

HALLIBURTON

nc 63100

MATERIAL SAFETY DATA SHEET**BENSEAL®**

Revision Date: 02/25/2002

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BENSEAL®
 Synonyms: None
 Chemical Family: Mineral
 Application: Viscosifier

Manufacturer/Supplier
 Baroid Drilling Fluids
 a Product Service Line of Halliburton Energy Services, Inc.
 P.O. Box 1675
 Houston, TX 77251

Telephone: (281) 871-4000
 Emergency Telephone: (800) 666-9260 or (713) 676-3000

Prepared By
 Product Stewardship
 Telephone: 1-580-251-4335

2. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Substance</u> | <u>Weight Percent (%)</u> | <u>ACGIH TLV-TWA</u> | <u>OSHA PEL-TWA</u> |
|--|-------------------------------|----------------------|-----------------------------|
| Crystalline silica, cristobalite 14464-46-1 | 0 - 1% | 0.05 mg/m3 | 1/2 x 10 mg/m3 %SiO2 + 2 |
| Crystalline silica, tridymite 15468-32-3 | 0 - 1% | 0.05 mg/m3 | 1/2 x 10 mg/m3 %SiO2 + 2 |
| Bentonite 1302-78-9 | 60 - 100% | Not applicable | Not applicable |
| Crystalline silica, quartz 14808-80-7 | 1 - 5% | 0.05 mg/m3 | 10 mg/m3 %SiO2 + 2 |

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

3. HAZARDS 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/or 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 certified, 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.

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 Physician

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 firefighting media.

Special Exposure Hazards

Not applicable.

Special Protective Equipment for Fire-Fighters
Not applicable.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0

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

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/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, 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 certified, 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 clothing.

Eye Protection

Wear safety glasses or goggles to protect against exposure.

Other Precautions

None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|-----------------|
| Physical State: | Solid |
| Color: | Various |
| Odor: | Odorless |
| pH: | 8-10 |
| Specific Gravity @ 20 C (Water=1): | 2.5 |
| Density @ 20 C (lbs./gallon): | 82 |
| Bulk Density @ 20 C (lbs/ft ³): | 50 |
| 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 @ 20 C (mmHg): | 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/100ml): | Not Determined |
| Solubility in Sea Water (g/100ml): | Insoluble Sinks |
| VOCs (lbs./gallon): | Not Determined |
| Viscosity, Dynamic @ 20 C (centipoise): | Not Determined |
| Viscosity, Kinematic @ 20 C (centistokes): | Not Determined |
| Partition Coefficient/n-Octanol/Water: | Not Determined |
| Molecular Weight (g/mole): | Not Determined |

10. STABILITY AND REACTIVITY

Stability Data: Stable

Hazardous Polymerization: Will Not Occur

Conditions to Avoid
None anticipated

Incompatibility (Materials to Avoid)
Hydrofluoric acid.

Hazardous Decomposition Products
Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Additional Guidelines
Not Applicable

11. TOXICOLOGICAL INFORMATION

Principal 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).

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).

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, pages 781-788 (1997).

Toxicity Tests

| | |
|-----------------------------------|----------------|
| Oral Toxicity: | Not determined |
| Dermal Toxicity: | Not determined |
| Inhalation Toxicity: | Not determined |
| Primary Irritation Effect: | Not determined |

Carcinogenicity

Refer to IARC Monograph 58, Silica, Some Silicates and Organic Fibres (June 1997).

Genotoxicity:

Not determined

**Reproductive/Developmental
Toxicity:**

Not determined

12. ECOLOGICAL INFORMATION**Mobility (Water/Soil/Air)**

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 CONSIDERATIONS**Disposal Method**

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

Contaminated Packaging

Follow all applicable national or local regulations.

14. TRANSPORT 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

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory

All components 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

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Product Stewardship at 1-580-251-4335.

Disclaimer Statement

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END OF MSDS