Bentonite

1. Identification

Product identifier          BENTONITE
Synonyms                   Smectite * Bentonite * Bentonite, Sodian * Bentonite, Calcian *
                           Sodium-activated Bentonite * Montmorillonite
Chemical Family            Mineral

Recommended use            Not available.
Recommended restrictions   None known. Workers (and your customers or users in the case of resale)
                           should be informed of the potential presence of respirable dust and respirable
                           crystalline silica as well as their potential hazards. Appropriate training in the
                           proper use and handling of this material should be provided as required under
                           applicable regulations.

Distributor                 American Bentonite International, Inc.
Address                     375 Roma Jean Parkway
                           Streamwood, IL 60107
                           United States
Telephone                   General Information 800.992.2880
Website                     http://www.abiinc.us
Emergency phone number      1.866.519.4752 (US, Canada, Mexico) 1 760 476 3962 Access Code 333562

2. Hazard(s) identification

Physical hazards            Not classified.
Health hazards              Not classified.
Environmental hazards       Not classified.
OSHA defined hazards        Not classified.
Label elements              
                           Hazard symbol          None.
                           Signal word            None.
                           Hazard statement       The substance does not meet the criteria for classification.
                           Precautionary statement
                           Prevention            Observe good industrial hygiene practices.
                           Response              Wash hands after handling.
                           Storage               Store away from incompatible materials.
                           Disposal              Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.
Supplemental information    Not applicable.

3. Composition/ information on ingredients
### Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentonite</td>
<td>Smectite</td>
<td>1302-78-9</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Bentonite, Sodian</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bentonite, Calcian</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sodium-activated Bentonite</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Montmorillonite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Constituents

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALCIUM CARBONATE</td>
<td>471-34-1</td>
<td></td>
</tr>
<tr>
<td>SMECTITE GROUP MINERALS</td>
<td>1318-93-0</td>
<td></td>
</tr>
<tr>
<td>QUARTZ</td>
<td>14808-60-7</td>
<td>&lt;= 8</td>
</tr>
<tr>
<td>CRISTOBALITE</td>
<td>14464-46-1</td>
<td>&lt;= 2</td>
</tr>
</tbody>
</table>

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret. Bentonite is a UVCB substance sub-type 4. The purity of the product is 100% w/w. Bentonite is composed mainly of smectite group minerals but the composition is varied, as expected for a UVCB substance, and other mineral constituents will be present in small and varying amounts. These minor constituents are not relevant for classification and labelling.

**Composition comments**

Occupational Exposure Limits for constituents are listed in Section 8. The purity of the product is 100% w/w. Impurities are not applicable for a UVCB substance.

### 4. First-aid measures

**Inhalation**

If dust from the material is inhaled, remove the affected person immediately to fresh air. Call a physician if symptoms develop or persist. No specific first aid measures noted.

**Skin contact**

Get medical attention if irritation develops and persists. No specific first aid measures noted. Wash skin with soap and water.

**Eye contact**

No specific first aid measures noted. Flush thoroughly with water. If irritation occurs, get medical assistance.

**Ingestion**

No specific first aid measures noted. Rinse mouth thoroughly. Get medical attention if any discomfort occurs.

**Most important symptoms/effects, acute and delayed**

Dust in the eyes will cause irritation.

**Indication of immediate medical attention and special treatment needed**

Provide general supportive measures and treat symptomatically.

**General information**

No hazards which require special first aid measures. Provide general supportive measures and treat symptomatically.

### 5. Fire-fighting measures

Unsuitable extinguishing media: Not applicable, non-combustible.

Specific hazards arising from the chemical: None known. The product itself does not burn.

Special protective equipment and precautions for firefighters: Material can be slippery when wet.

Fire fighting equipment/instructions: In the event of fire, cool tanks with water spray. Material can be slippery when wet.

Specific methods: Cool containers exposed to flames with water until well after the fire is out.

General fire hazards: No unusual fire or explosion hazards noted. This material will not burn.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unnecessary personnel away. Material can be slippery when wet. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Avoid inhalation of dust from the spilled material. For personal protection, see section 8 of the SDS. No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

Methods and materials for containment and cleaning up: If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Sweep up or vacuum up spillage and collect in suitable container for disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. Minimize dust generation and accumulation. Avoid the generation of dusts during clean-up. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container.

Environmental precautions: Prevent further leakage or spillage if safe to do so. No special environmental precautions required.

7. Handling and storage

Precautions for safe handling: Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid breathing dust. Avoid contact with skin and eyes. In case of insufficient ventilation, wear suitable respiratory equipment. Practice good housekeeping.

Conditions for safe storage, including any incompatibilities: No special restrictions on storage with other products. Store in a dry area. Store in original tightly closed container. Keep the container dry. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Guard against dust accumulation of this material.
8. Exposure controls/personal protection

**Occupational exposure limits**

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>INERT OR NUISANCE DUSTS</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

**US. OSHA Table Z-3 (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>INERT OR NUISANCE DUSTS</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 mppcf</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mppcf</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Use tight fitting goggles if dust is generated. Wear dust-resistant safety goggles where there is danger of eye contact.

**Skin protection**

**Hand protection**

No protection is ordinarily required under normal conditions of use.

**Other**

Normal work clothing (long sleeved shirts and long pants) is recommended.

**Respiratory protection**

Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

**Thermal hazards**

Not applicable.

**General hygiene considerations**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Use good industrial hygiene practices in handling this material.

9. Physical and chemical properties

**Appearance**

Lump, granular or fine powder.

**Physical state**

Solid.

**Form**

Powder. Various.

**Color**

Various.

**Odor**

None.

**Odor threshold**

Not applicable.

**pH**

8.5 - 11

**Melting point/freezing point**

> 842 °F (> 450 °C) / Not applicable.

**Initial boiling point and boiling range**

Not applicable.
Flash point: Not applicable.
Evaporation rate: Not available.
Flammability (solid, gas): This product is not flammable.

Upper/lower flammability or explosive limits
- Flammability limit – lower (%): Not applicable.
- Flammability limit – upper (%): Not applicable.
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Vapor pressure: Not applicable.
Vapor density: Not applicable.
Relative density: 2.6 g/cm³

Solubility(ies)
- Solubility (water): < 0.9 mg/l
- Partition coefficient: Not applicable.
- (n-octanol/water): Not applicable.
Auto-ignition temperature: Not applicable.
Decomposition temperature: > 932 °F (> 500 °C)
Viscosity: Not applicable.
Viscosity temperature: Not applicable.

Other information
- Bulk density: 0.9 - 1.4 g/cm³
- Explosive limit: Not applicable.
- Explosive properties: Not explosive
- Explosivity: Not applicable.
- Flame extension: Not applicable.
- Flammability: Not applicable.
- Flammability (flash back): Not applicable.
- Flammability (Heat of combustion): Not applicable.
- Flammability (Train fire): Not applicable.
- Flammability class: Not applicable.
- Flash point class: Not flammable
- Molecular formula: UVCB Substance
- Molecular weight: Not applicable.
- Oxidizing properties: None.
- Percent volatile: 0 %
- pH in aqueous solution: 8.5 - 11
- Specific gravity: Not applicable.
- VOC (Weight %): CARB
  0 %

10. Stability and reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Stable at normal conditions.
Possibility of hazardous reactions: Will not occur.
11. Toxicological information

Information on likely routes of exposure

- **Inhalation**: Inhalation of dusts may cause respiratory irritation.
- **Skin contact**: Not classified.
- **Eye contact**: Dust in the eyes will cause irritation.
- **Ingestion**: Not classified.

Symptoms related to the physical, chemical and toxicological characteristics: None known.

Information on toxicological effects

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENTONITE (CAS 1302-78-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>&gt; 5.27 mg/l, 4 hr OECD 436</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 2000 mg/kg OECD 425</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation: Not classified.

Serious eye damage/eye irritation: Dust in the eyes will cause irritation. Mild irritant to eyes (according to the modified Kay & Calandra criteria).

Respiratory or skin sensitization:
- Respiratory sensitization: Not classified.
- Skin sensitization: Not classified.
- Germ cell mutagenicity: Not classified.

Carcinogenicity:

In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. “There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk...” (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. No carcinogenicity data available for this product. Sepiolite was evaluated by IARC as class 3 ("Cannot
be classified as to carcinogenicity to humans”). Based on read-across with sepiolite, bentonite was assessed as non-carcinogenic. Therefore classification of bentonite for carcinogenicity is not warranted.

Reproductive toxicity
Not classified.

Specific target organ toxicity
Not classified.

Aspiration hazard
Not available.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentonite (CAS 1302-78-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae EC50</td>
<td>Freshwater algae</td>
<td>&gt; 100 mg/l, 72 hours</td>
</tr>
<tr>
<td>Crustacea EC50</td>
<td>Coon stripe shrimp (Pandalus danae)</td>
<td>24.8 mg/l, 96 hours</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Freshwater fish</td>
<td>16000 mg/l, 96 hours</td>
</tr>
<tr>
<td></td>
<td>Marine water fish</td>
<td>2800 - 3200 mg/l, 24 hours</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

Persistence and degradability
Not relevant for inorganic substances

Bioaccumulative potential
Will not bio-accumulate.

Mobility in soil
Bentonite is almost insoluble and thus presents a low mobility in most soils.

Mobility in general
The product has poor water-solubility.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Store containers and offer for recycling of material when in accordance with the local regulations.
14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Not applicable.
Annex II of MARPOL 73/78 and the IBC Code

15. Regulatory information

US federal regulations

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
- Immediate Hazard: No
- Delayed Hazard: No
- Fire Hazard: No
- Pressure Hazard: No
- Reactivity Hazard: No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
No

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

Food and Drug Administration (FDA)
- Total food additive
- Direct food additive
- GRAS food additive

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)
Not listed.

US. Massachusetts RTK - Substance List
Not regulated.

US. New Jersey Worker and Community Right-to-Know Act
Not regulated.

US. Pennsylvania Worker and Community Right-to-Know Law
Not listed.
US. Rhode Island RTK
Not regulated.

US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A “Yes” indicates that all components of this product comply with the inventory requirements administered by the governing country(s).
A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 31-March-2014
Revision date 10-June-2015
Version # 07
Further information This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

HMIS® ratings
Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings
Health: 1
Flammability: 0
Instability: 0

List of abbreviations
SWERF = Size-Weighted Relevant Fine Fraction methodology is a scientific method developed to quantify the content of respirable particles within a bulk product. All details about the SWERF method are available at www.crystallinesilica.eu.

UVCB = a substance of Unknown or Variable composition, Complex reaction products or Biological materials

References For any information on literature references or toxicity/ecotoxicity studies, please contact the supplier.
Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The manufacturer expressly does not make any representations, warranties, or guarantees as to its accuracy, reliability or completeness nor assumes any liability, for its use. It is the user’s responsibility to verify the suitability and completeness of such information for each particular use. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information in the sheet was written based on the best knowledge and experience currently available.

Revision Information
GHS: Classification