

## Section 1 - Chemical Product and Company Identification

**Product Name:** Boron 10% Granular

**Chemical Name:** Sodium-Calcium Pentaborate Octahydrate

**Other Names:** Ulexite

**Product Uses:** For use as a fertilizer micronutrient

**Distributed By:** Pestell Minerals & Ingredients  
141 Hamilton Rd  
New Hamburg, ON  
Canada N3A 2H1

**Phone:** 1 519-662-2877

**Email:** qa@pestell.com

**Emergency Number:** CANUTEC 1-613-996-6666

## Section 2 – Hazard Identification

### EMERGENCY OVERVIEW

**Appearance:** White Granular, Ground or Powder forms

#### **Caution!**

Ulexite is considered as a non-hazardous material and it has not been tested for detailed occupational and toxicological studies. However, human study of occupationally exposed borate worker population showed no adverse reproductive effects.

Ulexite presents little or no hazard to humans and has low acute oral and dermal toxicities.

Care should be taken to minimize the amount of Ulexite released to the environment to avoid ecological effects.

### Potential Health Effects

**Eye:** Not Available  
**Skin:** Not Available  
**Ingestion:** Not Available  
**Inhalation:** Not Available  
**Chronic:** Not Available

**Hazard Symbols:** NA

**Risk Phrase(s):** None

## Section 3 – Product Identification/Composition

| Common Name         | Chemical name                           | CAS#                     | %  |
|---------------------|---|--------------------------|--|
| Ulexite             | Sodium-Calcium Pentaborate Octahydrate  | 1319-33-1                | 72-90  |
| Calcite/Dolomite    | Dolomitic Limestone                     | 16389-88-1               | 5-16   |
| Colemanite          | Di-calcium Hexaborate Pentahydrate      | 12291-65-5               | 3-10   |
| Moisture            | Water                                   | 7732-18-5                | 5-8  |
| Realgar<br>Orpiment | Arsenic Sulphide<br>Arsenic Trisulphide | 12044-30-3<br>12255-89-9 | 50 ppm<br>(as As <sub>2</sub> O <sub>3</sub> ) |

## Section 4 - First Aid Measures

**CAUTION:** Harmful if swallowed or inhaled. Causes moderate eye irritation. Avoid contact with eyes or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

### STATEMENT OF PRACTICAL TREATMENT:

**If swallowed:** Call a physician or poison control center. Do not induce vomiting.

**If Inhaled:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably by mouth-to-mouth. Get medical attention.

**If in Eyes:** Flush eyes with plenty of water. Call a physician if irritation persists.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

|                             |  |
|-----------------------------|--|
| <b>General Hazard:</b>      | Ulexite is not flammable, combustible, or explosive. Borates present no unusual hazards when involved in a fire. This product is an inherent fire retardant. |
| <b>UEL/LEL:</b>             | Not Applicable   |
| <b>Flash Point:</b>         | Not Applicable   |
| <b>Auto-ignition:</b>       | Not Applicable   |
| <b>Flammability:</b>        | Non-flammable solid.   |
| <b>Class:</b>               | Flammability Classification (29 CFR 1910.1200)   |
| <b>Extinguishing Media:</b> | Any fire extinguishing media may be used on nearby fires.  |

|                    |          |                |              |              |
|--------------------|----------|----------------|--------------|--------------|
| <b>NFPA Rating</b> | Health 0 | Flammability 0 | Reactivity 0 | Phys Haz N/A |
|--------------------|----------|----------------|--------------|--------------|

## Section 6 - Accidental Release Measures

### ENVIRONMENTAL HAZARD:

|   |   |
|---|---|
| <b>Personal Precautions:</b>                | Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.  |
| <b>Environmental Precautions:</b>           | Should not be released into the environment.  |
| <b>Methods for Containment and Clean Up</b> | Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.<br><br>Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. |

## Section 7 - Handling and Storage

**[It is a violation of Federal Law to use this product in a manner inconsistent with its labeling]**

|                                |  |
|--------------------------------|--|
| <b>Caution:</b>                | <b>Keep out of Reach of Children</b>   |
| <b>Hygienic Practices:</b>     | Wash hands thoroughly with soap and water after handling, and before eating, drinking, or smoking.   |
| <b>Storage &amp; Disposal:</b> | No special storage or handling procedures are required for this material. However, for any query contact local authority and State Water Board or Regional Office of the EPA for guidance. |
| <b>Container Disposal:</b>     | There is no special requirement for this product. However, for disposal of empty bags and containers observe all Federal, state and local regulations.                                     |

**FORMULATORS AND REPACKAGERS USING THIS PRODUCT ARE RESPONSIBLE FOR OBTAINING ENVIRONMENTAL PROTECTION AGENCY (EPA) REGISTRATION FOR THEIR PRODUCTS.** [Refer to PR Notice 95-1 for the applicability of the *Environmental Hazards* statement to your product]

This product is a soluble mineral powder which may be used for the formulation of products for the following **registered end-use patterns**:

- i. Algaecides for water treatment in swimming pools.
- ii. Bacteriostats for use in impregnating or otherwise applying to absorbent material(s) to inhibit the growth of odor-causing bacteria when applied at a rate of 0.015 to 0.37% w/w (approximately) equivalent boron.
- iii. Insecticides for mop, spot and crack and crevice treatment in homes, residential, industrial, institutional and commercial buildings and in transportation equipment.
- iv. Insecticide/fungicide for wood treatment.

## Section 8 - Exposure Controls, Personal Protection

### **Personal protection:**

|                               |   |
|-------------------------------|---|
| <b>Respiratory Protection</b> | : Not required unless there is heavy dust occurrence in which case a protective mask is recommended. As per OSHA for sodium tetraborate dusts TWA limit is 5mg/m <sup>3</sup> |
| <b>Skin Protection</b>        | : Use of gloves recommended.  |
| <b>Eye Protection</b>         | : Safety goggles recommended in dusty areas.  |

|                                       |   |
|---------------------------------------|---|
| <b>Other Information</b>              | : Not absorbed when in contact with healthy skin or eye. Wash with plenty of water.   |
| <b>Engineering Controls:</b>          | General dilution ventilation and/or local exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits. Dust collection systems may be necessary in some operations.   |
| <b>Eye Protection:</b>                | Use goggles or vented safety glasses in excessively dusty conditions.   |
| <b>Skin Protection:</b>               | (Not required under normal conditions.) Use protection if excessively dusty or if skin is damaged.  |
| <b>Respiratory Protection:</b>        | Use appropriate NIOSH/MSHA certified respirators when levels are expected to exceed exposure limits (see Section 15).   |
| <b>Personal Protective Equipment:</b> |   |
| <b>Eyes:</b>                          | Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.   |
| <b>Skin:</b>                          | Wear appropriate protective gloves to prevent skin exposure.  |
| <b>Clothing:</b>                      | Wear appropriate protective clothing to prevent skin exposure.  |
| <b>Respirators:</b>                   | A respiratory protection program that meets OSHA's 29 CFR §1910.134 must be followed whenever workplace conditions warrant a respirator's use. Occupational Exposure Limits: Ulexite is listed/regulated by OSHA, Cal OSHA and ACGIH as "Particulate Not Otherwise Classified" or Nuisance Dust. OSHA-PEL: 15 mg/m <sup>3</sup> total dust; and 5 mg/m <sup>3</sup> respirable dust<br>ACGIH-TLV: -10 mg/m <sup>3</sup> Cal OSHA-PEL: -10 mg/m <sup>3</sup> |

## Section 9 - Physical and Chemical Properties

|                            |  |
|----------------------------|--|
| <b>Appearance</b>          | : White granular, ground or powder forms   |
| <b>Odor</b>                | : Odorless   |
| <b>pH</b>                  | : 9.2  |
| <b>Boiling point</b>       | : Not applicable   |
| <b>Freezing point</b>      | : Not applicable.  |
| <b>Melting point</b>       | : 870°C  |
| <b>Vapor Pressure</b>      | : Not applicable.  |
| <b>Bulk density</b>        | : 1410-1500 kg/m <sup>3</sup>  |
| <b>Solubility in water</b> | : 7.6 g/l (25°C)   |
| <b>Chemical formula</b>    | : NaCaB <sub>5</sub> O <sub>9</sub> .8H <sub>2</sub> O (Na <sub>2</sub> O.2CaO.5B <sub>2</sub> O <sub>3</sub> .16H <sub>2</sub> O) |

## Section 10 - Stability and Reactivity

- Stability** : Stable under ordinary conditions of use and storage.
- Incompatible Materials and Conditions to avoid** : None.
- Hazardous Decomposition Products** : None.
- Hazardous Polymerization** : Will not occur.
- Thermal Decomposition** : When heated above 59°C in the oven, it starts losing water of hydration. On continued heating, dehydration proceeds until all the water is removed at around 450°C.

## Section 11 - Toxicological Information

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 5,000 mg/kg of body weight.

- EYES:** Long occupational exposure history indicates no human eye injury from exposure to Ulexite.
- SKIN:** Not known as a skin irritant. As per the data on other pure form of borates, Ulexite must be of very low acute dermal toxicity; LD50 for rabbits is expected to be >> 2,000 mg/kg of body weight (test conducted per 16 CFR 1500.41). Boron Oxide is not absorbed through intact skin.
- INHALATION:** Not tested. Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposure to Boron Oxide and Sodium Borate dust (See Section 4 also). Occasional mild irritation effects to nose and throat may occur from inhalation of Ulexite dusts at levels greater than 10mg/me).
- INGESTION:** Low acute oral toxicity; LD50 for Sprague-Dawley rats is Expected to be >>4000 mg/kg of body weight.

**CARCINOGENICITY:**

Ulexite, being a derivative of Boric acid, is not listed as a carcinogen by the Environmental Protection Agency (EPA), the State of California, or the International Agency for Research on Cancer (IARC). A report issued by the National Toxicology Program showed "no evidence of carcinogenicity" from a full two-year bioassay on Boron Oxide on mice at feed doses of 2,500 to 5,000 ppm in the diet. No mutagenic activity was observed for Boron Oxide in a recent battery of four 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:**

Ulexite has a very low level of arsenic sulfide content (<50ppm). However, awareness on Arsenic toxicity is important to know. Toxicity of arsenic ranges from very low to extremely high depending on chemical state. Metallic arsenic and arsenious sulfide have low toxicity; arsine, a gas, is extremely toxic. The toxicity of other organic and inorganic arsenic compounds varies. Although metallic arsenic and arsenic sulfides 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.

## Section 12 - Ecological 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 fertilizers used in boron deficient soils. However concentrations as low as 1 ppm boron could be critical for sensitive plants (lemon. etc.) and 10 ppm 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 53 mg B/l.

However, it must be remembered, large excess of Ulexite can be harmful to boron-sensitive plants and other ecological systems.

**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 447 mg 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

## Section 13 - Disposal Considerations

**Danger Class DOT/ADR/RID** : Non-hazardous material.

## Section 14 - Transport Information

**DOT 49 CFR**

Not regulated as hazardous.

**TDG**

Not regulated as hazardous

**IMDG**

Not regulated as hazardous

**IATA**

Not regulated as hazardous



## Section 15 - Regulatory Information

### US Regulations:

**TSCA:** Ulexite CAS#1319-33-1 is listed on the TSCA inventory.  
**RCRA (40CFR 261):** None listed under any section.  
**CERCLA (SUPERFUND):** None listed under any section.  
**Health & Safety Reporting List:** Not on the Health & Safety Reporting List.

**Chemical Test Rules:** Not under a Chemical Test Rule.

**TSCA 12(b)** Chemical Weapons Convention: TSCA 12(b): No

**CDTA:** No

**SARA 311/312:** Fire: No Pressure: No  
Reactivity: No (Mixture / Solid)

**TSCA Significant New Use Rule:**Not a SNUR under TSCA.

**SARA Section 302 (RQ):** None of the chemicals in this material have an RQ.

**Section 302 (TPQ):** None of the chemicals in this product have a TPQ.

**SARA Codes:** CAS # 1319-33-1:  
**Section 313** No chemicals are reportable under Section 313.  
**Clean Air Act:** This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletery substance. This material does not contain any Class 2 Ozone depletery substance.

**Clean Water Act:** Ulexite is not regulated by any water quality criteria under Section 304, is not listed as priority pollutant under Section 307, and is not listed as a hazardous substance under Section 311.

**SAFE DRINKING WATER ACT:** Not regulated under SDWA, 42 USC 300g-1, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories involving boron.

**OCCUPATIONAL EXPOSURE LIMITS:** Ulexite is listed/regulated by OSHA, CAL OSHA, or ACGIH as "Particulate Not Otherwise classified" or "Nuisance Dust".

**OSHA:** OSHA-PEL: 15 mg/m<sup>3</sup> total dust & 5 mg/m<sup>3</sup> respirable Dust.

**ACGIH:** ACGIH-TLV: -10 mg/m<sup>3</sup>

**CALIFORNIA OSHA: STATE:** Cal OSHA-PEL: -10 mg/m<sup>3</sup>  
CAS# 1319-33-1 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts. California No Significant Risk Level: None of the chemicals in this product are listed.

**Other Regulations:**

**Canada:** CAS#1319-33-1 is listed on Canada's DSL List. This is not a WHMIS regulated product.

**Exposure Limits**  
CAS#1319-33-1 :

OEL-AUSTRALIA:NA  
OEL-BELGIUM:NA  
OEL-DENMARK:NA  
OEL-FRANCE:NA  
OEL-THE NETHERLANDS:NA  
OEL-SWEDEN:NA  
OEL-SWITZERLAND:NA  
OEL-UNITED KINGDOM:NA  
OEL IN BULGARIA, COLOMBIA, KOREA, NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV

**INTERNATIONAL AGENCY for CANCER RESEARCH:** Not listed as a carcinogen.  
**NTP ANNUAL REPORT ON CARCINOGENS:** Not listed as a carcinogen.  
**OSHA CARCINOGEN:** Not listed as an OSHA carcinogen.

**CONEG MODEL LEGISLATION:** Meets all CONEG requirements relating to heavy metal limitations on components of packaging materials.

**CALIFORNIA PROPOSITION 65:** Not listed as carcinogen or reproductive toxin.

**FEDERAL DRUG AGENCY (FDA):** NA

**WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEMS (WHMIS):** NA

## Section 16 - Additional Information

### OTHER INFORMATION:

**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.

### National Fire Protection Association (NFPA) Classification:

4 = Severe, 3 = Serious, 2 = Moderate, 1 = Slight, 0 = Minimal

Health 0  
Flammability 0  
Reactivity 0

### Hazardous Materials Information Systems (HMIS):

4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Insignificant

Blue: (Acute Health) 0  
Red: (Flammability) 0  
Yellow: (Reactivity) 0

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Version: 2.1  
Date of Version: August 8, 2018