chemical Properties

### Information on basic physical and chemical properties

<b>Appearance</b>	A white, odourless solid. Commercially in lump, pebble, pelletized and powdered forms. Reacts with water to form calcium hydroxide with evolution of heat. Bulk density 900-1100 kg/m <sup>3</sup>		
<b>Solubility (water)</b>	Slight, hardens when mixing with water.		
<b>Odor</b>	Not available	<b>Relative Density (water)</b>	3.2-3.4
<b>Ph</b>	Not applicable	<b>% Volatiles</b>	Nil
<b>Vapor Pressure</b>	Not available	<b>Flammability</b>	Non-flammable





<b>Vapor Density</b>	Not available	<b>Flash Point</b>	Non-flammable
<b>Boiling Point</b>	Not available	<b>Upper Explosion Limit</b>	Not applicable
<b>Melting Point</b>	2570°C	<b>Lower Explosion Limit</b>	Not applicable
<b>Evaporation Rate</b>	Non-volatile	<b>Autoignition Temperature</b>	Not available
<b>Bulk Density</b>	1200 – 1600 kg/m <sup>3</sup>	<b>pH as a Solution (1%)</b>	12.0 @ 0.2 g/l
<b>Particle Size</b>	20 – 40% of particles are <7 µm (respirable range)	<b>Molecular Weight (g/mol)</b>	56.08

## Section 10: Stability and Reactivity

<b>Reactivity</b>	See section 7
<b>Chemical Stability</b>	Unstable in the presence of incompatible materials. Product is considered stable Hazardous polymerisation will not occur.
<b>Possibility of Hazardous Reactions</b>	See section 7
<b>Conditions to Avoid</b>	See section 7
<b>Incompatible Materials</b>	See section 7
<b>Hazardous Decomposition</b>	See section 5

## Section 11: Toxicological Information

<b>Inhaled</b>	Inhalation of calcium oxide may produce inflammation of the respiratory passages and ulceration and perforation of the septum. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
<b>Ingestion</b>	The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. The material has not been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
<b>Skin Contact</b>	The material can produce chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Irritation caused by calcium oxide is a result of local liberation of heat and dehydration of tissues which occurs on "slaking" of the small size particles and the resulting alkalinity of the slaked product. Open cuts, abraded or irritated skin should not be exposed to this material. Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
<b>Eye</b>	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.
<b>Chronic</b>	Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

<b>Calcium oxide</b>	<b>Toxicity</b>	<b>Irritation</b>
	Dermal (rat) LD50: >2000 mg/kg	Eye: adverse effect observed (irreversible damage)
	Oral (rat) LD50: ~500-2000 mg/kg	Skin: adverse effect observed (irritating)

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. \* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances



**Calcium Oxide**

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

<b>Acute Toxicity</b>	✘	<b>Carcinogenicity</b>	✘
<b>Skin Irritation/Corrosion</b>	✔	<b>Reproductivity</b>	✘
<b>Serious Eye Damage/Irritation</b>	✔	<b>STOT – Single Exposure</b>	✘
<b>Respiratory or Skin Sensitization</b>	✘	<b>STOT Repeated Exposure</b>	✘
<b>Mutagenicity</b>	✘	<b>Aspiration Hazard</b>	✘

- ✘ - Data either not available or does not fill the criteria for classification  
 ✔ - Data available to make classification

**Section 12: Ecological Information****Toxicity**

Calcium Oxide	Endpoint	Test Duration (HR)	Species	Value	Source
	LC50	96	Fish	50.66 mg/L	2
	EC50	48	Crustacea	49.1 mg/L	2
	EC50	72	Algae or other aquatic plants	>14 mg/L	2
	EC10	72	Algae or other aquatic plants	>14 mg/L	2
	NOEC	72	Algae or other aquatic plants	14 mg/L	2
<b>Legend</b>	<i>Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data</i>				

Prevent, by any means available, spillage from entering drains or water courses. Do not discharge into sewer or waterways.

**Persistence and Degradability**

Ingredient	Persistence: Water/Soil	Persistence: Air
	No data available for all ingredients	No data available for all ingredients

**Bioaccumulative Potential**

Ingredient	Bioaccumulation
	No data available for all ingredients

**Mobility in Soil**

Ingredient	Mobility
	No data available for all ingredients

**Section 13: Disposal Considerations****Waste Treatment Method****Product/Packaging Disposal**

Legislation addressing waste disposal requirement may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of controls seems to be common – the user should investigate: Reduction; Reuse; Recycling; Disposal (if all else fails). This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decision of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted. Do not allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in





doubt contact the responsible authority. Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Treat and neutralize at an approved treatment plant. Treatment should involve: Mixing or slurrying in water; Neutralization with suitable dilute acid followed by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material). Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed. Recycle wherever possible. Waste lime may be used to neutralize acids and acid spill. Otherwise, bury residue in an authorized landfill.

## Section 14: Transport Information

### Labels Required



Marine Pollutant	NO
HAZCHEM	2X

Land transport (ADG): Not regulated for transport of dangerous goods

### Air transport (ICAO-IATA / DGR)

UN Number	1910	
UN proper Shipping Name	Calcium Oxide	
Transport Hazard Class(es)	ICAO/IATA Class	8
	ICAO/IATA Subrisk	Not Applicable
	ERG Code	8L
Packing Group	III	
Environmental Hazard	Not Applicable	
Special Precautions for User	Special provisions	A803
	Cargo Only Packing Instructions	864
	Cargo only Maximum Qty/Pack	100kg
	Passenger and Cargo Packing Instructions	860
	Passenger and Cargo Maximum Qty/Pack	25 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Y845
	Passenger and Cargo Limited Maximum Qty/Pack	5 kg

Sea transport (IMDG-Code/GGVSee): Not regulated for transport of dangerous goods. Transport in bulk according to Annex II of MARPOL and the IBC code Not applicable

## Section 15: Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Calcium oxide is found on the following regulatory lists

Australia Dangerous Goods Code (ADG Code) – Dangerous Goods list	IMDG Code – Medical First Aid Guide for use in accidents involving Dangerous Goods (MFAG) – Appendix 15 List of Substances
Australia Dangerous Goods Code (ADG Code) – List of Emergency Action Codes	International Air Transport Association (IATA) Dangerous Goods Regulations
Australia Exposure Standards	International Maritime Dangerous Goods Requirements (IMDG Code)
Australia Hazardous Chemical Information System (HCIS) – Hazardous Chemicals	United Nations Recommendations on the Transport of Dangerous Goods Model Regulations
Australia Inventory of Chemical Substances (AICS)	

### National Inventory Status

National Inventory	Status	National Inventory	Status
Australia – AICS	Yes	New Zealand – NzIoC	Yes
Canada – DSL	Yes	Phillippines – PICCS	Yes
Canada – NDSL	No (calcium oxide)	USA – TSCA	Yes
China – IECSC	Yes	Taiwan – TCSI	Yes
Europe – EINEC/ELINCS /NLP	Yes	Mexico – INSQ	Yes
Japan – ENCS	Yes	Vietnam – NCI	Yes
Korea – KECI	Yes	Russia – ARIPS	Yes

### Legend:

Yes = All CAS declared ingredients are on the inventory



No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

## Section 16: Other Information

### SDS Version Summary

Version	Issue Date	Sections Updated
6.1.1.1	09/17/2018	Acute Health (inhaled), Disposal, Environmental, Fire Fighter (extinguisher media), Fire Fighter (fire/explosion hazard), Fire Fighter (fire fighting), First Aid (inhaled), Handling Procedure, Personal Protection (other), Personal Protection (hands//feet), Physical Properties, Spills (major), Spills (minor), Storage (storage requirement), Storage (suitable container, Supplier Information, Toxicity and Irritation (Toxicity Figure), Transport, Transport Information.

#### Additional Information

**CEMENT CONTACT DERMATITIS:** Individuals using wet cement, mortar, grout or concrete could be at risk of developing cement dermatitis. Symptoms of exposure include itchy, tender, swollen, hot, cracked or blistering skin with the potential for sensitization. The dermatitis is due to the presence of soluble (hexavalent) chromium.

**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 SDS 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 SDS report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

#### Definition and abbreviations

PC – TWA: Permissible Concentration-Time weighted Average, PC – STEL: Permissible Concentration-Short Term Exposure Limit, IARC: International Agency for Research on Cancer  
ACGIH: American Conference of Governmental Industrial Hygienists, STEL: Short Term Exposure Limit, TEEL: Temporary Emergency Exposure Limit, IDLH: Immediately Dangerous to Life or health Concentrations, OSF: Odour Safety Factor, NOAFL: No Observed Adverse Effect level, LOAEL: Lowest Observed Adverse Effect Level TLV: Threshold Limit Value LOD: Limit of Detection, OTV: Odour Threshold Value, BCF: Bioconcentration Factors, BEI: Biological Exposure Index

#### Report Status

This document has been compiled by Independent Cement & Lime Pty Ltd the manufacturer of the product and serves as the manufacturer's Safety Data Sheet. While the information in this Safety Data Sheet has been prepared in good faith, Independent Cement & Lime Pty Ltd does not warrant that the information is accurate, complete or up to date.

#### Contact Point

For further information on this product contact:  
Telephone: office hours 03 9676 0000  
Facsimile: 03 9646 4954  
Web site: <https://www.independentcement.com.au>

#### Advice Note

The information in this document is believed to be accurate. Please check the currency of this MSDS by contacting:

03 9676 0000 or <https://www.independentcement.com.au>

Each user of any information, or any product referred to, in this Safety Data Sheet must:

- determine whether the information or product is suitable for their purpose;
- assess and control any risks associated with the information or product; and
- obtain professional advice in relation to the use of the information or product.

To the extent permitted by law, Independent Cement & Lime Pty Ltd:



- excludes all representations, warranties and guarantees in relation to any information in this Safety Data Sheet; and
- will not be liable for any direct, indirect, consequential, incidental, special or economic loss (including but not limited to any loss of actual or anticipated profits, revenue, savings, production, business, opportunity, access to markets, goodwill, reputation, publicity, or use) arising from any use of or reliance on any information in this Safety Data Sheet.