

BENTONITE PERFORMANCE MINERALS

MATERIAL SAFETY DATA SHEET

BARACLEAR[®] P80

Phosphorus Reduction in Water Treatment

Date: June 13, 2002

1. PRODUCT COMPANY AND IDENTIFICATION

Product Trade Name: BARACLEAR[™] P80
Generic Description: Wyoming Bentonite, Sodium montmorillonite CAS# 1302-78-9
Alum, aluminum sulfate CAS# 10043-01-3

Supplier: Bentonite Performance Minerals
410 17th Street, Suite 405
Denver, Colorado 80202-4447

Telephone: (303) 571-8240
Fax Number: (303) 571-8280
Chemtrec Emergency Number: (800) 424-9300

2. COMPOSITION/INFORMATION ON THE COMPONENTS

MATERIAL OR COMPONENT		ACGIH-TLV-TWA	OSHA PEL-TWA
Wyoming Bentonite, Sodium Montmorillonite			
(30-100%)	CAS# 1302-78-9	not applicable	not applicable
Alum, Aluminum Sulfate			
(30-100%)	CAS# 10043-01-3	not applicable	not applicable
Crystalline Silica			
Quartz (1-5%)	CAS# 14808-60-7	0.05 mg/m ³	(10mg/m ³)/(%SiO ₂ +2)
Cristobalite (0-1%)	CAS# 14464-46-1	0.05 mg/m ³	1/2x(10mg/m ³)/(%SiO ₂ +2)
Tridymite (0-1%)	CAS# 15468-32-3	0.05 mg/m ³	1/2x(10mg/m ³)/(%SiO ₂ +2)

More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

3. HAZARD IDENTIFICATION

Hazard Overview: **CAUTION! - ACUTE HEALTH HAZARD**
May cause eye and respiratory irritation

DANGER! - CHRONIC HEALTH HAZARD

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite and tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH specified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

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Aluminum Sulfate

Health Hazard: This product contains aluminum sulfate which is harmful if inhaled or ingested. This material causes irritation to eyes, skin, nose and throat. This material hydrolyzes readily to form sulfuric acid which acts as a tissue irritant, particularly to the lungs.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physicians Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point/Range (F): Not determined
Flash Point/Range (C): Not determined
Flash Point Method: Not determined
Autoignition Temperature (F): Not determined
Autoignition Temperature (C): Not determined
Flammability Limits in Air-Lower (%): Not determined
Flammability Limits in Air-Upper (%): Not determined

Fire Extinguishing Media All standard fire fighting media.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable

NFPA Ratings: Health 1, Flammability 0, Reactivity 0

HMIS Ratings: Flammability 0, Reactivity 0, Health 1*

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6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures:	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures:	None known.
Procedure for Cleaning/Absorption	Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions	This product contains quartz, cristobalite and tridymite, which may become airborne without a visible dust cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH specified, European Standard EN 149, or equivalent respirator when using this product. Material is slippery when wet.
Storage Information	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.
Respiratory Protection	Wear a NIOSH specified, European Standard EN 149, or equivalent respirator when using this product.
Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothes.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	Maintain pH of a slurry between 4 and 11 to prevent hazardous decomposition products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Color	various
Odor	Odorless
pH	8 to 10 in 6% slurry

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Specific Gravity (H ₂ O = 1)	2.65
Density at 20C (lb/gallon)	Not determined
Bulk Density at 20 C (lb/gal)(uncompacted)	50-70 lb/ft ³
Boiling Point/Range (F):	Not determined
Boiling Point/Range (C):	Not determined
Freezing Point/Range (F):	Not determined
Freezing Point/Range (C):	Not determined
Vapor Pressure at 20C (mm Hg)	Not determined
Vapor Density (Air = 1)	Not determined
Percent Volatiles:	Not determined
Evaporation Rate (Butyl Acetate=1)	Not determined
Solubility in Water (g/100ml)	Insoluble
Solubility in Solvents (g/ml)	Not determined
Solubility in Sea Water (g/ml)	Insoluble
VOCs (lb/gallon)	Not determined
Viscosity, Dynamic at 20C (centipoise)	Not determined
Viscosity, Kinematic at 20C (centistoke)	Not determined
Partition Coefficient/n-Octanol/water	Not determined
Molecular weight (g/mole)	Not determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable, avoid extreme heat. Keep the pH of slurries between 4 and 11 to prevent hazardous decomposition products.
Hazardous Polymerization	Will not occur.
Conditions to Avoid	Acids and bases
Incompatibility (Materials to Avoid)	Hydrofluoric acid
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to crystallize to tridymite (870C) or cristobalite (1470C). May form sulfur oxides, aluminum oxides and sulfuric acid.
Additional Guidelines	Not applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

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Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity subsection below).

Skin Contact

May cause mechanical skin irritation.

Eye Contact

May cause eye irritation.

Ingestion

None known.

Aggravated medical Conditions

Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Chronic Effects/Carcinogenicity

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 – carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A – possible carcinogen to humans). Refer to [IARC Monograph 68, Silica, Some Silicates and Organic Fibres](#) (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

Other Health Effects: There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin and other internal organs) and kidney disease.

Other Information: For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pp 761-768 (1997).

Toxicity Tests

Oral Toxicity: Not determined

Dermal Toxicity: Not determined

Inhalation Toxicity: Not determined

Primary Irritation Effect: Not determined

Carcinogenicity International Agency for Research on Cancer (IARC) Group 1 Carcinogen (Carcinogenic to Humans)

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Genotoxicity: Not determined

Reproductive/Developmental Toxicity Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Air/Soil) Not determined

Persistence/Degradability Not determined

Bio-accumulation Not determined

Ecotoxicological Information

Acute Fish Toxicity: TLM96: 10000 ppm (Oncorhynchus mykiss)

Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity: Not determined

Chemical Fate Information Not determined

Other Information Not applicable

13. DISPOSAL

Disposal Method Bury in a licensed landfill according to federal, state and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORTATION INFORMATION

Land Transportation

DOT Not restricted

Canadian TDG Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

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15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory

All components are listed on inventory.

EPA SARA Title III Extremely Hazardous Substances

Not applicable

EPA SARA (311/312) Hazard Class

Acute Health Hazard

Chronic Health Hazard

EPA SARA(313) Chemicals

This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

EPA CERCLA/Superfund Reportable Spill Quantity

For This Product

Not applicable

EPA RCRA Hazardous Waste Classification

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

California Proposition 65

The California Proposition 65 regulations apply to this product.

MA Right-To-Know Law

One or more components listed.

NJ Right-To-Know Law

One or more components listed.

PA Right-To-Know Law

One or more components listed.

Canadian Regulations

Canadian DSL Inventory

All components listed on inventory.

WHMIS Hazard Class

D2A Very Toxic Materials (crystalline silica)

16. OTHER INFORMATION

Abbreviations

®: Registered Trademark of Halliburton Energy Services Inc.

™: Trademark of Halliburton Energy Services Inc.

N/A: Denotes no applicable information found or available

CAS#: Chemical Abstracts Service Number

ACGIH: American Conference of Governmental Industrial Hygienists

OSHA: Occupational Safety and Health Administration

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit

NTP: National Toxicology Program

IARC: International Agency for Research on Cancer

R: Risk

S: Safety

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

BOD: Biological Oxygen Demand

KoC: Soil Organic Carbon Partition Coefficient

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