

Safety Data Sheet

Ulexite

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: Ulexite
Alternate Names: Calcium Sodium Borate Octahydrate, Micro-Ulex 36, **QB-10**
Material Uses: Industrial Usage in Oil Wells, Micronutrient for plants
Manufactured For: Quality Borate Company
Street Address: 3690 Orange Place, #495
 Cleveland, OH 44122
Telephone Number 866-267-2837
Fax: 216-292-1033
Emergency Telephone 216-896-1949

2. HAZARDS IDENTIFICATION

Classification: No classification in accordance with ECHA Entry 7 & 8 and 29 CFR1910 (OSHA HCS)
Label Elements: None

CAUTION

Hazard Warnings: May be harmful if swallowed. May cause mild respiratory irritation from inhaling high concentrations of dust. Avoid eye contact.

Precautionary Statements: Obtain special Instructions before use If exposed or concerned, get medical advice/attention Do not handle until all safety precautions have been read and understood. Wear protective gloves, eye protection. Dispose of contents/container to comply with local, state and federal regulations.

Overview: Ulexite is considered to be a non-hazardous material. and it has not been tested for detailed occupational and toxicological studies. Ulexite presents little or no hazard to humans and has low acute oral and dermal toxicities. Ulexite is a white odorless, granular substance that is not flammable, combustible, or explosive.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name	Chemical Name	CAS#	%
Ulexite	Sodium-calcium Pentaborate octahydrate	1319-33-1	72-90
Calcite-Dolomite	Dolomitic Limestone	16389-88-1	5-16
Colmanite	Di-Calcium Hexaborate Pentahydrate	12291-65-5	3-10
Moisture	Water	7732-18-5	5-8
Realgar, Orpiment	Arsenic sulfide and Arsenic Trisulfide	12044-30-3, 12255-89-9	50 ppm

4. FIRST AID MEASURES

Inhalation: No specific treatment is necessary since Ulexite is not likely to be hazardous by inhalation. Prolonged exposure to dust levels in excess of regulatory limits should always be avoided.

Eye Contact: Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.

Skin Contact: Wash with soap and water. Ulexite does not cause irritation to intact skin.

Ingestion: Swallowing less than one teaspoon will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention.

NOTE TO PHYSICIANS: Observation only is required for adult ingestion of less than 6 grams of Ulexite (one spoonful). For ingestion in excess of 6 grams, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Ulexite analyses of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment.¹

5. FIRE-FIGHTING MEASURES

Hazards from Combustion Products: None, because Ulexite is not flammable, combustible or explosive.

Suitable Extinguishing Media: Any fire extinguishing media may be used on nearby fires.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures: Ventilate area of spill. Wear appropriate personal protective equipment (see Sec. 8). Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Methods and materials for Containment and Clean Up: Contain and recover material when possible. Pick up and lace into a suitable container for reclamation or disposal using a method that does not generate dust. Do not flush to sewer. No PPE is needed to clean up land spills.

7. HANDLING AND STORAGE

Conditions for safe storage: Keep in a closed container at cold to warm conditions. Protect against physical damage. Store in Paper/Plastic, Carbon steel or aluminum. Follow sound cleaning practices that will keep airborne particulates at a low level.

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Precautions for Safe Handling: Wash hands after handling this material. Avoid contact when skin is cut or abraded. Good housekeeping procedures should be followed to minimize dust generation.

General: Though Ulexite does not require any special precautions, it is sensitive to moisture and may cake.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits: Ulexite is listed/regulated by OSHA, CA OSHA and ACGIH as “Particulate Not otherwise Classified” or “Nuisance Dust”. OSHA PEL: 15 mg/m³ total dust and 5 mg/m³ respirable dust. ADGIH TLV: 10 mg/m³. Wear a personal respirator. For eye and hand protection in very dusty environments, wear goggles and gloves.

Ventilation System: A system of local and/or general exhaust should be used to keep employee exposures below the Airborne Exposure Limits. Local ventilation is preferred because it will control emissions of the contaminant at its source and prevents dispersion into general work areas. (Refer to ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices.*)

Personal Respirators (NIOSH Approved) When exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. For emergencies where exposure levels are not known, use a full-face positive-pressure, air supplied respirator.

Engineering controls: Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. If inhalation risk exists: Use with local exhaust ventilation or while wearing dust mask. Keep containers closed when not in use.

Personal Protective Equipment:

Quality Borate Co. PPE requires: OVERALLS, SAFETY SHOES, SAFETY GLASSES, DUST MASK;

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White granular, ground or powder form		
Upper/Lower Flammability	NA		
Odor:	Odorless	Vapor Pressure:	Not Applicable
Odor threshold:	NA	Bulk Density:	1410-1500 kg/m ³
pH	9.2	Relative Density:	23-32 lbs/ft ³
Melting/Freeze Point	870oC		(Loose-Tapped)
Boiling Point	Not applicable	Solubility in water:	7.6 g/l (25oC)
Flash Point	None	Partition Coefficient	NA
Evaporation rate	NA	Autoignition Temperature	NA
Flammability:	NA	Decomposition Temperature	NA
Chemical Formula:	NaCaB5O9.8H2O (Na2O.2CaO.5B2O3.16H2O)		

10. STABILITY AND REACTIVITY

Chemical Stability: Ulexite is a stable product.

Incompatible Materials: Reaction with strong reducing agents such as metal hydrides will generate hydrogen gas which could create an explosive hazard.

11. TOXICOLOGICAL INFORMATION

No adverse health effects are expected if the product is handled in accordance with this Safety Data Sheet and the Product label.

Ingestion (Acute Oral Toxicity): Low acute oral toxicity; LD 50 in rats is 3200-3400 mg/kg of body weight.

Skin (Acute Dermal Toxicity): Low acute dermal toxicity; LD50 in rabbits is greater than 2000 mg/kg of body weight. Ulexite is not absorbed through intact skin.

Primary Skin Irritation Index: 0 (zero) Ulexite is non-corrosive.

Eye: Draize test in rabbits produced mild eye irritation effects. Fifty years of occupational exposure history show no indication of human eye injury from exposure to Ulexite.

NOTE: Ulexite is chemically and toxicologically related to Boric Acid; the majority of the borate chronic toxicology studies were conducted using Boric Acid. Ulexite is converted to Boric Acid in biological systems. The Boric Acid data discussed in this section can be converted to Ulexite equivalent data by dividing by a factor of 0.768.

Inhalation: Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposure to Boric Acid dust.

Carcinogenicity: A Technical Report issued by the National Toxicology Program showed “no evidence of carcinogenicity” from a full 2 year bioassay on Boric Acid.

Ulexite is listed/regulated by OSHA, Cal OSHA and ACGIH as “Particulate Not Otherwise Classified” or “Nuisance Dust.”

*	OSHA:PEL	15 mg/m ³ total dust 5 mg/m ³ respirable dust
*	ACGIH:TIV	10 mg/m ³
*	Cal OSHA:PEL	10 mg/me ³
*	PEL=	“Permissible Exposure Limit”
*	TLV=	“Threshold Limit Value”

Boric Acid in mice at feed doses of 2500 and 5000 ppm in the diet. No mutagenic activity was observed for Boric Acid in a recent battery of four short-term mutagenicity assays.

Reproductive Toxicity: Dietary Boric Acid levels of 6,700 ppm in chronic feeding studies in rats and dogs produced testicular atrophy, while dogs and cats receiving 2000 ppm did not develop testicular changes¹.

In chronic feeding studies of mice on diets containing 5000 ppm (550 mg/kg/d) Boric Acid. Testicular atrophy was present, while mice fed 2500 ppm (275 mg/kg/d) Boric Acid showed no significant increase in testicular atrophy². In a reproduction study on rats, 2000 ppm of dietary Boric Acid had no adverse effect on lactation, litter size, weight and appearance¹. In a continuous breeding study in mice there was a reduction in fertility rates for males receiving 4500 ppm (636 mg/kg/d) Boric Acid but not for females receiving 4500 ppm Boric Acid³.

Developmental Toxicity: Boric Acid at dietary levels of 1000 ppm (78 mg/kg/d) administered to pregnant female rats throughout gestation caused a slight reduction in fetal weight but was considered to be close to the NOAEL. Doses of 2000 ppm (163 mg/kg/d) and above caused fetal malformation and maternal toxicity. In mice the no effect level for fetal weight reduction and maternal toxicity was 1000 ppm (248 mg/kg/d) Boric Acid. Fetal weight loss was noted at dietary Boric Acid levels of 2000 ppm (452 mg/kg/d) and above.

Reproductive/Developmental: Long-term, high dose animal ingestion studies have demonstrated reproductive effects in male animals. A human study of occupational exposure to borate dust showed no adverse effect to reproduction: High dose animal ingestion studies have demonstrated developmental effects in fetuses of pregnant animals, including fetal weight loss. Malformations (agenesis) or shortening of the thirteenth rib were seen at 4000 ppm (1003mg/kg/d).⁴

12. ECOLOGICAL INFORMATION

Ecotoxicity: Avoid contaminating waterways. Boron occurs naturally in sea water at an average concentration of 5 mgB/l and fresh water at 1 mg/l or less.

Phytotoxicity: B is an essential micronutrient for healthy growth of plants. It can be harmful at higher quantities. Care should be taken to minimize the amount of B released to the environment.

Environmental Fate Data: Boron is naturally occurring and ubiquitous in the environment. This product decomposes in the environment to natural borate (B₂O₃).

Soil Mobility: This product is soluble in water and is leachable through normal soil

13. DISPOSAL CONSIDERATIONS

Disposal methods: Small quantities of Ulexite can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements.

Ulexite is not listed under any sections of the Federal Resource Conservation and Recovery Act (RCRA).

14. TRANSPORT INFORMATION

Road and Rail Transport: Not classified as Dangerous Goods by the DOT (USA) for transport by Road and Rail; NON-DANGEROUS GOODS.

Marine Transport: Not classified as Dangerous Good by the criteria of the International Maritime Dangerous Goods Code (IMDG) for transport by sea. NON-DANGEROUS GOODS

Air Transport: Not classified as Dangerous Goods by the criteria of International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

15. REGULATORY INFORMATION

Classification: Ulexite is slightly toxic according to the USA EPA and must be labeled with "Caution".

Hazard Category: Low Toxicity

Clean Air Act (Montreal Protocol) Ulexite was not manufactured with and does not contain any Class I or lass II ozone depleting substances.

Chemical Inventory Listings: US EPA TSCA: 1303-96-4 Canadian DSL: 1303-96-4
Einecs: 215-540-4 South Korea: 9212-848
Japanese MITI: (1)-69

RCRA: Ulexite is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act (RCRA) or regulations (40 CFR 261 *et seq*).

Superfund: CERCLA/SARA. Ulexite is not listed under CERCLA or its 1986 Amendments, SARA, including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 111023, 40 CFR 372.65, Section 302 of SARA, Extremely Hazardous Substances, 42 USC 11002, 40 CFR 355, or the CERCLA Hazardous Substances list, 42 USC 9604, 40 CFR 302.

Safe Drinking Water Act (SDWA): Ulexite is not regulated under the SDWA, 42 USC 300g-1, 40CFR 141 *et seq*. Consult state and local regulations for possible water quality advisories regarding boron compounds.

Clean Water Act (CWA) (Federal Water Pollution Control Act): 33 USC 1251 *et seq*.

a) Ulexite is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33 USC 1314.

b. It is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 129.

c. It is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116.

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Canadian Drinking Water Guideline: An "Interim Maximum Acceptable Concentration" (IMAC) for boron is currently set at 5 mg B/L.

IARC: The international Agency for Research on Cancer (IARC) (a unit of the world Health Organization) does not list or categorize Boric Acid as a carcinogen.

NTP Biennial Report on Carcinogens: Ulexite is not listed.

OSHA Carcinogen: Ulexite is not listed.

Safety Phrase(s): May be harmful if swallowed. May cause reproductive harm or birth defects Based on animal data. Avoid contamination of feed. Not for food, drug, or pesticide use. Refer to SDS. Label with "KEEP OUT OF REACH OF CHILDREN."

Reason for re-issuance: Global Harmonization under the sponsorship of the United Nations.

References:

¹Weir, R.J. and Fisher, R.S., Toxicol. Appl., Pharmacol., 23:351-364 (1972).

² National Toxicology Program (NTP)- Technical Report Series No. TR324, NIH Publication No. 88-2580 (1987), PB-88-213475/XAB.

³ Fail et al., Fund. Appl. Toxicol. 17, 225-239 (1991).

⁴ Heindel, et.al., Fund.Appl. Toxicol. 18, 266-277 (1992)