AMERICAN BORATE COMPANY
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Safety Data Sheet - Colemanite

SECTION 1. Identification

1.1. Product identifier

Colemanite

CAS 1318-33-8
Trade name Ground Colemanite
Chemical names/Synonyms Calcium borate, di-calcium hexaborate pentahydrate, calcined colemanite, ground colemanite)

REACH Registration No: Exempt from registration under REACH Regulation according to Article 2(7) (b).Colemanite is a natural occurring mineral which is not chemically modified, therefore, considered within the scope of Annex V (7) of the REACH Regulation.

1.2. Details of the supplier of the safety data sheet
Supplier name: American Borate Company
Address: 5701 Cleveland Street, Suite 350, Virginia Beach, VA 23462
Phone No: (757) 490-2242 or (800)-486-1072

1.3. Emergency phone numbers:
Monday through Friday 8am – 5pm EST: (757) 490-2242 or (800) 486-1072
After 5pm and weekends: CHEMTREC 1-800-424-9300

1.4. Relevant identified uses of the substance and uses advised against

Textile grade fiberglass	Boron alloys
Metallurgical fluxing	Borosilicate glass

There is no specified use advised against.

SECTION 2. Hazard Identification

2.1. Classification of the substance
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
No classification.

2.2. Label elements
None.

2.3. Other hazards
None.

SECTION 3. Composition/ Information on Ingredients

3.1. Substances
Colemanite is a mono-constituent substance and the main constituent is Colemanite (Di-calcium Hexaborate Pentahydrate)

Common Name	Chemical Name	CAS No:	Wt. %
Colemanite	Di-calcium Hexaborate Pentahydrate	1318-33-8	78.00-80.00
Calcite	Calcium Carbonate	1317-65-3	8.00-12.00
Dolomite	Calcium Magnesium Carbonate	16389-88-1	2.00-3.00

Clay	-	-	6.00-8.00

SECTION 4. First-aid Measures

4.1. Description of first aid measures
General advice
Move out of dangerous area. Seek medical attention. Show this safety data sheet to the doctor in attendance.

Skin contact
Wash with soap and water. Seek medical attention.

Eye contact
As with any chemical exposure to the eye, flush eyes with water for at least 20 minutes. Seek medical attention.

Inhalation
If symptoms such as nose or throat irritation are observed, remove person to fresh air. If not breathing, give artificial respiration. Seek medical attention.

Ingestion
If large amounts are swallowed (i.e. more than one teaspoon), give two glasses of water or milk to drink and seek medical attention. Never give anything by mouth to an unconscious person.

Notes for the doctor
Treat symptomatically.

SECTION 5. Fire-fighting Measures Identification

5.1. Suitable extinguishing media
Use fire extinguishing media suitable for surrounding fires.

5.2. Specific hazards arising from the chemical
None, colemanite is non-flammable, combustible or explosive. The product is itself a flame retardant.

5.3. Special protective actions for fire-fighters
Firefighters should wear pressure demand, self-contained breathing apparatus and full turn-out gear.

SECTION 6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing dust. In case of exposure to prolonged or high level of airborne dust, wear a personal respirator in compliance with national legislation.

6.2. Environmental precautions
Colemanite is somewhat water-soluble and may, at high concentrations cause damage to trees or vegetation by root absorption (see section 12). Do not flush to drains.

6.3. Methods and materials for containment and cleaning up

Land spill
Vacuum, shovel or sweep up colemanite and place in containers for disposal in accordance with applicable local, state, and federal laws and regulations. Avoid contamination of water bodies during clean up and disposal. Avoid breathing dust.

Spillage into water
Where possible, remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron value to its normal environmental background level (see sections 12, 13 and 15).

6.4. Reference to other sections
See sections 8 and 13 for further information.

SECTION 7. Handling and Storage

7.1. Precautions for safe handling
To maintain package integrity and to minimize caking of the product, bags should be handled on a first-in first out basis. Good housekeeping and dust prevention procedures should be followed to minimize dust generation and accumulation. Use with appropriate local exhaust ventilation. The product should be kept away from strong reducing agents. Apply above handling advice when mixing with other substances.

7.2. Conditions for safe storage
Keep containers closed and store indoors in a dry well ventilated location.
Provide appropriate ventilation and store bags such as to prevent any accidental damage.

7.3. Specific end use
See section 1.4.

SECTION 8. Exposure Controls/Personal Protection

8.1. Control parameters
Occupational exposure limits;

OSHA-PEL*:	15 mg/m^3 total dust
	5 mg/m^3 respirable dust
Cal OSHA-PEL*:	10 mg/m^3

Biological limit values;
Currently, there is no Biological Limit Value (BLV) determined for this substance.
*OSHA PELs are based on an 8-hour time weighted average (TWA) exposure.
For the equivalent limits in other countries, please consult the local regulatory authority.

8.2. Exposure controls

8.2.1. Appropriate engineering controls
Provide general or local exhaust ventilation systems to maintain airborne concentrations of colemanite dust below specific 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.

8.2.2. Individual protection measures, such as personal protective equipment
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eyes and hand protection
Handle with gloves. Wear eye protection suitable for job tasks.

8.2.3. Environmental exposure controls
No special requirements (See section 6).

SECTION 9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance:	light grey, ground powder
Odor:	odorless
Odor threshold:	No data available
pH:	No data available
Melting point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	Not flammable
Evaporation rate:	No data available
Flammability (solid, gas):	Not flammable

Upper/lower flammability or explosive limits:	Not applicable
Vapor pressure:	Not applicable
Vapor density:	Not applicable
Relative density:	No data available
Solubility in water:	Low solubility
Partition coefficient: n-octanol/water:	No data available
Auto-Ignition temperature:	Not flammable
Decomposition temperature:	Dehydration begins at 105°C.
Viscosity:	Not applicable
Explosion properties:	Not explosive
Oxidizing properties:	Not applicable

9.2. Other information

Bulk Density: 62.43 lbs/ft^3 (1 ton/m^3 max)

SECTION 10. Stability and Reactivity

10.1. Reactivity

Colemanite is a stable product, but when heated it can dehydrate.

10.2. Chemical stability

Colemanite is stable at room temperature under normal storage and handling conditions.

10.3. Possibility of hazardous reactions

No known hazardous reactions

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10.4. Conditions to avoid

Avoid excessive heat, direct sunlight, generating dust, moisture, static discharges and high temperatures (See section 7).

10.5. Incompatible materials

Incompatible with oxidizing agents, acids, reducing agents and sources of ignition. Reaction with strong reducing agents such as metal hydrides will generate hydrogen gas which could create an explosive hazard.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11. Toxicological Information

11.1. Information on toxicological effects

Colemanite does not meet the criteria for classification as hazardous according to 29 CFR 1910. Exempt from REACH registration in accordance with Annex V.7. A hazard assessment has been conducted by “Cambridge Environmental Assessments - ADAS” and the outcome was that colemanite is not a hazardous substance.

Acute toxicity	Oral	No data available.
	Dermal	No data available.
	Inhalation	No data available.

Classification for acute toxicity is not warranted.

Skin corrosion /irritation	No data available.

Classification for irritation/corrosion is not warranted.

Serious eye damage /irritation	No data available.

Classification is not warranted.

Respiratory or skin sensitization	No data available.

Colemanite is considered not to be a skin sensitizer based on experience in handling and low absorption through the skin. Classification for sensitization is not warranted.

Mutagenicity	in-vitro Mutagenicity	No data available.
	In-vivo Mutagenicity	No data available.
	Germ cell mutagenicity	No data available.

Classification for mutagenicity is not warranted

Carcinogenicity	No data available.

Classification for carcinogenicity is not warranted.

Reproductive toxicity	Fertility	No data available.
	Developmental toxicity	No data available.

Classification for reproductive toxicity is not warranted

STOT – single exposure	No data available.

Classification for specific target organ toxicity is not warranted.

STOT – repeated exposure	No data available.

Classification for specific target organ toxicity is not warranted.

Aspiration hazard based on available data, the classification criteria are not met.

SECTION 12. Ecological Information

No data is available for colemanite. Therefore **ecotoxicity data of boron are provided.**

12.1. Toxicity
Phytotoxicity: Although boron is an essential micronutrient for healthy growth of plants, it can be harmful to boron-sensitive plants in higher quantities. Care should be taken to minimize the amount of colemanite released to the environment.

Fish Toxicity:
Rainbow Trout (S.gairdneri)
24 day LC_{50} = 150.0 mg/B/L — 36 day NOEC-LOEC = 0.75-1 mg/B/L
Goldfish (Carassius auratus)
3 Day LC_{50} = 178 mg B/L — 7 day NOEC = 26.50 mg/B/L

Invertebrate toxicity:
The acute toxicity (LC_{50}) to *Daphnia magna* Straus in natural water is reported to be 133 mg B/L (48 h).
Chronic toxicity (21-day NOEC-LOEC) is reported to be 6-13 mg B/L.

12.2. Persistence and degradability
Boron is naturally occurring and ubiquitous in the environment.

12.3. Bioaccumulative potential
Boron is a naturally occurring element. Boron does not accumulate up the food chain. It is not expected to bioconcentrate in fish.

12.4. Mobility in soil
Colemanite is moderately soluble in water and will leach through the soil at very slow rate.

12.5. Results of PBT and vPvB assessment
According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6. Other adverse effects No specific adverse effects known.

SECTION 13. Disposal Considerations

13.1. Disposal methods

Dispose of in accordance with all local, state, and federal regulations. Contact a licensed waste disposal service to dispose of this material. Surplus product should, if possible, be used for an appropriate application.

SECTION 14. Transport Information

US DOT
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

SECTION 15. Regulatory Information

15.1. Safety health and environmental regulations/legislation specific for the substance: Ground colemanite is a naturally occurring mineral.

15.2. Chemical Safety Assessment:
Exempt from REACH registration in accordance with Annex V.7. A hazard assessment has been conducted by "Cambridge Environmental Assessments - ADAS" and the outcome was that ground colemanite is not a hazardous substance. Therefore, in absence of identified hazard, the substance is safe and presents no risk.
REACH Registration No: Exempt from registration under REACH Regulation according to Article 2(7)(b). Ground colemanite is a natural occurring mineral which is not chemically modified, therefore, considered within the scope of Annex V (7) of the REACH Regulation.

SECTION 16. Other Information

Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

Key literature references and sources for data:

1. ECOTOX: http://www.epa.gov/ecotox
2. TOXNET: http://www.toxnet.nlm.nih.gov
3. Stewart KR (1991), Salmonella/microsome plate incorporation assay of boric acid. Testing laboratory: SRI International. Report No.:2389-A200-91. Owner company: U.S. Borax. Report date: 1991-08-12.
4. O'Loughlin KG (1991), Bone marrow erythrocyte micronucleus assay of boric acid in Swiss Webster Mice. Testing laboratory: SRI International. Report No.:2389-C400-91. Owner company: U.S. Borax. Report date: 1991-08-19.
5. NTP (1987), Toxicology and carcinogenesis studies of boric acid in B6C3F1 Mice (feed studies). National Toxicology Program (NTP) Technical Report Series: No. 324. Testing laboratory: US Department of Health and Human Services.
6. Weir RJ (1966c), Three generation reproductive study – rats. Boric acid. Final report. Testing laboratory: Hazleton Laboratories Inc. Report No.: TX-66-16.
7. Weir RJ and Fisher RS (1972), Toxicologic studies on borax and boric acid. Toxicology and Applied Pharmacology 23:351-364.
8. Duydu Y, Başaran N, Ustundağ A, Aydın S, Undeğer U, Ataman OY, Aydos A, Duker Y, Ickstadt K,Waltrup BS, Golka K, Bolt HM (2011), Reproductive toxicity parameters and biological monitoring in occupationally and environmentally boron-exposed persons in Bandırma, Turkey. Arch Toxicol 85:589-600.
9. Duydu Y, Başaran N, Ustundağ A, Aydın S, Undeğer U, Ataman OY, Aydos A, Duker Y, Ickstadt K,Waltrup BS, Golka K, Bolt HM (2011), Assessment of DNA integrity (COMET) in sperm cells of boron-exposed workers. Arch Toxicol 86:27-35.

10. Godfrey P (2011), Data Search, Chemical Hazard Assessment and Preparation of CLP Notification on Colemanite for ETI MINE SA. Cambride Environmental Assessments – ADAS, Report Number CEA 602/2.
11. Robbins WA, Xun L, Jia J, Kennedy N, Elashoff D, Ping L (2010), Chronic boron exposure and human semen parameters, Repr Tox 29(2):184-90.
12. U.S. Environmental Protection Agency, Toxicological review of boron and compounds, EPA 635/04/052, June 2004.

16.4. Disclaimer of Liability

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