

**MATERIAL SAFETY DATA SHEET****Product Trade Name:** ArcticCem Cement Blend**Revision Date:** 30-Jan-2015**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Product Trade Name:** ArcticCem Cement Blend  
**Synonyms:** None  
**Chemical Family:** Cement  
**Application:** Cement

**Manufacturer/Supplier** Halliburton Energy Services  
P.O. Box 1431  
Duncan, Oklahoma 73536-0431  
Emergency Telephone: (281) 575-5000

**Prepared By** Chemical Compliance  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Sodium chloride	7647-14-5	1 - 5%	Not applicable	Not applicable
Calcium sulfate	Proprietary	30 - 60%	TWA: 10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>
Portland cement	65997-15-1	30 - 60%	TWA: 1 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>
Crystalline silica, quartz	14808-60-7	1 - 5%	TWA: 0.025 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> %SiO <sub>2</sub> + 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, skin, 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, AS/NZS 1715, or equivalent respirator when using this product. Review the Safety Data Sheet (SDS) 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, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Ingestion	Under normal conditions, first aid procedures are not required.
Notes to Physician	Not Applicable

#### 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	None - does not burn.
Special Exposure Hazards	Not applicable.
Special Protective Equipment for Fire-Fighters	Not applicable.
NFPA Ratings:	Health 1, Flammability 0, Reactivity 0
HMIS Ratings:	Health 1*, Flammability 0, Reactivity 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	Avoid contact with eyes, skin, or clothing. 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. Product has a shelf life of 24 months. Store in a cool, dry location.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Engineering Controls**

Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

**Respiratory Protection**

Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, 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**

Eyewash fountains and safety showers must be easily accessible.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State:</b>	Solid
<b>Color:</b>	Gray
<b>Odor:</b>	Odorless
<b>pH:</b>	12.4
<b>Specific Gravity @ 20 C (Water=1):</b>	3.15
<b>Density @ 20 C (lbs./gallon):</b>	Not Determined
<b>Bulk Density @ 20 C (lbs/ft3):</b>	94
<b>Boiling Point/Range (F):</b>	Not Determined
<b>Boiling Point/Range (C):</b>	Not Determined
<b>Freezing Point/Range (F):</b>	Not Determined
<b>Freezing Point/Range (C):</b>	Not Determined
<b>Vapor Pressure @ 20 C (mmHg):</b>	Not Determined
<b>Vapor Density (Air=1):</b>	Not Determined
<b>Percent Volatiles:</b>	0
<b>Evaporation Rate (Butyl Acetate=1):</b>	Not Determined
<b>Solubility in Water (g/100ml):</b>	0.5
<b>Solubility in Solvents (g/100ml):</b>	Not Determined
<b>VOCs (lbs./gallon):</b>	Not Determined
<b>Viscosity, Dynamic @ 20 C (centipoise):</b>	Not Determined
<b>Viscosity, Kinematic @ 20 C (centistokes):</b>	Not Determined
<b>Partition Coefficient/n-Octanol/Water:</b>	Not Determined
<b>Molecular Weight (g/mole):</b>	Not Determined

**10. STABILITY AND REACTIVITY****Stability Data:**

Stable

**Hazardous Polymerization:**

Will Not Occur

**Conditions to Avoid**

Keep away from any contact with water.

**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****Principle Route of Exposure**

Eye or skin contact, inhalation.

**Symptoms related to exposure****Acute Toxicity****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).

**Eye Contact**

May cause severe eye irritation.

**Skin Contact**

Can dry skin. May cause an allergic skin reaction. May cause alkali burns with confined contact.

**Ingestion**

None known

**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.

**Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium chloride	7647-14-5	3 g/kg ( Rat )	10 g/kg ( Rabbit )	42 g/m <sup>3</sup> ( Rat ) 1 h
Calcium sulfate	Proprietary	3000 mg/kg ( Rat )	No data available	1.9 mg/L (Rat, 4h) (similar substance)
Portland cement	65997-15-1	> 2000 mg/kg (Rat)	> 2000 mg/kg	> 1 mg/L (Rat) 4h
Crystalline silica, quartz	14808-60-7	> 5000 mg/kg (Rat)	No data available	No data available

**12. ECOLOGICAL INFORMATION**

## Ecotoxicological Information

### Ecotoxicity Product

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined

### Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Sodium chloride	7647-14-5	EC50(120h): 2430 mg/L (cell number) (Nitzschia sp.)	TLM96: > 1000 mg/L (Oncorhynchus mykiss) LC50(96h): 5840 mg/L (Lepomis macrochirus) NOEC(33d): 252 mg/L (Pimephales promelas)	EC10 <= 35000 mg/L; NOEC 5000 – 8000 mg/L (activated sludge) NOEC 292-584 mg/L (Escherichia coli)	TLM96: > 1,000,000 ppm (Mysidopsis bahia) LC50(48h): 874 - 4136mg/L (Daphnia magna) NOEC(21d): 314 mg/L (Daphnia pulex)
Calcium sulfate	Proprietary	No information available	No information available	No information available	No information available
Portland cement	65997-15-1	No information available	No information available	No information available	No information available
Crystalline silica, quartz	14808-60-7	No information available	LL0(96h): 10000 mg/L (Danio rerio) (similar substance)	No information available	LL50(24h): > 10000 mg/L (Daphnia magna) (similar substance)

### 12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Sodium chloride	7647-14-5	The methods for determining biodegradability are not applicable to inorganic substances.
Calcium sulfate	Proprietary	No information available
Portland cement	65997-15-1	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

### 12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Sodium chloride	7647-14-5	No information available
Calcium sulfate	Proprietary	No information available
Portland cement	65997-15-1	No information available
Crystalline silica, quartz	14808-60-7	No information available

### 12.4. Mobility in soil

No information available

### 12.5. Results of PBT and vPvB assessment

No information available.

Substances	PBT and vPvB assessment
Portland cement	No data available
Crystalline silica, quartz	Not PBT/vPvB

### 12.6. Other adverse effects

No information available

## 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

### US DOT

UN Number: Not restricted  
UN Proper Shipping Name: Not restricted  
Transport Hazard Class(es): Not applicable  
Packing Group: Not applicable

### US DOT Bulk

DOT (Bulk) Not applicable

### Canadian TDG ul0

UN Number: Not restricted  
UN Proper Shipping Name: Not restricted  
Transport Hazard Class(es): Not applicable  
Packing Group: Not applicable

### IMDG/IMO

UN Number: Not restricted  
UN Proper Shipping Name: Not restricted  
Transport Hazard Class(es): Not applicable  
Packing Group: Not applicable

### IATA/ICAO

UN Number: Not restricted  
UN Proper Shipping Name: Not restricted  
Transport Hazard Class(es): Not applicable  
Packing Group: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Special Precautions for User: None

## 15. REGULATORY INFORMATION

### US Regulations

**US TSCA Inventory** Product contains one or more components not listed on the 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** 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** Product contains one or more components not listed on the inventory.

**WHMIS Hazard Class** E Corrosive Material  
D2A Very Toxic Materials  
Crystalline silica

## **16. OTHER INFORMATION**

**The following sections have been revised since the last issue of this SDS**

Not applicable

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

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

**Disclaimer Statement** This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

**\*\*\*END OF MSDS\*\*\***