SAFETY DATA SHEET

1. Identification

Product identifier VOLCLAY® 325

Other means of identification

Synonyms
Smectite * Bentonite * Bentonite, Sodian * Bentonite, Calcian * Sodium-activated Bentonite * Montmorillonite

Recommended use
Bentonite has a variety of uses. It can be used as a rheology modifier, binding agent, adsorbent, hydraulic-barrier, and filler.

Recommended restrictions
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.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer
Company name American Colloid Company
Address 2870 Forbs Avenue
Hoffman Estates, IL 60192
United States
Telephone General Information 800 426-5564
Website http://www.colloid.com/ISG/
E-mail safetydata@mineraltech.com

Americas
1.866.519.4752 (US, Canada, Mexico) 1 760 476 3962 Access Code 333562, (Available 24 hours a day. SDS/Product information may not be available for the Emergency Services.)

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.

3. Composition/information on ingredients

Substances
Bentonite | Smectite | 1302-78-9 | 100
Bentonite, Sodian | Bentonite, Calcian | Sodium-activated Bentonite | Montmorillonite

*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. Bentonite contains naturally occurring crystalline silica (not listed in Annex I of Directive 67/548/EEC) in quantities less than 10%.

**4. First-aid measures**

**Inhalation**
Move to fresh air. If symptoms are experienced, remove source of contamination or move victim to fresh air. If the affected person is not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Call a physician if symptoms develop or persist.

**Skin contact**
Get medical attention if irritation develops and persists. No specific first aid measures noted.

**Eye contact**
Do not rub eyes. Flush eyes immediately with large amounts of water. Get medical attention if irritation develops and persists.

**Ingestion**
Dust in the eyes will cause irritation. Dusts may irritate the respiratory tract, skin and eyes.

**5. Fire-fighting measures**

**Suitable extinguishing media**
Dry chemical, CO2, water spray or regular foam. Use any media suitable for the surrounding fires.

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Special hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Material can be slippery when wet.

**Fire fighting equipment/instructions**
Use water spray to cool unopened containers.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Material can be slippery when wet. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
This product is miscible in water. Stop the flow of material, if this is without risk. Collect dust using a vacuum cleaner equipped with HEPA filter.

**Environmental precautions**
Avoid discharge into drains, water courses or onto the ground. 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. 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 original tightly closed container. Store in a well-ventilated place. Guard against dust accumulation of this material. No special storage conditions required. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits
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).

Exposure guidelines
Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

Appropriate engineering controls
If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Individual protection measures, such as personal protective equipment
Eye/face protection
Wear dust goggles.

Skin protection
Hand protection
Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other
No special protective equipment required.

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
Wear appropriate thermal protective clothing, when necessary.

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. Eye wash fountain is recommended. Use good industrial hygiene practices in handling this material.

9. Physical and chemical properties

Appearance
Physical state
Solid.

Form
Powder. Granular.

Color
Various.

Odor
None.

Odor threshold
Not available.

pH
9 In presence of water, forms translucent suspension with pH approx. 9.0

Melting point/freezing point
Not available.

Initial boiling point and boiling range
Not available.

Flash point
Non-flammable

Evaporation rate
Not available.

Flammability (solid, gas)
Not available.

Upper/lower flammability or explosive limits
Flammability limit - lower (%)
Non-explosive
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Non-explosive</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.000004 kPa at 25 °C</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other information</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>UNKNOWN</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing.</td>
</tr>
<tr>
<td>VOC (Weight %)</td>
<td>CARB</td>
</tr>
</tbody>
</table>

### 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.                                |
| Conditions to avoid                           | Contact with incompatible materials.           |
| Incompatible materials                        | None known.                                    |
| Hazardous decomposition products              | None known.                                    |

### 11. Toxicological information

**Information on likely routes of exposure**

- **Inhalation**: Dust may irritate respiratory system.
- **Skin contact**: Dust or powder may irritate the skin.
- **Eye contact**: Dust may irritate the eyes.
- **Ingestion**: Expected to be a low ingestion hazard.

**Symptoms related to the physical, chemical and toxicological characteristics**

- Dusts may irritate the respiratory tract, skin and eyes.

**Information on toxicological effects**

- **Skin corrosion/irritation**: Prolonged skin contact may cause temporary irritation.
- **Serious eye damage/eye irritation**: Mild irritant to eyes (according to the modified Kay & Calandra criteria)
- **Respiratory or skin sensitization**
  - **Respiratory sensitization**: Not a respiratory sensitizer.
  - **Skin sensitization**: According to the classification criteria of the European Union, the product is not considered as being a skin irritant.
- **Germ cell mutagenicity**: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
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.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity

This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure

Not classified.

Specific target organ toxicity - repeated exposure

Not classified.

Aspiration hazard

Not an aspiration hazard.

Chronic effects

In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.)

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 nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

12. Ecological information

Ecotoxicity

This material is not expected to be harmful to aquatic life.

<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>Fish</td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td>LC50</td>
<td>19000 mg/l, 96 hours</td>
</tr>
<tr>
<td>Rainbow trout, donaldson trout (Oncorhynchus mykiss)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Persistence and degradability

No data is available on the degradability of this product.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

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.
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).

Waste from residues / unused products
Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. 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 Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. Regulatory information

US federal regulations
This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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
WARNING: This product contains a chemical known to the State of California to cause cancer.

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, including date of preparation or last revision

Issue date 17-October-2013
Revision date 03-May-2016
Version # 30

Further information
This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

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

NFPA ratings
Health: 0
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. ACC - Industrial Specialties Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision Information
Product and Company Identification: Alternate Trade Names
Stability and reactivity: Conditions to avoid