Appendix A. Material Safety Data Sheets for Drilling Mud
MATERIAL SAFETY DATA SHEET

Product Trade Name: EZ-MUD® GOLD

Revision Date: 01-Aug-2011

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUD® GOLD
Synonyms: None
Chemical Family: Anionic Polymer
Application: Additive

Manufacturer/Supplier
Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

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

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>PERCENT</th>
<th>ACGIH TLV-TWA</th>
<th>OSHA PEL-TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contains no hazardous</td>
<td>Mixture</td>
<td>60 - 100%</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>substances</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Hazard Overview
May cause eye and skin irritation. Airborne dust may be explosive.

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
Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician
Not Applicable
PHYSICAL AND CHEMICAL PROPERTIES

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
Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards
Decomposition in fire may produce toxic gases. Organic dust in the presence of an
ignition source can be explosive in high concentrations. Good housekeeping
practices are required to minimize this potential.

Special Protective Equipment for
Fire-Fighters
Full protective clothing and approved self-contained breathing apparatus required for
fire fighting personnel.

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. Slippery
when wet.

Environmental Precautionary
Measures
Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning /
Absorption
Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Slippery
when wet.

Storage Information
Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 36
months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls
Use in a well ventilated area.

Personal Protective Equipment
If engineering controls and work practices cannot prevent excessive exposures, the
selection and proper use of personal protective equipment should be determined by
an industrial hygienist or other qualified professional based on the specific
application of this product.

Respiratory Protection
Not normally needed. But if significant exposures are possible then the following
respirator is recommended:
Dust/mist respirator. (95%)  

Hand Protection
Normal work gloves.

Skin Protection
Normal work coveralls.

Eye Protection
Wear safety glasses or goggles to protect against exposure.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Granules
Color: Off white
Odor: Odorless
pH: 7.75 (1%)
Specific Gravity @ 20 C (Water=1): 0.8-1.0
Density @ 20 C (lbs./gallon): 6.66-8.33
Bulk Density @ 20 C (lbs/ft3): 52
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): Soluble
Solubility in Solvents (g/100ml): Not Determined
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) Strong oxidizers.
Additional Guidelines Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.
Inhalation None known.
Skin Contact May cause mild skin irritation.
Eye Contact May cause mild eye irritation.
Ingestion None known
Aggravated Medical Conditions None known.
Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information

Toxicity Tests

Oral Toxicity: LD50: > 5000 mg/kg (Rat)
Dermal Toxicity: Not determined
Inhalation Toxicity: Not determined
Primary Irritation Effect: Not determined
Carcinogenicity: Not determined
Genotoxicity: Not determined
Reproductive / Developmental Toxicity: Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined
Persistence/Degradability Not readily biodegradable.
Bio-accumulation Will not bio-accumulate.

Ecotoxicological Information

Acute Fish Toxicity: TLM96: >1000 mg/l (Pimephales promelas)
Acute Crustaceans Toxicity: Not determined
Acute Algae Toxicity: EC50: > 500 mg/l (Selenastrum capricornutum)

Chemical Fate Information Not determined
Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with 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
15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory  All components listed on inventory or are exempt.

EPA SARA Title III Extremely Hazardous Substances  Not applicable

EPA SARA (311,312) Hazard Class  None

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  All components listed on inventory or are exempt.

WHMIS Hazard Class  Un-Controlled

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 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***
MATERIAL SAFETY DATA SHEET

Product Trade Name: QUIK-GEL®

Revision Date: 19-Dec-2011

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-GEL®
Synonyms: None
Chemical Family: Mineral
Application: Viscosifier

Manufacturer/Supplier
Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

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

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>PERCENT</th>
<th>ACGIH TLV-TWA</th>
<th>OSHA PEL-TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentonite</td>
<td>1302-78-9</td>
<td>60 - 100%</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Crystalline silica, cristobalite</td>
<td>14464-46-1</td>
<td>0 - 1%</td>
<td>0.025 mg/m³</td>
<td>1/2 x 10 mg/m³%SiO₂ + 2</td>
</tr>
<tr>
<td>Crystalline silica, tridymite</td>
<td>15468-32-3</td>
<td>0 - 1%</td>
<td>0.05 mg/m³</td>
<td>1/2 x 10 mg/m³%SiO₂ + 2</td>
</tr>
<tr>
<td>Crystalline silica, quartz</td>
<td>14808-60-7</td>
<td>1 - 5%</td>
<td>0.025 mg/m³</td>
<td>10 mg/m³%SiO₂ + 2</td>
</tr>
</tbody>
</table>

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:**
Health 0*, Flammability 0, Physical Hazard 0 , PPE: E

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. Keep from excessive heat. Do not reuse empty container. Product has a shelf life of 36 months.

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.

Personal Protective Equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection

Not normally needed. But if significant exposures are possible then the following respirator is recommended:

Dust/mist respirator. (95%)

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: Powder

Color: Various
Odor: Mild earthy
pH: 8-10
Specific Gravity @ 20 C (Water=1): 2.6
Density @ 20 C (lbs./gallon): Not Determined
Bulk Density @ 20 C (lbs/ft3): 47.6-72.1
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): Slightly soluble
9. PHYSICAL AND CHEMICAL PROPERTIES

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<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Solubility in Solvents (g/100ml):</td>
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</tr>
<tr>
<td>VOCs (lbs./gallon):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Viscosity, Dynamic @ 20 C (centipoise):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Viscosity, Kinematic @ 20 C (centistrokes):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Partition Coefficient/n-Octanol/Water:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Molecular Weight (g/mole):</td>
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10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
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<tbody>
<tr>
<td>Stability Data:</td>
<td>Stable</td>
</tr>
<tr>
<td>Hazardous Polymerization:</td>
<td>Will Not Occur</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>None anticipated</td>
</tr>
<tr>
<td>Incompatibility (Materials to Avoid)</td>
<td>Hydrofluoric acid</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Amorphous silica may transform at elevated</td>
</tr>
<tr>
<td></td>
<td>temperatures to tridymite (870 C) or</td>
</tr>
<tr>
<td></td>
<td>cristobalite (1470 C).</td>
</tr>
<tr>
<td>Additional Guidelines</td>
<td>Not Applicable</td>
</tr>
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</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Route of Exposure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle Route of Exposure</td>
<td>Eye or skin contact, inhalation.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Inhaled crystalline silica in the form of quartz or cristobalite from</td>
</tr>
<tr>
<td></td>
<td>occupational sources is carcinogenic to humans (IARC, Group 1). There is</td>
</tr>
<tr>
<td></td>
<td>sufficient evidence in experimental animals for the carcinogenicity of</td>
</tr>
<tr>
<td></td>
<td>tridymite (IARC, Group 2A).</td>
</tr>
<tr>
<td></td>
<td>Breathing silica dust may cause irritation of the nose, throat, and</td>
</tr>
<tr>
<td></td>
<td>respiratory passages. Breathing silica dust may not cause noticeable injury</td>
</tr>
<tr>
<td></td>
<td>or illness even though permanent lung damage may be occurring. Inhalation</td>
</tr>
<tr>
<td></td>
<td>of dust may also have serious chronic health effects (See &quot;Chronic Effects/</td>
</tr>
<tr>
<td></td>
<td>Carcinogenicity&quot; subsection below).</td>
</tr>
<tr>
<td>Skin Contact</td>
<td>May cause mechanical skin irritation.</td>
</tr>
<tr>
<td>Eye Contact</td>
<td>May cause eye irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>None known</td>
</tr>
<tr>
<td>Aggravated Medical Conditions</td>
<td>Individuals with respiratory disease, including but not limited to asthma</td>
</tr>
<tr>
<td></td>
<td>and bronchitis, or subject to eye irritation, should not be exposed to quartz</td>
</tr>
<tr>
<td></td>
<td>dust.</td>
</tr>
</tbody>
</table>
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 761-768 (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 68, 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
If practical, recover and reclaim, recycle, or reuse by the guidelines of an approved local reuse program. Should contaminated product become a waste, dispose of in a licensed industrial 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 Transportation Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory
All components listed on inventory or are exempt.

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**
All components listed on inventory or are exempt.

**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

### Section 7. Handling and Storage

**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 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***
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: SODA ASH
Synonyms: None
Chemical Family: Carbonate
Application: Buffer

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

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<th>PERCENT</th>
<th>ACGIH TLV-TWA</th>
<th>OSHA PEL-TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium carbonate</td>
<td>497-19-8</td>
<td>60 - 100%</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Hazard Overview
May cause eye, skin, and respiratory irritation.

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
Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

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
Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards
Decomposition in fire may produce toxic gases.

Special Protective Equipment for Fire-Fighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings:
Health 2, Flammability 0, Reactivity 0

HMIS Ratings:
Health 2, Flammability 0, Reactivity 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures
Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures
Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption
Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.

Storage Information
Store away from acids. Store in a cool, dry location. Product has a shelf life of 36 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls
Use in a well ventilated area. Localized ventilation should be used to control dust levels.

Personal Protective Equipment
If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection
Dust/mist respirator. (95%)

Hand Protection
Normal work gloves.

Skin Protection
Normal work coveralls.

Eye Protection
Dust proof goggles.

Other Precautions
Eyewash fountains and safety showers must be easily accessible.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Color: White
Odor: Odorless
pH: 11.5
Specific Gravity @ 20 C (Water=1): 2.5
Density @ 20 C (lbs./gallon): Not Determined
Bulk Density @ 20 C (lbs/ft3): 48-62
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): Partially soluble
Solubility in Solvents (g/100ml): Not Determined
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): 105.99

10. STABILITY AND REACTIVITY

Stability Data: Stable
Hazardous Polymerization: Will Not Occur
Conditions to Avoid: None anticipated
Incompatibility (Materials to Avoid): Strong acids.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.
Additional Guidelines: Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure: Eye or skin contact, inhalation.
Inhalation: May cause respiratory irritation.
Skin Contact: Prolonged or repeated contact may cause skin irritation.
Eye Contact: May cause eye irritation.
Ingestion: Irritation of the mouth, throat, and stomach.
Aggravated Medical Conditions: None known.
Chronic Effects/Carcinogenicity: No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information: None known.
Toxicity Tests

**Oral Toxicity:** LD50: 4220 mg/kg (Rat)

**Dermal Toxicity:** Not determined

**Inhalation Toxicity:** Not determined

**Primary Irritation Effect:** Not determined

**Carcinogenicity**

**Genotoxicity:** Not determined

**Reproductive / Developmental Toxicity:** Not determined

### 12. ECOLOGICAL INFORMATION

**Mobility (Water/Soil/Air)** Not determined

**Persistence/Degradability** Not applicable

**Bio-accumulation** Not Determined

**Ecotoxicological Information**

**Acute Fish Toxicity:** TLM24: 385 mg/l (Lepomis macrochirus)

**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**

SODA ASH
Page 4 of 6
15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory
All components listed on inventory or are exempt.

EPA SARA Title III Extremely Hazardous Substances
Not applicable

EPA SARA (311,312) Hazard Class
Acute 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
All components listed do not apply to the California Proposition 65 Regulation.

MA Right-to-Know Law
Does not apply.

NJ Right-to-Know Law
Does not apply.

PA Right-to-Know Law
Does not apply.

Canadian Regulations

Canadian DSL Inventory
All components listed on inventory.

WHMIS Hazard Class
Un-Controlled

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 Chemical Compliance at 1-580-251-4335.
Disclaimer Statement

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***END OF MSDS***