

## MATERIAL SAFETY DATA SHEET

Product Trade Name: **BE-7™**

Revision Date: 15-Jan-2014

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BE-7™  
Synonyms: None  
Chemical Family: Inorganic  
Application: Biocide

Manufacturer/Supplier: Halliburton Energy Services, Inc.  
P.O. Box 1431  
Duncan, Oklahoma 73536-0431  
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### 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Substances          | CAS Number | PERCENT (w/w) | ACGIH TLV-TWA       | OSHA PEL-TWA   |
|---------------------|------------|---------------|---------------------|----------------|
| Sodium hypochlorite | 7681-52-9  | 10 - 30%      | Not applicable      | Not applicable |
| Sodium hydroxide    | 1310-73-2  | 1 - 5%        | 2 mg/m <sup>3</sup> | 2 mg/M3        |

### 3. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye and skin burns. May cause respiratory irritation. May be harmful if swallowed.

### 4. FIRST AID MEASURES

**Inhalation** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

**Skin** In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

**Eyes** Immediately flush eyes with large amounts of water for at least 20 minutes. Seek prompt medical attention.

**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** Treatment based on sound judgment of physician and individual reactions of patient.

## 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. Reacts with metals to generate flammable hydrogen gas.

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

**NFPA Ratings:** Health 3, Flammability 0, Reactivity 1  
**HMIS Ratings:** Health 3, Flammability 0, Physical Hazard 1

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment.

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

**Procedure for Cleaning / Absorption** Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove. Hypochlorite can be broken down by covering it with a reducing agent such as sodium sulfite or sodium thiosulfate.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

**Storage Information** Store away from acids. Store away from reducing agents. Store in a cool well ventilated area. Store away from direct sunlight. Keep container closed when not in use. Store between 59 F (15 C) and 84 F (29 C). Keep from freezing. Product has a shelf life of up to 6 months at 60F or lower.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Respiratory Protection</b> | <p>If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.</p> <p>Acid gas respirator with a dust/mist filter. In high concentrations, supplied air respirator or a self-contained breathing apparatus.</p> |
| <b>Hand Protection</b>        | Impervious rubber gloves. Nitrile gloves. Neoprene gloves. Viton gloves Butyl rubber gloves.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Skin Protection</b>        | Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Eye Protection</b>         | Splashproof chemical monogoggles or safety glasses with side shields in conjunction with a face shield.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Other Precautions</b>      | Eyewash fountains and safety showers must be easily accessible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                   |                    |
|---------------------------------------------------|--------------------|
| <b>Physical State:</b>                            | Liquid             |
| <b>Color:</b>                                     | Clear light yellow |
| <b>Odor:</b>                                      | Pungent            |
| <b>pH:</b>                                        | 11-13              |
| <b>Specific Gravity @ 20 C (Water=1):</b>         | 1.21               |
| <b>Density @ 20 C (lbs./gallon):</b>              | 10.0               |
| <b>Bulk Density @ 20 C (lbs/ft3):</b>             | 75                 |
| <b>Boiling Point/Range (F):</b>                   | ~230               |
| <b>Boiling Point/Range (C):</b>                   | ~110               |
| <b>Freezing Point/Range (F):</b>                  | 7.5                |
| <b>Freezing Point/Range (C):</b>                  | -13.6              |
| <b>Vapor Pressure @ 20 C (mmHg):</b>              | 12                 |
| <b>Vapor Density (Air=1):</b>                     | Not Determined     |
| <b>Percent Volatiles:</b>                         | 85                 |
| <b>Evaporation Rate (Butyl Acetate=1):</b>        | Not Determined     |
| <b>Solubility in Water (g/100ml):</b>             | Soluble            |
| <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

|                                  |                                                                                                                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stability Data:</b>           | Stable                                                                                                                                                                              |
| <b>Hazardous Polymerization:</b> | Will Not Occur                                                                                                                                                                      |
| <b>Conditions to Avoid</b>       | Avoid contact with hydrochloric acid. Can react to release chlorine gas. Contact with certain metals produces hydrogen gas. Hazards increase greatly if material is allowed to dry. |

|                                             |                                                                                                                                          |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Incompatibility (Materials to Avoid)</b> | Strong acids. Contact with metals. Ammonium compounds. Organic matter. Cyanides. Alcohols. Nitrogen compounds. Cellulose. Ethyleneimine. |
| <b>Hazardous Decomposition Products</b>     | Hydrogen chloride. Chlorine. Hypochlorous acid. Flammable hydrogen gas. Sodium oxides. Oxygen. Chlorine dioxide. Sodium chlorate         |
| <b>Additional Guidelines</b>                | Not Applicable                                                                                                                           |

## 11. TOXICOLOGICAL INFORMATION

**Principle Route of Exposure** Eye or skin contact, inhalation.

### Symptoms related to exposure

#### **Acute Toxicity**

##### **Inhalation**

Causes severe respiratory irritation.

##### **Eye Contact**

Causes severe eye irritation May cause eye burns.

##### **Skin Contact**

Causes severe skin irritation. May cause skin burns. May cause an allergic skin reaction.

##### **Ingestion**

Causes burns of the mouth, throat and stomach. May be fatal if swallowed.

**Chronic Effects/Carcinogenicity** No data available to indicate product or components present at greater than 1% are chronic health hazards.

### Toxicology data for the components

| Substances          | CAS Number | LD50 Oral          | LD50 Dermal            | LC50 Inhalation   |
|---------------------|------------|--------------------|------------------------|-------------------|
| Sodium hypochlorite | 7681-52-9  | 8200 mg/kg ( Rat ) | 10000 mg/kg ( Rabbit ) | No data available |
| Sodium hydroxide    | 1310-73-2  | No data available  | 1350 mg/kg ( Rabbit )  | No data available |

## 12. ECOLOGICAL INFORMATION

### **Ecotoxicological Information**

#### Ecotoxicity Product

**Acute Fish Toxicity:** TLM48: 0.07 mg/l (Oncorhynchus mykiss) TLM96: 5.9 mg/l (Pimephales promelas)

**Acute Crustaceans Toxicity:** Not determined

**Acute Algae Toxicity:** Not determined

#### Ecotoxicity Substance

| Substances          | CAS Number | Toxicity to Algae                       | Toxicity to Fish                             | Toxicity to Microorganisms | Daphnia Magna (Water Flea)               |
|---------------------|------------|-----------------------------------------|----------------------------------------------|----------------------------|------------------------------------------|
| Sodium hypochlorite | 7681-52-9  | EC50: 0.095 mg/L (Skeletonema costatum) | LC50: 0.06 - 0.11 mg/L (Pimephales promelas) | No information available   | EC50: 0.033 - 0.044 mg/L (Daphnia magna) |
| Sodium hydroxide    | 1310-73-2  | No information available                | LC50: 45.4 mg/l (Oncorhynchus mykiss)        | No information available   | EC50(48 h): 40.4 mg/L (Ceriodaphnia sp.) |

### 12.2 Persistence and degradability

No information available

### 12.3 Bioaccumulative potential

No information available

### 12.4 Mobility in soil

No information available

### 12.5 Results of PBT and vPvB assessment

No information available.

### 12.6 Other adverse effects

## 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

UN1791, Hypochlorite Solution , 8 , III  
RQ (Sodium Hypochlorite - 45.4 kg.)  
NAERG 154

#### Canadian TDG

Hypochlorite Solution , 8 , UN1791 , III

#### ADR

UN1791, Hypochlorite Solution , 8 , III

### Air Transportation

#### ICAO/IATA

UN1791, Hypochlorite Solution , 8 , III  
RQ (Sodium Hypochlorite - 45.4 kg.)

### Sea Transportation

#### IMDG

UN1791, Hypochlorite Solution , 8 , III RQ (Sodium Hypochlorite - 45.4 kg.)  
EmS F-A, S-B

### Other Transportation Information

**Labels:** Corrosive

## 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

|                                                       |                                                                                                                                      |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>EPA SARA (313) Chemicals</b>                       | This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372). |
| <b>EPA CERCLA/Superfund Reportable Spill Quantity</b> | EPA Reportable Spill Quantity is 80 Gallons based on Sodium hypochlorite (CAS: 7681-52-9).                                           |
| <b>EPA RCRA Hazardous Waste Classification</b>        | If product becomes a waste, it MAY meet the criteria of a hazardous waste as defined by the US EPA.                                  |
| <b>California Proposition 65</b>                      | All components listed do not apply to the California Proposition 65 Regulation.                                                      |
| <b>MA Right-to-Know Law</b>                           | One or more components listed.                                                                                                       |
| <b>NJ Right-to-Know Law</b>                           | One or more components listed.                                                                                                       |
| <b>PA Right-to-Know Law</b>                           | One or more components listed.                                                                                                       |
| <b>Canadian Regulations</b>                           |                                                                                                                                      |
| <b>Canadian DSL Inventory</b>                         | All components listed on inventory or are exempt.                                                                                    |
| <b>WHMIS Hazard Class</b>                             | E Corrosive Material<br>D2B Toxic Materials                                                                                          |

## 16. OTHER INFORMATION

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

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Additional Information</b> | For additional information on the use of this product, contact your local Halliburton representative.<br><br>For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.                                                                                                                                                                                                         |
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\*\*\*END OF MSDS\*\*\*