



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

Material name	BENTOMAT®
Version #	21
Revision date	18-August-2009
Chemical description	Geosynthetic Clay Liner
CAS #	Mixture
Company	CETCO Lining Technologies Group 2870 Forbs Avenue Hoffman Estates, IL 60192 US safetydata@amcol.com <a href="http://www.cetco.com/LT/">http://www.cetco.com/LT/</a> General Information (800) 527-9948 Emergency (800) 424-9300

## 2. Hazards Identification

Emergency overview	This product has the potential for generation of respirable dust during handling and use. Dust may contain respirable crystalline silica.
Potential health effects	
Routes of exposure	Inhalation. Eye contact.
Eyes	Dust or powder may irritate eye tissue. Symptoms include itching, burning, redness and tearing.
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 hazard in normal industrial use. No significant adverse effects are expected upon ingestion of the product.
Target organs	Lungs.
Chronic effects	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

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

Composition comments	This product 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.
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## 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.

## 5. Fire Fighting Measures

Flammable properties	None known.
Extinguishing media	
Suitable extinguishing media	Use any media suitable for the surrounding fires. Dry chemical, CO <sub>2</sub> , water spray or regular foam.

**Hazardous combustion products** None known.

## 6. Accidental Release Measures

**Personal precautions** 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.

**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

#### ACGIH

Impurities	Type	Value	Form
INERT OR NUISANCE DUST (SEQ250)	TWA	10 mg/m <sup>3</sup>	Inhalable particles.
		3 mg/m <sup>3</sup>	Respirable particles.
QUARTZ (14808-60-7)	TWA	0.025 mg/m <sup>3</sup>	Respirable fraction.

#### U.S. - OSHA

Impurities	Type	Value	Form
INERT OR NUISANCE DUST (SEQ250)	PEL	15 mg/m <sup>3</sup>	Total dust.
		5 mg/m <sup>3</sup>	Respirable fraction.
	TWA	5 mg/m <sup>3</sup>	Respirable fraction.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
		15 mg/m <sup>3</sup>	Total dust.
QUARTZ (14808-60-7)	TWA	2.4 mppcf	Respirable.
		0.3 mg/m <sup>3</sup>	Total dust.
		0.1 mg/m <sup>3</sup>	Respirable.
		0.1 mg/m <sup>3</sup>	Respirable dust.

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

**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** The product consists of bentonite granules between geotextile layers

**Color** Various.

**Odor** None.

**Odor threshold** Not available.

**Physical state** Solid.

**Form** Mat or Fabric

<b>pH</b>	7 - 9 estimated
<b>Melting point</b>	Not available.
<b>Freezing point</b>	Not available.
<b>Boiling point</b>	Not available.
<b>Flash point</b>	Non-flammable
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Non-explosive
<b>Flammability limits in air, lower, % by volume</b>	Non-explosive
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Specific gravity</b>	2.1677 estimated
<b>Relative density</b>	Not available.
<b>Solubility (water)</b>	Negligible
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>VOC</b>	0 % estimated
<b>Percent volatile</b>	0 % estimated

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Stable at normal conditions.
<b>Conditions to avoid</b>	None known.
<b>Incompatible materials</b>	None known.
<b>Hazardous decomposition products</b>	None known.
<b>Possibility of hazardous reactions</b>	Will not occur.

## 11. Toxicological Information

<b>Local effects</b>	Mild irritant to eyes (according to the modified Kay & Calandra criteria)
<b>Chronic effects</b>	Some of the components of this product are hazardous in the respirable form. However, because of the physical nature of this product, dust generation is not expected.

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.

<b>Sensitization</b>	No sensitization responses were observed.
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### Carcinogenicity

#### IARC Monographs: Overall evaluation

QUARTZ (14808-60-7)

1 Carcinogenic to humans.

## Carcinogenicity

**US ACGIH Threshold Limit Values: A2 carcinogen**

QUARTZ (14808-60-7)

Group A2 Suspected human carcinogen.

**US NTP Report on Carcinogens: Known carcinogen**

QUARTZ (14808-60-7)

Known carcinogen.

## 12. Ecological Information

### Ecotoxicological data

#### Product

#### Test Results

BENTOMAT® (Mixture)

LC50 Fish: 22353 mg/l 96.00 Hours estimated

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

#### Ecotoxicity

The product is not expected to be hazardous to the environment. This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

#### Environmental effects

Ecological injuries are not known or expected under normal use. 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

#### Food and Drug Administration (FDA)

Total food additive  
Indirect food additive  
GRAS food additive

#### Inventory status

##### Country(s) or region

##### Inventory name

##### On inventory (yes/no)\*

Australia

Australian Inventory of Chemical Substances (AICS)

Yes

Canada

Domestic Substances List (DSL)

Yes

Canada

Non-Domestic Substances List (NDSL)

No

China

Inventory of Existing Chemical Substances in China (IECSC)

Yes

Europe

European Inventory of New and Existing Chemicals (EINECS)

Yes

Europe

European List of Notified Chemical Substances (ELINCS)

No

Japan

Inventory of Existing and New Chemical Substances (ENCS)

Yes

Korea

Existing Chemicals List (ECL)

Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

QUARTZ (14808-60-7) Listed.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

QUARTZ (14808-60-7) Listed: October 1, 1988 Carcinogenic.

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

QUARTZ (14808-60-7) Listed.

## 16. Other Information

### Further information

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

### HMIS ratings



### 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.

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### Issue date

18-August-2009

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

Hazards Identification: Eyes  
Hazards Identification: Chronic effects  
Composition / Information on Ingredients: Potential Compounds Formed  
Composition / Information on Ingredients: Composition comments  
Toxicological Information: Local effects  
Toxicological Information: Chronic effects  
Ecological Information: Ecotoxicity  
Ecological Information: Environmental effects  
Other Information: Disclaimer  
Other Information: Other information  
Other Information: Recommended restrictions

### Other information

CETCO is an AMCOL International company.