1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: Granulated QB-10, Ulexite, Granulated Ulexite, Micro-Ulex 36
Synonyms: Calcium Sodium Borate Octahydrate
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

Signal Word: Warning

Ulexite is considered to be a non-hazardous material and it has not been tested for detailed occupational and toxicological studies. 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.

Hazard Statements: May be harmful if swallowed. May cause mild respiratory irritation from inhaling high concentrations of dust. Avoid eye contact and prolonged skin 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: QB-10 Granulated is a white odorless, granular substance that is not flammable, combustible, or explosive. QB-10 Granulated presents little or no hazard (to humans) and has low acute oral and dermal toxicities. Minimize the amount of QB-10 Granulated released to the environment to avoid ecological effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>2CaO·Na₂O·5B₂O₃·16H₂O</td>
<td>1319-33-1</td>
<td>75%</td>
</tr>
<tr>
<td>Inert rock</td>
<td></td>
<td>25%</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

**Inhalation:** No specific treatment is necessary since QB-10 Granulated 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. QB-10 Granulated 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 QB-10 Granulated (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. QB-10 Granulated 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 QB-10 Granulated 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.

**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 QB-10 Granulated does not require any special precautions, it is sensitive to moisture and may cake.
SAFETY DATA SHEET

QB-10 GRANULATED

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Limits:** QB-10 Granulated is listed/regulated by OSHA, CA OSHA and ACGIH as “Particulate Not otherwise Classified” or “Nuisance Dust”. OHSA 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

- **Color:** Grey-White
- **Odor:** Odorless
- **Molecular Formula:** 2CaO·Na₂O·5B₂O₃·16H₂O
- **Solubility:** Soluble in Water
- **Specific Gravity:** 23 (loose)- 32 (tapped) lbs/ft³ or 370 – 510 Kg/m³
- **Relative Vapor Density (air=1)** N/A
- **Flash Point** None

10. STABILITY AND REACTIVITY

**Chemical Stability:** QB-10 Granulated 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. QB-10 Granulated is not absorbed through intact skin.

Primary Skin Irritation Index: 0 (zero) QB-10 Granulated 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 QB-10 Granulated.

NOTE: QB-10 Granulated is chemically and toxicologically related to Boric Acid; the majority of the borate chronic toxicology studies were conducted using Boric Acid. QB-10 Granulated is converted to Boric Acid in biological systems. The Boric Acid data discussed in this section can be converted to QB-10 Granulated 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.

QB-10 Granulated 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/m$^3$
* 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 changes$^1$.

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 atrophy$^2$. In a reproduction study on rats, 2000 ppm of dietary Boric Acid had no adverse effect on lactation, litter size, weight and appearance$^1$. 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 Acid$^3$.

References:
SAFETY DATA SHEET

QB-10 GRANULATED

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 QB-10 Granulated 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. QB-10 Granulated 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.
15. REGULATORY INFORMATION

Classification: QB-10 Granulated is slightly toxic according to the USA EPA and must be labeled with “Caution”.

Hazard Category: Low Toxicity

Clean Air Act (Montreal Protocol): QB-10 Granulated 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: QB-10 Granulated 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. QB-10 Granulated 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): QB-10 Granulated 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) QB-10 Granulated 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.

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: QB-10 Granulated is not listed.

OSHA Carcinogen: QB-10 Granulated 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.

Issue date 05/01/15