

**Boron**

### 1. Identification of the substance/mixture and supplier

<b>Product Name:</b>	<b>Agbor (Boron)</b>
<b>Other names</b>	Agrobor, Granular Ulexite B 9%, Calcium Sodium Borate, Preemox B9
<b>Recommended Uses</b>	The product is used in industrial manufacturing, in particular in ceramics, glass, Textile Grade fibreglass., boron alloys, and Agriculture
<b>Supplier Street address</b>	<b>Dickie Direct Limited 25 Railway Rd, Whakatu Hastings 4172</b>
<b>Telephone Number</b>	0800 4 DICKIE (4 34254)
<b>Website</b>	<a href="http://www.dickiedirect.co.nz">www.dickiedirect.co.nz</a>
<b>Emergency Telephone</b>	0800 CHEMCALL (24 hours) 0800 243 622

### 2. Hazards Identification

**Dangerous Goods** Not classified as a Dangerous Good according to NZS 5433:1999 Transport of Dangerous Goods on Land

**Potential Health Effects:**

**Primary Route(s) of Exposure:** Inhalation, skin, eyes.

**Inhalation:** Occasional mild irritation effects to the nose and throat may occur from inhalation of borate dusts at levels greater than 10mg/m<sup>3</sup>.

**Eye Contact:** May irritate the eyes upon contact.

**Skin Contact:** May irritate the skin upon contact.

**Ingestion:** Colemanite is not intended for ingestion. Inorganic borate salts have low acute toxicity.

**ACUTE (Short Term) :** This product may cause mild irritation, redness, tearing and blurred vision to the eyes, and may cause mouth, throat and gastrointestinal tract irritation. It contains small amounts of orpiment and realgar as contaminant, which have low toxicity. Acute arsenic intoxication usually occur via ingestion, specifically arsenic trioxide, with homicidal or suicidal intent, although there have been reports of unusual cases resulting from occupational or environmental exposure. See section 8 for exposure controls.

### 3. Composition/Information on Ingredients

Contents	CAS Number	Proportion
Ulexite	1318-33-8	65-95%

#### 4. First Aid Measures

IF exposed or concerned: Get medical advice/ attention. For advice, contact National Poisons Information Centre (Phone 0800 764 766) or a doctor. Have product container or label at hand.

<b>Swallowed</b>	Observe individual; if symptoms develop, seek medical attention. Drink water to dilute material in stomach.
<b>Eye Contact</b>	Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation persists.
<b>Skin Contact</b>	Wash with running water for at least 15 minutes. Seek medical attention.
<b>Inhaled</b>	Move person to fresh air. Seek medical attention if irritation persists.
<b>Advice to Doctor</b>	Treat symptomatically. Refer to National Poisons and Hazardous Chemicals Information Centre 0800 764 76

#### 5. Fire-fighting Measures

**Specific Hazard** Non combustible material

Flash Point and Method:	None
Flammability Limits (%):	None
Auto Ignition Temperature:	Not applicable
Extinguishing Media:	Water, foam, CO <sub>2</sub> or dry chemical
Unusual Fire and Explosion Hazards:	None
Hazards:	None
Fire Fighting Instructions:	Alert Fire Brigade. No special fire fighting procedures required.
Hazardous Combustion Products:	None

#### 6. Accidental Release Measures

Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in dust. Sweep up, avoiding generation of dust. Collect and seal in properly labelled containers or drums for safe disposal. After product is cleaned up wash the contaminated area with water, preventing run off in to drains. Promptly dispose of recovered material in accordance with all regulations. Wash damaged containers with water before disposal. Product will dissolve in water.

#### 7. Handling and Storage

**Handling advice** Read label and obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid skin and eye contact and breathing dust. Avoid handling which leads to dust formation. Use personal protective equipment as required. Wash hands and exposed

skin thoroughly after handling.

**Storage advice** Store in a cool, dry, well ventilated place out of direct Sunlight in a covered warehouse. Keep containers closed when not in use. No special storage or handling procedures are required for this material.

## 8. Exposure Controls/Personal Protection

### Workplace Exposure Guidelines

Borates, tetra, sodium salts (Pentahydrate): WES-TWA = 1MG/M<sup>3</sup>

As published by the New Zealand Occupational Safety and Health Service (OSH).

WES-TWA (Workplace Exposure Standard – Time Weighted Average) – The eight hour, time weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

### Engineering Controls

Ensure ventilation is adequate to maintain air concentrations below exposure limits. Use exhaust ventilation or wear a dust mask during use. A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. 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. Avoid generating and breathing in dusts. Keep containers closed when not in use.

### Personal Protective Equipment

Wear overalls, chemical goggles and PVC or rubber gloves. Avoid generating and inhaling dusts. If dust exists, wear dust mask / respirator meeting the requirements of AS/ NZS 1715 and AS/ NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

## 9. Physical and Chemical properties

<b>Appearance</b>	Grounded light grey to tan stones granulate 2 – 5mm
<b>Odour</b>	None
<b>Solubility</b>	Soluble in water 0.81 g/l (25°C)
<b>Specific Gravity</b>	1.18
<b>pH</b>	9.1
<b>Melting Point</b>	986 °C
<b>Boiling Point</b>	Not applicable
<b>Vapour Pressure</b>	Not applicable
<b>Bulk Density:</b>	1460-1520 kg/m <sup>3</sup>
<b>Density:</b>	2400 kg/m <sup>3</sup>
<b>Chemical Formula</b>	NaCaB <sub>5</sub> O <sub>9</sub> .8H <sub>2</sub> O

## 10. Stability and Reactivity

**Stability** Product is stable under normal conditions of use and storage.

**Reactivity**

No conditions or materials to avoid.

**11. Toxicological information**

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

- Acute Toxicity:** Not tested. Similar inorganic borate compounds are low in acute oral toxicity; LD<sub>50</sub> of Ulexite in rats is expected to be greater than 5000mg/kg of body weight.
- Eye Contact** Not tested. Not expected to be irritating to eyes based on experience with other similar inorganic borate compounds.
- Skin Contact** Not tested. Similar inorganic borate compounds are low in acute dermal toxicity; LD<sub>50</sub> of Ulexite in rabbits is expected to be greater than 2,000 mg/kg of body weight. Not expected to be irritating to skin.
- Carcinogenicity/Mutagenicity:** Ulexite has not been tested. However, studies conducted with the chemically similar substance boric acid have reported no evidence of carcinogenicity in mice and mutagenic activity in a battery of short-term mutagenicity assays.
- Reproductive:** Ulexite has not been tested. However, human study of occupationally exposed borate worker population showed no adverse reproductive effects.
- Realgar & Orpiment:** The toxicity of arsenic ranges from very low to extremely high depending on chemical state. Metallic arsenic and arsenious sulphide have low toxicity; arsine, a gas, is extremely toxic. The toxicity of other organic and inorganic arsenic compounds varies. Although metallic arsenic and arsenic sulphides may be handled safely without special precautions, skin contact with all arsenical compounds should be avoided. Inorganic arsenic is a documented human carcinogen and has been classified by IARC in Group 1.

**12. Ecotoxicological information**

The environmental effects of boron are minimal and most noticeable in the world of plants. Minimal quantities of this element is essential for plant growth and hence boron is added to fertilisers used in boron deficient soils. However concentrations as low as 1ppm boron could be critical for sensitive plants (lemon etc) and 10ppm for semi tolerant plants (mustard, radish). There is no permanent effect as boron gradually soluble in water. In diluted aqueous solutions the predominant boron species present is undissociated boric acid.

**Phytotoxicity:** Boron is an essential micronutrient for plants. However, it can be harmful to boron sensitive plants in higher quantities. Acute toxicity (72-hr EC<sub>50</sub>) for algae. (*Selenastrum capricornutum*) was determined as 53mg B/l.

**Environmental Fate:** Boron and Calcium are both ubiquitous in the environment and occur naturally in various mineral forms. Colemanite should be expected to decompose in the environment to stable calcium and boron containing mineral species.

**Fish Toxicity:** Boron naturally occurs in sea water and average concentration of 5 mg B/l. Acute toxicity (96-hr LC<sub>50</sub>) for under-yearling Coho salmon (*Oncorhynchus kisutch*) in fresh water was determined as 447mg B/l.

**Bioaccumulation:**

Species: Crassostrea gigas  
Exposure Period: 47 days at 8°C  
Concentration: 40.5 B mg/l  
BCF: ca 4.5 - 8.5  
Test Substance: Sodium Metaborate

Low BCFs and reduction of tissue concentrations during exposures suggest regulation and that Boron will not accumulate to high concentration.

### 13. Disposal

Recycle wherever possible. Whatever cannot be saved for recovery or recycling should be sent to an approved waste disposal contractor for disposal in an approved waste facility. Normally product is suitable for disposal at an approved landfill site. Processing, use or contamination of this product may change the waste management options. Care should be taken to ensure compliance with national and local regulations. This product is NOT for disposal via municipal sewers, drains, natural streams or rivers.

**Special Precautions:** Emptied containers retain product residue and may therefore present hazards. Empty bags should be taken for disposal through a suitably qualified or licensed contractor. Observe all safeguards on label and in this SDS until container is cleaned or destroyed. Decontaminate empty containers with plenty of water. Dispose of washed containers in accordance with local authority requirements (normally at an approved landfill site).

### 14. Transport information

**Road and Rail Transport**

Not Classified as a Dangerous Good according to NZS 5433:1999 Transport of Dangerous Goods on Land.

**Marine Transport**

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

**Air Transport**

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

Label Hazard Warning: May be harmful if swallowed or inhaled.  
Causes irritation if absorbed through damaged skin.

**Label Precautions:**

Avoid breathing dust.  
^ Use with adequate ventilation  
^ Avoid contact with eyes and damaged skin.  
^ Wash after handling.

**Label First Aid:**

Do not ingest  
^ If inhaled, remove to fresh air.  
^ In case of contact with eyes and skin, flush with plenty of water. If irritation develops, get medical attention.

## **15. Regulatory Information**

See Sections 8, 13 & 14 for more information.

## **16. Other information**

### **DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES.**

The information in this document is believed to be correct as of the date issued. However, no warranty of merchantability, fitness for any particular purpose, or any other warranty is expressed or is to be implied regarding the accuracy or completeness of this information, the results to be obtained from the use of this information or the product, the safety of this product, or the hazards related to its use. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.