1. Product and Company Identification

Material name: VOLCLAY® 325
Version #: 33
Revision date: 08-May-2008
CAS #: 1302-78-9
Synonym(s): SMECTITE CLAY
Manufacturer information: American Colloid Company
Industrial Specialties Group
One North Arlington
1500 West Shure Drive
Arlington Heights, IL 60004 US
safetydata@amcol.com
http://www.colloid.com/ISG/
General Information (800) 426-5564
CHEMTREC® (800) 424-9300

2. Hazards Identification

Emergency overview: Material can be slippery when wet.

Potential health effects:
- Routes of exposure: Inhalation. Eye contact.
- Eyes: Dust or powder may irritate eye tissue.
- Skin: Non-irritating to the skin.
- Inhalation: Repeated or prolonged inhalation may cause toxic effects. For additional information on inhalation hazards, see Section 11 of this safety data sheet.
- Ingestion: No significant adverse effects are expected upon ingestion of the product.
- Target organs: Lungs.
- Chronic effects: This product has the potential for generation of respirable dust during handling and use. Dust may contain respirable crystalline silica. Overexposure to dust may result in pneumoconiosis, a respiratory disease caused by inhalation of mineral dust, which can lead to fibrotic changes to the lung tissue, or silicosis, a respiratory disease caused by inhalation of silica dust, which can lead to inflammation and fibrosis of the lung tissue.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Non-hazardous components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENTONITE</td>
<td>1302-78-9</td>
<td>100</td>
</tr>
</tbody>
</table>

Composition comments: Bentonite contains naturally occurring crystalline silica (not listed in Annex I of Directive 67/548/EEC) in quantities less than 6%. Occupational Exposure Limits for impurities are listed in Section 8.

4. First Aid Measures

First aid procedures:
- Eye contact: Flush eyes immediately with large amounts of water. Get medical attention if irritation develops or persists.
- Skin contact: No special measures required. Get medical attention if irritation develops or persists.
- Inhalation: 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.
- Ingestion: No special measures required. If ingestion of a large amount does occur, seek medical attention.

Notes to physician: Provide general supportive measures and treat symptomatically.
General advice: If you feel unwell, seek medical advice (show the label where possible).
5. Fire Fighting Measures

Flammable properties
The product is not flammable. This material will not burn.

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

Protection of firefighters
Protective equipment and precautions for firefighters
Material can be slippery when wet.

6. Accidental Release Measures

Personal precautions
Material can be slippery when wet. Forms smooth, slippery surfaces on floors, posing an accident risk. Wear a dust mask if dust is generated above exposure limits.

Environmental precautions
No special environmental precautions required.

Methods for containment
None necessary.

Methods for cleaning up
Avoid the generation of dusts during clean-up. Collect dust or particulates using a vacuum cleaner with a HEPA filter. Reduce airborne dust and prevent scattering by moistening with water.

7. Handling and Storage

Handling
Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. In case of insufficient ventilation, wear suitable respiratory equipment.

Material can be slippery when wet. Forms smooth, slippery surfaces on floors, posing an accident risk.

Storage
Guard against dust accumulation of this material. No special storage conditions required. No special restrictions on storage with other products.

8. Exposure Controls / Personal Protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>U.S. - OSHA Impurities</th>
<th>CAS #</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUISANCE PARTICULATES</td>
<td>RR-00072-6</td>
<td>TWA</td>
<td>5 mg/m3</td>
<td>(respirable fraction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (total dust)</td>
<td>15 mg/m3</td>
<td>(total dust)</td>
</tr>
</tbody>
</table>

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

ACGIH - Threshold Limit Values - TLV Basis - Critical Effects
QUARTZ 14808-60-7 lung cancer; pulmonary fibrosis

U.S. - OSHA - Final PELs - Table 2-3 Mineral Dusts
QUARTZ 14808-60-7 ((250)/(%SiO2 + 5) mppcf TWA (respirable)); ((10)/(%SiO2 + 2) mg/m3 TWA (respirable)); ((30)/(%SiO2 + 2) mg/m3 TWA (total dust))

Engineering controls
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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.

Personal protective equipment

Eye / face protection
Wear dust goggles.

Skin protection
No special protective equipment required.

Respiratory protection
Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit.

General hygiene considerations
Eye wash fountain is recommended. Use good industrial hygiene practices in handling this material.
9. Physical & Chemical Properties

- **Appearance**: Not available.
- **Color**: Various.
- **Odor**: None.
- **Odor threshold**: Not available.
- **Physical state**: Solid.
- **Form**: Various.
- **pH**: 7 - 10
- **Melting point**: > 2192 °F (> 1200 °C)
- **Freezing point**: Not available.
- **Boiling point**: > 2192 °F (> 1200 °C)
- **Flash point**: Non-flammable
- **Evaporation rate**: Not available.
- **Flammability**: Not available.
- **Flammability limits in air, upper, % by volume**: Non-explosive
- **Flammability limits in air, lower, % by volume**: Non-explosive
- **Vapor pressure**: Not available.
- **Vapor density**: Not available.
- **Specific gravity**: 2.5503
- **Relative density**: 2.5 - 2.6 g/cm3
- **Solubility (water)**: Negligible
- **Partition coefficient (n-octanol/water)**: Not available.
- **Auto-ignition temperature**: Not available.
- **Decomposition temperature**: Not available.

10. Chemical Stability & Reactivity Information

- **Chemical stability**: Stable at normal conditions.
- **Conditions to avoid**: None known.
- **Incompatible materials**: None known.
- **Hazardous decomposition products**: None known.
- **Possibility of hazardous reactions**: Will not occur.

11. Toxicological Information

- **Acute effects**: Mild irritant to eyes (according to the modified Kay & Calandra criteria).

Component analysis - LD50

**Toxicology Data - Selected LD50s and LC50s**

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50 Value</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENTONITE</td>
<td>1302-78-9</td>
<td>Oral LD50 Rat: &gt;5000 mg/kg</td>
</tr>
<tr>
<td>QUARTZ</td>
<td>14808-60-7</td>
<td>Oral LD50 Rat: 500 mg/kg</td>
</tr>
</tbody>
</table>
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 dependant 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.

Carcinogenicity

ACGIH - Threshold Limit Values - Carcinogens
QUARTZ 14808-60-7 A2 - Suspected Human Carcinogen

IARC - Group 1 (Carcinogenic to Humans)
QUARTZ 14808-60-7 Monograph 68 [1997] (listed under Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources)

NTP (National Toxicology Program) - Report on Carcinogens - Known Human Carcinogens
QUARTZ 14808-60-7 Known Human Carcinogen

12. Ecological Information

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

Ecotoxicity - Freshwater Fish Species Data
BENTONITE 1302-78-9 96 Hr LC50 Salmo gairdneri: 8-19 g/L

Environmental effects
Based on the physical properties of this product, significant environmental persistence and bioaccumulation would not be expected.

Persistence and degradability
Not available.

13. Disposal Considerations

Disposal instructions
Dispose in accordance with all applicable regulations. Material should be recycled if possible.

14. Transport Information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations
OSHA Process Safety Standard: This material is not known to be hazardous by the OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.

CERCLA (Superfund) reportable quantity
None
Superfund Amendments and Reauthorization Act of 1986 (SARA)

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

Section 302 extremely hazardous substance
No

Section 311 hazardous chemical
Yes

Inventory status

<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 New and Existing Chemicals (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>
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<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)

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

U.S. - California - Proposition 65 - Carcinogens List
QUARTZ 14808-60-7 carcinogen, initial date 10/1/88 (airborne particles of respirable size)

U.S. - New Jersey - Right to Know Hazardous Substance List
QUARTZ 14808-60-7 sn 1660

U.S. - Pennsylvania - RTK (Right to Know) List
QUARTZ 14808-60-7 Present

16. Other Information

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.

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

HMIS ratings

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

NFPA ratings
Health: 1
Flammability: 0
Instability: 0
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.

Third party materials: Insofar as materials not manufactured or supplied by this manufacturer are used in conjunction with, or instead of this product, it is the responsibility of the customer to obtain, from the manufacturer or supplier, all technical data and other properties relating to these and other materials and to obtain all necessary information relating to them. No liability can be accepted in respect of the use of this product in conjunction with materials from another supplier. 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.

Issue date
08-May-2008

This data sheet contains changes from the previous version in section(s):

Fire Fighting Measures: Flammable properties
Fire Fighting Measures: Protective equipment and precautions for firefighters
Accidental Release Measures: Personal precautions
Handling and Storage: Handling
Physical & Chemical Properties: Form

Other information

American Colloid Company is a wholly owned division/subsidiary of AMCOL International Corp.