

## MATERIAL SAFETY DATA SHEET

Product Trade Name: **15% FE ACID**

Revision Date: 04-Jan-2011

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: 15% FE ACID  
Synonyms: None  
Chemical Family: Acid  
Application: Acid

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	ACGIH TLV-TWA	OSHA PEL-TWA
Hydrochloric acid	7647-01-0	10 - 30%	2 ppm	5 ppm

### 3. HAZARDS IDENTIFICATION

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

### 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**: 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**: 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**: 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):	630
Autoignition Temperature (C):	332
Flammability Limits in Air - Lower (%):	3
Flammability Limits in Air - Upper (%):	19

**Fire Extinguishing Media** Water fog, carbon dioxide, foam, dry chemical.

**Special Exposure Hazards** Decomposition in fire may produce toxic gases. Reaction with steel and certain other metals generates flammable hydrogen gas. Do not allow runoff to enter waterways.

**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  
**HMS Ratings:** Health 3, Flammability 0, Reactivity 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. Contain spill with sand or other inert materials. Neutralize to pH of 6-8. Scoop up and remove.

## 7. HANDLING AND STORAGE

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

**Storage Information** Store away from alkalis. Store in a cool well ventilated area. Keep container closed when not in use.

## 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.

**Respiratory Protection** Acid gas respirator.

**Hand Protection** Impervious rubber gloves.

**Skin Protection** Full protective chemical resistant clothing. Rubber boots.

**Eye Protection** Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions** Eyewash fountains and safety showers must be easily accessible.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Liquid  
**Color:** Clear colorless

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Pungent acrid
pH:	1
Specific Gravity @ 20 C (Water=1):	1.07
Density @ 20 C (lbs./gallon):	8.91
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	230
Boiling Point/Range (C):	110
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:	35
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Miscible
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	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 alkalis.
Hazardous Decomposition Products	Flammable hydrogen gas. Chlorine. Hydrogen sulfide.
Additional Guidelines	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Causes severe respiratory irritation.
Skin Contact	Causes severe skin irritation. May cause skin burns on prolonged contact.
Eye Contact	Causes severe eye irritation May cause eye burns.
Ingestion	Causes burns of the mouth, throat and stomach.
Aggravated Medical Conditions	Skin disorders.
Chronic Effects/Carcinogenicity	Prolonged, excessive exposure may cause erosion of the teeth.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined

<b>Inhalation Toxicity:</b>	Not determined
<b>Primary Irritation Effect:</b>	Not determined
<b>Carcinogenicity</b>	Not determined
<b>Genotoxicity:</b>	Not determined
<b>Reproductive / Developmental Toxicity:</b>	Not determined

## 12. ECOLOGICAL INFORMATION

<b>Mobility (Water/Soil/Air)</b>	Not determined
<b>Persistence/Degradability</b>	Not determined
<b>Bio-accumulation</b>	Not determined

### Ecotoxicological Information

<b>Acute Fish Toxicity:</b>	Not determined
<b>Acute Crustaceans Toxicity:</b>	Not determined
<b>Acute Algae Toxicity:</b>	Not determined

<b>Chemical Fate Information</b>	Not determined
<b>Other Information</b>	Not applicable

## 13. DISPOSAL CONSIDERATIONS

<b>Disposal Method</b>	Disposal should be made in accordance with federal, state, and local regulations.
<b>Contaminated Packaging</b>	Follow all applicable national or local regulations.

## 14. TRANSPORT INFORMATION

### Land Transportation

#### DOT

UN1789, Hydrochloric Acid Solution, 8, II  
RQ (Hydrochloric Acid - 15153 kg.)

#### Canadian TDG

Hydrochloric Acid Solution, 8, UN1789, II

#### ADR

UN1789, Hydrochloric Acid Solution, 8, II

### Air Transportation

#### ICAO/IATA

UN1789, Hydrochloric Acid Solution, 8, II  
RQ (Hydrochloric Acid - 15153 kg.)

## Sea Transportation

### IMDG

UN1789, Hydrochloric Acid Solution, 8, II  
RQ (Hydrochloric Acid - 15153 kg.)  
EmS F-A, S-B

## Other Shipping Information

Labels: Corrosive

## 15. REGULATORY INFORMATION

### US Regulations

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	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 3450 Gallons based on Hydrochloric acid (CAS: 7647-01-0).
<b>EPA RCRA Hazardous Waste Classification</b>	Corrosivity D002 If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:
<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.
<b>WHMIS Hazard Class</b>	E Corrosive Material

## 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\*\*\***

## MATERIAL SAFETY DATA SHEET

**Product Trade Name:** **BE-9**

**Revision Date:** 18-May-2011

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** BE-9  
**Synonyms:** None  
**Chemical Family:** Solution  
**Application:** Biocide

**Manufacturer/Supplier:** Halliburton Energy Services, Inc.  
 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	ACGIH TLV-TWA	OSHA PEL-TWA
Tributyl tetradecyl phosphonium chloride	81741-28-8	5 - 10%	Not applicable	Not applicable

### 3. HAZARDS IDENTIFICATION

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

### 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:** Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse. Remove contaminated shoes and discard.

**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:** If swallowed, do NOT induce vomiting. Give victim two glasses of water, Call a physician immediately. 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. Do not allow runoff to enter waterways. Use water spray to cool fire exposed surfaces.

**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 0  
**HMS Ratings:** Health 3, Flammability 0, Physical Hazard 0 , PPE: F

## 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. Contain spill with sand or other inert materials. Scoop up and remove.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Do NOT consume food, drink, or tobacco in contaminated areas.

**Storage Information** Store in a cool well ventilated area. Keep container closed when not in use. Store away from direct sunlight. Store in a dry location. Store in a manner to prevent commingling with incompatible materials. Store away from alkalis. Store away from reducing agents.

## 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.

**Respiratory Protection** 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.

Dust/mist respirator. (95%)

**Hand Protection** Impervious rubber gloves. Neoprene gloves. Polyvinylchloride gloves.

**Skin Protection** Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

**Eye Protection** Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions** Eyewash fountains and safety showers must be easily accessible.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Liquid
<b>Color:</b>	Clear colorless
<b>Odor:</b>	Slight
<b>pH:</b>	6-8
<b>Specific Gravity @ 20 C (Water=1):</b>	0.95-1.00
<b>Density @ 20 C (lbs./gallon):</b>	8.12
<b>Bulk Density @ 20 C (lbs/ft<sup>3</sup>):</b>	Not Determined
<b>Boiling Point/Range (F):</b>	212
<b>Boiling Point/Range (C):</b>	100
<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>	Not Determined
<b>Evaporation Rate (Butyl Acetate=1):</b>	Not Determined
<b>Solubility in Water (g/100ml):</b>	Miscible
<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>	55-65
<b>Partition Coefficient/n-Octanol/Water:</b>	< 3
<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>	None anticipated
<b>Incompatibility (Materials to Avoid)</b>	Reducing agents. Strong alkalis.
<b>Hazardous Decomposition Products</b>	Chlorine. Phosphorus acids. Carbon monoxide and carbon dioxide.
<b>Additional Guidelines</b>	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

<b>Principle Route of Exposure</b>	Eye or skin contact, inhalation.
<b>Inhalation</b>	May cause respiratory irritation. May be harmful if inhaled.
<b>Skin Contact</b>	May cause skin burns. Harmful if absorbed through the skin.
<b>Eye Contact</b>	May cause eye burns.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Aggravated Medical Conditions</b>	Lung disorders. Skin disorders.
<b>Chronic Effects/Carcinogenicity</b>	Not determined

**Other Information** None known.

### Toxicity Tests

**Oral Toxicity:** LD50: > 2000 mg/kg (Rat)  
**Dermal Toxicity:** Not determined  
**Inhalation Toxicity:** LC50: 0.9 mg/l 4-hour (rat) (TTPC)  
**Primary Irritation Effect:** Not determined  
**Carcinogenicity** Not determined  
**Genotoxicity:** Ames test: negative  
**Reproductive / Developmental Toxicity:** Not determined

## 12. ECOLOGICAL INFORMATION

**Mobility (Water/Soil/Air)** Not determined  
**Persistence/Degradability** Readily biodegradable  
**Bio-accumulation** Not determined

### Ecotoxicological Information

**Acute Fish Toxicity:** LC50: (96 hour) 0.46 mg/L (Oncorhynchus mykiss)  
LC50: (96 hour) 0.06 mg/l (Lepomis macrochirus)  
LC50: (96 hour) 0.58 mg/l (fish)  
**Acute Crustaceans Toxicity:** TLM96: 1.6 mg/l (Crangon crangon) TLM48: 0.025 mg/l (Daphnia magna)  
**Acute Algae Toxicity:** Not determined

**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. Incineration recommended in approved incinerator according to federal, state, and local regulations.  
**Contaminated Packaging** Follow all applicable national or local regulations.

## 14. TRANSPORT INFORMATION

### Land Transportation

#### DOT

UN2922, Corrosive Liquid, Toxic, N.O.S.(contains Tributyl Tetradecyl Phosphonium Chloride), 8, (6.1), II  
NAERG 154

#### Canadian TDG

Corrosive Liquid, Toxic, N.O.S.(contains Tributyl Tetradecyl Phosphonium Chloride), 8, (6.1), UN2922, II

## ADR

UN2922, Corrosive Liquid, Toxic, N.O.S.(contains Tributyl Tetradecyl Phosphonium Chloride), 8, (6.1), II

## Air Transportation

### ICAO/IATA

UN2922, Corrosive Liquid, Toxic, N.O.S., 8, (6.1), II  
(contains Tributyl Tetradecyl Phosphonium Chloride Solution)

## Sea Transportation

### IMDG

UN2922, Corrosive Liquid, Toxic, N.O.S.(contains Tributyl Tetradecyl Phosphonium Chloride), 8, (6.1), II  
EmS F-A, S-B

## Other Transportation Information

Labels: Corrosive  
Toxic

## 15. REGULATORY INFORMATION

### US Regulations

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	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>	Not applicable.
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does NOT 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>	Does not apply.
<b>NJ Right-to-Know Law</b>	Does not apply.
<b>PA Right-to-Know Law</b>	Does not apply.

### Canadian Regulations

<b>Canadian DSL Inventory</b>	All components listed on inventory or are exempt.
<b>WHMIS Hazard Class</b>	E Corrosive Material D1A Very Toxic Materials

## 16. OTHER INFORMATION

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

Section 15. Regulatory Information

### 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\*\*\***

## SAFETY DATA SHEET

Product Trade Name: **FR-66**

Revision Date: 24-Mar-2011

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

#### Identification of Substances or Preparation

Product Trade Name: FR-66  
Synonyms: None  
Chemical Family: Blend  
Application: Friction Reducer

Company Undertaking Identification  
Halliburton Energy Services  
Halliburton House, Howemoss Place  
Kirkhill Industrial Estate  
Dyce  
Aberdeen, AB21 0GN  
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

[www.halliburton.com](http://www.halliburton.com)

Prepared By  
Chemical Compliance  
Telephone: 1-580-251-4335  
e-mail: [fdunexchem@halliburton.com](mailto:fdunexchem@halliburton.com)

### 2. HAZARDS IDENTIFICATION

#### Risk Phrases

R36 Irritating to eyes.

#### Hazard Overview

May cause eye irritation. May be harmful if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT	EINECS	EEC Classification
Hydrotreated light petroleum distillate	64742-47-8	10 - 30%	265-149-8	Xn; R65

### 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.

<b>Skin</b>	Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse.
<b>Eyes</b>	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.
<b>Ingestion</b>	Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.
<b>Notes to Physician</b>	Not Applicable

## 5. FIRE FIGHTING MEASURES

<b>Suitable Extinguishing Media</b>	Water fog, carbon dioxide, foam, dry chemical.
<b>Extinguishing media which must not be used for safety reasons</b>	None known.
<b>Special Exposure Hazards</b>	Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces.
<b>Special Protective Equipment for Fire-Fighters</b>	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautionary Measures</b>	Use appropriate protective equipment.
<b>Environmental Precautionary Measures</b>	Prevent from entering sewers, waterways, or low areas.
<b>Procedure for Cleaning / Absorption</b>	Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

## 7. HANDLING AND STORAGE

<b>Handling Precautions</b>	Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Material is slippery underfoot. Avoid breathing mist.
<b>Storage Information</b>	Store away from oxidizers. Keep container closed when not in use. Store in a cool, dry location. Store in a well ventilated area. Keep from freezing. Product has a shelf life of 6 months.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Engineering Controls</b>	Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.
<b>Respiratory Protection</b>	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Organic vapor respirator.
<b>Hand Protection</b>	Impervious rubber gloves.
<b>Skin Protection</b>	Rubber apron.
<b>Eye Protection</b>	Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions**

Eyewash fountains and safety showers must be easily accessible.

**Control parameters**

Substances	EU	UK OEL	Netherlands	France OEL	Germany MAK/TRK
Hydrotreated light petroleum distillate	Not applicable	5 mg/m <sup>3</sup>	Not applicable	Not applicable	Not applicable

Substances	Italy	Poland	Hungary	Czech Republic	Denmark
Hydrotreated light petroleum distillate	Not applicable				

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State:</b>	Liquid
<b>Color:</b>	White
<b>Odor:</b>	Sweet hydrocarbon
<b>pH:</b>	Not Determined
<b>Specific Gravity @ 20 C (Water=1):</b>	1.06
<b>Density @ 20 C (kg/l):</b>	1.05
<b>Bulk Density @ 20 C (kg/m<sup>3</sup>):</b>	Not Determined
<b>Boiling Point/Range (C):</b>	Not Determined
<b>Freezing Point/Range (C):</b>	< -10
<b>Pour Point/Range (C):</b>	Not Determined
<b>Flash Point/Range (C):</b>	> 93
<b>Flash Point Method:</b>	PMCC
<b>Autoignition Temperature (C):</b>	> 215
<b>Flammability Limits in Air - Lower (g/m<sup>3</sup>):</b>	Not Determined
<b>Flammability Limits in Air - Lower (%):</b>	Not Determined
<b>Flammability Limits in Air - Upper (g/m<sup>3</sup>):</b>	Not Determined
<b>Flammability Limits in Air - Upper (%):</b>	Not Determined
<b>Vapor Pressure @ 20 C (mmHg):</b>	Not Determined
<b>Vapor Density (Air=1):</b>	Not Determined
<b>Percent Volatiles:</b>	50
<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 (g/l):</b>	Not Determined
<b>Viscosity, Dynamic @ 20 C (centipoise):</b>	Not Determined
<b>Viscosity, Kinematic @ 20 C (centistrokes):</b>	Not Determined
<b>Partition Coefficient/n-Octanol/Water:</b>	Not Determined
<b>Molecular Weight (g/mole):</b>	Not Determined
<b>Decomposition Temperature (C):</b>	Not Determined

**10. STABILITY AND REACTIVITY**

<b>Stability Data:</b>	Stable
<b>Hazardous Polymerization:</b>	Will Not Occur
<b>Conditions to Avoid</b>	None anticipated
<b>Incompatibility (Materials to Avoid)</b>	Strong oxidizers.
<b>Hazardous Decomposition Products</b>	Oxides of nitrogen. Carbon monoxide and carbon dioxide. Chlorine.

Additional Guidelines Not Applicable

## 11. TOXICOLOGICAL INFORMATION

<b>Principle Route of Exposure</b>	Eye or skin contact, inhalation.
<b>Inhalation</b>	Inhalation of mist or heated vapors may cause respiratory irritation.
<b>Skin Contact</b>	May cause skin defatting with prolonged exposure.
<b>Eye Contact</b>	May cause moderate eye irritation.
<b>Ingestion</b>	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.
<b>Aggravated Medical Conditions</b>	None known.
<b>Chronic Effects/Carcinogenicity</b>	No data available to indicate product or components present at greater than 1% are chronic health hazards.
<b>Other Information</b>	None known.
<b>Toxicity Tests</b>	
<b>Oral Toxicity:</b>	Not determined
<b>Dermal Toxicity:</b>	Not determined
<b>Inhalation Toxicity:</b>	Not determined
<b>Primary Irritation Effect:</b>	Not determined
<b>Carcinogenicity</b>	Not determined
<b>Genotoxicity:</b>	Not determined
<b>Reproductive / Developmental Toxicity:</b>	Not determined

## 12. ECOLOGICAL INFORMATION

<b>Mobility (Water/Soil/Air)</b>	Not determined
<b>Persistence/Degradability</b>	Not determined
<b>Bio-accumulation</b>	Not determined

### Ecotoxicological Information

<b>Acute Fish Toxicity:</b>	Not determined
<b>Acute Crustaceans Toxicity:</b>	Not determined
<b>Acute Algae Toxicity:</b>	Not determined
<b>Chemical Fate Information</b>	Not determined
<b>Other Information</b>	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****ADR**

Not restricted

**Air Transportation****ICAO/IATA**

Not restricted

**Sea Transportation****IMDG**

Not restricted

**Other Transportation Information****Labels:** None**15. REGULATORY INFORMATION****EC Supply labeling Requirements** This product is subject to the labeling requirements of EC Directives 67/548/EEC and 88/379/EEC as amended.**Classification** Xi - Irritant.**Risk Phrases** R36 Irritating to eyes.**Safety Phrases** S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S24/25 Avoid contact with skin and eyes.**EINECS Inventory** This product does not comply with EINECS**Germany, Water Endangering Classes (WGK)** WGK 2: Hazard to waters.**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.

**Component Classification**

Xn - Harmful.  
R65 Harmful: may cause lung damage if swallowed.

**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: **HAI-OS ACID INHIBITOR**

Revision Date: 04-Jan-2011

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** HAI-OS ACID INHIBITOR  
**Synonyms:** None  
**Chemical Family:** Blend  
**Application:** Corrosion Inhibitor

**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	ACGIH TLV-TWA	OSHA PEL-TWA
Propargyl alcohol	107-19-7	5 - 10%	1 ppm S	Not applicable
Methanol	67-56-1	30 - 60%	200 ppm (S)	200 ppm

### 3. HAZARDS IDENTIFICATION

**Hazard Overview** May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be absorbed through the skin. May be fatal if swallowed. May cause blindness. Flammable.

### 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** 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** 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** Probable mucosal damage may contraindicate the use of gastric lavage.

## 5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined	Max: < 52
Flash Point/Range (C):	Not Determined	Max: < 11
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** May be ignited by heat, sparks or flames. Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Avoid spraying water directly into storage containers due to danger of boilover. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations.

**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 3, Reactivity 0  
**HMS Ratings:** Health 2, Flammability 3, Reactivity 0

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas.

**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.

## 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. Ground and bond containers when transferring from one container to another.

**Storage Information** Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Product has a shelf life of 24 months.

## 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.

**Respiratory Protection** Positive pressure self-contained breathing apparatus if methanol is released.

**Hand Protection** Impervious rubber gloves.

**Skin Protection** Full protective chemical resistant clothing.

**Eye Protection** Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions** Eyewash fountains and safety showers must be easily accessible.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear amber
Odor:	Alcohol
pH:	3.15
Specific Gravity @ 20 C (Water=1):	0.89
Density @ 20 C (lbs./gallon):	7.41
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	-20
Freezing Point/Range (C):	-29
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	>1
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Disperses
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	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	Keep away from heat, sparks and flame. Avoid contact with acids. Avoid contact with oxidizers.
Incompatibility (Materials to Avoid)	Strong oxidizers. Strong acids. Strong alkalis.
Hazardous Decomposition Products	Oxides of sulfur. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Causes severe respiratory irritation. May cause chemical pneumonia. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
Skin Contact	May cause severe skin irritation. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion.
Eye Contact	Causes severe eye irritation which may damage tissue.

<b>Ingestion</b>	May be fatal or cause blindness if swallowed. Causes burns of the mouth, throat and stomach. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.
<b>Aggravated Medical Conditions</b>	Skin disorders.
<b>Chronic Effects/Carcinogenicity</b>	Prolonged or repeated exposure may cause eye, blood, lung, liver, kidney, heart, central nervous system and spleen damage.
<b>Other Information</b>	None known.
<b>Toxicity Tests</b>	
<b>Oral Toxicity:</b>	Not determined
<b>Dermal Toxicity:</b>	Not determined
<b>Inhalation Toxicity:</b>	Not determined
<b>Primary Irritation Effect:</b>	Not determined
<b>Carcinogenicity</b>	Not determined
<b>Genotoxicity:</b>	Not determined
<b>Reproductive / Developmental Toxicity:</b>	Not determined

## 12. ECOLOGICAL INFORMATION

<b>Mobility (Water/Soil/Air)</b>	Not determined
<b>Persistence/Degradability</b>	Not determined
<b>Bio-accumulation</b>	Not determined

### Ecotoxicological Information

<b>Acute Fish Toxicity:</b>	TLM96: 8132 mg/l (Cyprinodon variegatus)
<b>Acute Crustaceans Toxicity:</b>	Not determined
<b>Acute Algae Toxicity:</b>	Not determined

<b>Chemical Fate Information</b>	Not determined
<b>Other Information</b>	Not applicable

## 13. DISPOSAL CONSIDERATIONS

<b>Disposal Method</b>	Disposal should be made in accordance with federal, state, and local regulations.
<b>Contaminated Packaging</b>	Follow all applicable national or local regulations.

## 14. TRANSPORT INFORMATION

### Land Transportation

DOT

UN1993, Flammable Liquid, N.O.S. (Contains Methanol, Propargyl Alcohol), 3, II, (11.1 C)  
NAERG 128

**Canadian TDG**

Flammable Liquid, N.O.S. (Contains Methanol, Propargyl Alcohol), 3, UN1993, II, (11.1 C)

**ADR**

UN1993, Flammable Liquid, N.O.S. (Contains Methanol, Propargyl Alcohol), 3, II

**Air Transportation**

**ICAO/IATA**

UN1993, Flammable Liquid, N.O.S., 3, II  
(Contains Methanol, Propargyl Alcohol Solution)

**Sea Transportation**

**IMDG**

UN1993, Flammable Liquid, N.O.S. (Contains Methanol, Propargyl Alcohol), 3, II, (11.1 C)  
EmS F-E, S-E

**Other Shipping Information**

**Labels:** Flammable Liquid

**15. REGULATORY INFORMATION**

**US Regulations**

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard Chronic Health Hazard Fire Hazard
<b>EPA SARA (313) Chemicals</b>	This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372: Methanol//67-56-1 Propargyl Alcohol//107-19-7
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	EPA Reportable Spill Quantity is 1435 Gallons based on Methanol (CAS: 67-56-1).
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:  Ignitability D001
<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.
<b>WHMIS Hazard Class</b>	B2 Flammable Liquids E Corrosive Material D1A Very Toxic Materials D1B Toxic Materials

## 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:** LoSurf-300D

**Revision Date:** 03-Jan-2012

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Product Trade Name:** LoSurf-300D  
**Synonyms:** None  
**Chemical Family:** Blend  
**Application:** Non-ionic Surfactant

**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	ACGIH TLV-TWA	OSHA PEL-TWA
Ethanol	64-17-5	30 - 60%	1000 ppm	1000 ppm
Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	1 - 5%	Not applicable	Not applicable
Naphthalene	91-20-3	1 - 5%	10 ppm (S)	10 ppm
1,2,4 Trimethylbenzene	95-63-6	0 - 1%	25 ppm	Not applicable
Heavy aromatic petroleum naphtha	64742-94-5	10 - 30%	Not applicable	Not applicable

**3. HAZARDS IDENTIFICATION**

**Hazard Overview:** May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed. Flammable.

**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:** Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse.

**Eyes:** Check for and remove contact lenses if present. 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:** 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.

## 5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	57
Flash Point/Range (C):	14
Flash Point Method:	PMCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	3.3
Flammability Limits in Air - Upper (%):	19

**Fire Extinguishing Media** Carbon Dioxide, Dry Chemicals, Foam.

**Special Exposure Hazards** Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. 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 3, Reactivity 0  
**HMS Ratings:** Health 2, Flammability 3, Physical Hazard 0 , PPE: H

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas.

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

**Procedure for Cleaning / Absorption** Remove ignition sources and work with non-sparking tools. Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Avoid breathing mist. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another.

**Storage Information** Keep from heat, sparks, and open flames. Keep container closed when not in use. Store in a cool well ventilated area. Product has a shelf life of 24 months.

## 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.

**Respiratory Protection** 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.

Organic vapor respirator.

**Hand Protection** Butyl rubber gloves. Neoprene gloves.

<b>Skin Protection</b>	Rubber apron.
<b>Eye Protection</b>	Chemical goggles; also wear a face shield if splashing hazard exists.
<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>	Amber
<b>Odor:</b>	Alcohol
<b>pH:</b>	7
<b>Specific Gravity @ 20 C (Water=1):</b>	.903
<b>Density @ 20 C (lbs./gallon):</b>	7.53
<b>Bulk Density @ 20 C (lbs/ft<sup>3</sup>):</b>	Not Determined
<b>Boiling Point/Range (F):</b>	173.1
<b>Boiling Point/Range (C):</b>	78.4
<b>Freezing Point/Range (F):</b>	-76.9
<b>Freezing Point/Range (C):</b>	-60.51
<b>Vapor Pressure @ 20 C (mmHg):</b>	40 (etoh)
<b>Vapor Density (Air=1):</b>	> 10
<b>Percent Volatiles:</b>	55-65
<b>Evaporation Rate (Butyl Acetate=1):</b>	< 3.3
<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>	Keep away from heat, sparks and flame.
<b>Incompatibility (Materials to Avoid)</b>	Strong oxidizers.
<b>Hazardous Decomposition Products</b>	Oxides of nitrogen. Carbon monoxide and carbon dioxide.
<b>Additional Guidelines</b>	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

<b>Principle Route of Exposure</b>	Eye or skin contact, inhalation.
<b>Inhalation</b>	May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
<b>Skin Contact</b>	May cause skin irritation.
<b>Eye Contact</b>	May cause eye irritation.

**Ingestion** Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

**Aggravated Medical Conditions** Skin disorders. Eye ailments.

**Chronic Effects/Carcinogenicity** The International Agency for Research on Cancer (IARC) has evaluated naphthalene and determined it to be a possible carcinogen to humans (Group 2B, based on sufficient evidence in experimental animals and inadequate evidence in humans).

**Other Information** None known.

**Toxicity Tests**

**Oral Toxicity:** Not determined

**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 determined

**Bio-accumulation** Not determined

**Ecotoxicological Information**

**Acute Fish Toxicity:** May be toxic to aquatic life.

**Acute Crustaceans Toxicity:** Not determined

**Acute Algae Toxicity:** Not determined

**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**

UN1993, Flammable Liquid, N.O.S. (Contains Ethanol, Heavy Aromatic Naphtha), 3, II, (14 C)  
NAERG 128

**Canadian TDG**

Flammable Liquid, N.O.S. (Contains Ethanol, Heavy Aromatic Naphtha), 3, UN1993, II, (14 C)

**ADR**

UN1993, Flammable Liquid, N.O.S. (Contains Ethanol, Heavy Aromatic Naphtha), 3, II

**Air Transportation****ICAO/IATA**

UN1993, Flammable Liquid, N.O.S., 3, II  
(Contains Ethanol, Heavy Aromatic Naphtha)

**Sea Transportation****IMDG**

UN1993, Flammable Liquid, N.O.S. (Contains Ethanol, Heavy Aromatic Naphtha), 3, II, (14 C)  
EmS F-E, S-E

**Other Transportation Information**

Labels: Flammable Liquid

**15. REGULATORY INFORMATION****US Regulations**

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard Chronic Health Hazard Fire Hazard
<b>EPA SARA (313) Chemicals</b>	This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372: Naphthalene//91-20-3 1,2,4-Trimethylbenzene//95-63-6
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	EPA Reportable Spill Quantity is 1122 Gallons based on Naphthalene (CAS: 91-20-3).

<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:  Ignitability D001
<b>California Proposition 65</b>	The California Proposition 65 regulations apply to this product.
<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>	D2B Toxic Materials B2 Flammable Liquids D2A Very Toxic Materials

## **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: **Scalechek® LP-65 Scale Inhibitor**

Revision Date: 10-Aug-2010

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** Scalechek® LP-65 Scale Inhibitor  
**Synonyms:** None  
**Chemical Family:** Blend  
**Application:** Scale Inhibitor  
**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

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Ammonium chloride	12125-02-9	5 - 10%	10 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>

### 3. HAZARDS IDENTIFICATION

**Hazard Overview:** No significant hazards expected.

### 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:** 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):	> 200
Flash Point/Range (C):	Not Determined
Flash Point Method:	SFCC
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** Carbon Dioxide, Dry Chemicals, Foam. Use water spray to cool fire exposed surfaces.

**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 0, Flammability 1, Reactivity 0  
**HMS Ratings:** Health 0, Flammability 1, Physical Hazard 0

## 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. Contain spill with sand or other inert materials. Scoop up and remove.

## 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 oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 60 months.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** Use in a well ventilated area.

**Respiratory Protection** 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.

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

**Hand Protection** Impervious rubber gloves. Nitrile gloves. Neoprene gloves.

**Skin Protection** Rubber apron. Rubber boots.

**Eye Protection** Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions** Eyewash fountains and safety showers must be easily accessible.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear light amber
Odor:	Slight
pH:	6.5-7.5 (100%)
Specific Gravity @ 20 C (Water=1):	1.169-1.181
Density @ 20 C (lbs./gallon):	9.74-9.84
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	0
Freezing Point/Range (C):	-17.8
Vapor Pressure @ 20 C (mmHg):	19.3 (21C)
Vapor Density (Air=1):	> 1
Percent Volatiles:	59
Evaporation Rate (Butyl Acetate=1):	<1
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.
Hazardous Decomposition Products	Hydrogen chloride. Oxides of nitrogen. Ammonia. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	In high air concentrations: May cause respiratory irritation.
Skin Contact	Prolonged or repeated contact may cause skin irritation.
Eye Contact	May cause slight eye irritation.
Ingestion	In large amounts: May be harmful if swallowed.
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

<b>Oral Toxicity:</b>	Not determined
<b>Dermal Toxicity:</b>	Not determined
<b>Inhalation Toxicity:</b>	Not determined
<b>Primary Irritation Effect:</b>	Not determined
<b>Carcinogenicity</b>	Not determined
<b>Genotoxicity:</b>	Not determined
<b>Reproductive / Developmental Toxicity:</b>	Not determined

## 12. ECOLOGICAL INFORMATION

<b>Mobility (Water/Soil/Air)</b>	Not determined
<b>Persistence/Degradability</b>	Not determined
<b>Bio-accumulation</b>	Not determined

### Ecotoxicological Information

<b>Acute Fish Toxicity:</b>	Not determined
<b>Acute Crustaceans Toxicity:</b>	Not determined
<b>Acute Algae Toxicity:</b>	Not determined

<b>Chemical Fate Information</b>	Not determined
<b>Other Information</b>	Not applicable

## 13. DISPOSAL CONSIDERATIONS

<b>Disposal Method</b>	Disposal should be made in accordance with federal, state, and local regulations.
<b>Contaminated Packaging</b>	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 or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
EPA SARA (313) Chemicals	Not applicable.
EPA CERCLA/Superfund Reportable Spill Quantity	EPA Reportable Spill Quantity is 6294 Gallons based on Ammonium chloride (CAS: 12125-02-9).
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	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:**            **SAND - PREMIUM WHITE**

**Revision Date:**                    04-Jan-2011

<b>1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION</b>
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<b>Product Trade Name:</b>	SAND - PREMIUM WHITE
<b>Synonyms:</b>	None
<b>Chemical Family:</b>	Sand
<b>Application:</b>	Proppant
 <b>Manufacturer/Supplier</b>	 Halliburton Energy Services P.O. Box 1431 Duncan, Oklahoma 73536-0431 Emergency Telephone: (281) 575-5000
 <b>Prepared By</b>	 Chemical Compliance Telephone: 1-580-251-4335 e-mail: fdunexchem@halliburton.com

<b>2. COMPOSITION/INFORMATION ON INGREDIENTS</b>
--

Substances	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Crystalline silica, quartz	14808-60-7	60 - 100%	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.**

<b>3. HAZARDS IDENTIFICATION</b>
----------------------------------

<b>Hazard Overview</b>	<p><b>CAUTION! - ACUTE HEALTH HAZARD</b> May cause eye and respiratory irritation.</p> <p><b>DANGER! - CHRONIC HEALTH HAZARD</b> Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.</p> <p>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.</p>
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<b>4. FIRST AID MEASURES</b>
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<b>Inhalation</b>	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
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<b>Skin</b>	Wash with soap and water.
<b>Eyes</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
<b>Ingestion</b>	Under normal conditions, first aid procedures are not required.
<b>Notes to Physician</b>	Not Applicable

**5. FIRE FIGHTING MEASURES**

<b>Flash Point/Range (F):</b>	Not Determined
<b>Flash Point/Range (C):</b>	Not Determined
<b>Flash Point Method:</b>	Not Determined
<b>Autoignition Temperature (F):</b>	Not Determined
<b>Autoignition Temperature (C):</b>	Not Determined
<b>Flammability Limits in Air - Lower (%):</b>	Not Determined
<b>Flammability Limits in Air - Upper (%):</b>	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 0, Flammability 0, Reactivity 0  
**HMS Ratings:** Health 0\*, 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** 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 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.

**Respiratory Protection** Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.

<b>Hand Protection</b>	Normal work gloves.
<b>Skin Protection</b>	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.
<b>Eye Protection</b>	Wear safety glasses or goggles to protect against exposure.
<b>Other Precautions</b>	None known.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Solid
<b>Color:</b>	White
<b>Odor:</b>	Odorless
<b>pH:</b>	Not Determined
<b>Specific Gravity @ 20 C (Water=1):</b>	2.63 - 2.67
<b>Density @ 20 C (lbs./gallon):</b>	Not Determined
<b>Bulk Density @ 20 C (lbs/ft3):</b>	Not Determined
<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>	Insoluble
<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 (centistrokes):</b>	Not Determined
<b>Partition Coefficient/n-Octanol/Water:</b>	Not Determined
<b>Molecular Weight (g/mole):</b>	65

## 10. STABILITY AND REACTIVITY

<b>Stability Data:</b>	Stable
<b>Hazardous Polymerization:</b>	Will Not Occur
<b>Conditions to Avoid</b>	None known.
<b>Incompatibility (Materials to Avoid)</b>	Hydrofluoric acid.
<b>Hazardous Decomposition Products</b>	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
<b>Additional Guidelines</b>	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

<b>Principle Route of Exposure</b>	Eye or skin contact, inhalation.
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<b>Inhalation</b>	<p>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).</p> <p>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).</p>
<b>Skin Contact</b>	None known.
<b>Eye Contact</b>	May cause mechanical irritation to eye.
<b>Ingestion</b>	None known
<b>Aggravated Medical Conditions</b>	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.
<b>Chronic Effects/Carcinogenicity</b>	<p><b>Silicosis:</b> 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.</p> <p><b>Cancer Status:</b> 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 <u>IARC Monograph 68, Silica, Some Silicates and Organic Fibres</u> (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).</p> <p>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.</p>
<b>Other Information</b>	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).
<b>Toxicity Tests</b>	
<b>Oral Toxicity:</b>	Not determined
<b>Dermal Toxicity:</b>	Not determined
<b>Inhalation Toxicity:</b>	Not determined
<b>Primary Irritation Effect:</b>	Not determined
<b>Carcinogenicity</b>	Refer to <u>IARC Monograph 68, Silica, Some Silicates and Organic Fibres</u> (June 1997).

**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:** Not determined  
**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 Transportation Information**

**Labels:** None

**15. REGULATORY INFORMATION**

**US Regulations**

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard Chronic 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>	Not applicable.
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
<b>California Proposition 65</b>	The California Proposition 65 regulations apply to this product.
<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.

**Canadian Regulations**

<b>Canadian DSL Inventory</b>	All components listed on inventory or are exempt.
<b>WHMIS Hazard Class</b>	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 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: SP BREAKER****Revision Date:** 04-Jan-2010**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Product Trade Name:** SP BREAKER  
**Synonyms:** None  
**Chemical Family:** Oxidant  
**Application:** Breaker

**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**

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Sodium persulfate	7775-27-1	60 - 100%	0.1 mg/m <sup>3</sup>	Not applicable

**3. HAZARDS IDENTIFICATION**

**Hazard Overview** May cause allergic skin and respiratory reaction. May cause eye irritation. Oxidizer.

**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** Oxidizer. May ignite combustibles. 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 1, Flammability 0, Reactivity 1  
**HMIS Ratings:** Health 1, Flammability 0, Physical Hazard 1

## 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. Avoid dust accumulations.

**Storage Information** Store away from combustibles. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 12 months.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

**Respiratory Protection** Dust/mist respirator. (95%)

**Hand Protection** Butyl rubber gloves.

**Skin Protection** Rubber apron.

**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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

pH:	6
Specific Gravity @ 20 C (Water=1):	2.47
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	84.3
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 @ 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):	35
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):	238.1

## 10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Avoid contact with readily oxidizable materials.
Incompatibility (Materials to Avoid)	Avoid halogens. Contact with acids. Strong alkalis. Combustible materials.
Hazardous Decomposition Products	Oxides of sulfur. Oxygen. Sulfuric acid.
Additional Guidelines	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause allergic respiratory reaction.
Skin Contact	May cause an allergic skin reaction.
Eye Contact	May cause eye irritation.
Ingestion	Irritation of the mouth, throat, and stomach.
Aggravated Medical Conditions	Lung disorders.
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: 895 mg/kg (Rat)
Dermal Toxicity:	LD50: > 10000 mg/kg (Rabbit)

<b>Inhalation Toxicity:</b>	Not determined
<b>Primary Irritation Effect:</b>	Not determined
<b>Carcinogenicity</b>	Not determined
<b>Genotoxicity:</b>	Not determined
<b>Reproductive / Developmental Toxicity:</b>	Not determined

## 12. ECOLOGICAL INFORMATION

<b>Mobility (Water/Soil/Air)</b>	Not determined
<b>Persistence/Degradability</b>	Readily biodegradable
<b>Bio-accumulation</b>	Not Determined

### Ecotoxicological Information

<b>Acute Fish Toxicity:</b>	Not determined
<b>Acute Crustaceans Toxicity:</b>	Not determined
<b>Acute Algae Toxicity:</b>	Not determined

<b>Chemical Fate Information</b>	Not determined
<b>Other Information</b>	Not applicable

## 13. DISPOSAL CONSIDERATIONS

<b>Disposal Method</b>	Disposal should be made in accordance with federal, state, and local regulations.
<b>Contaminated Packaging</b>	This bag may contain residue of a hazardous material. Some authorities may regulate such containers as hazardous waste. Dispose of container according to national or local regulations.

## 14. TRANSPORT INFORMATION

### Land Transportation

#### DOT

UN1505, Sodium Persulfate, 5.1, III  
NAERG 140

#### Canadian TDG

Sodium Persulfate, 5.1, UN1505, III

#### ADR

UN1505, Sodium Persulfate, 5.1, III

### Air Transportation

#### ICAO/IATA

UN1505,Sodium Persulfate, 5.1, III

## Sea Transportation

### IMDG

UN1505,Sodium Persulfate, 5.1, III  
EmS F-A, S-Q

## Other Shipping Information

Labels: Oxidizer

## 15. REGULATORY INFORMATION

### US Regulations

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard Fire Hazard Reactive 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>	Not applicable.
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:  Ignitability D001
<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.
<b>WHMIS Hazard Class</b>	C Oxidizing Materials D2B Toxic Materials

## 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: **WG-36 GELLING AGENT**

Revision Date: 03-Jan-2012

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** WG-36 GELLING AGENT  
**Synonyms:** None  
**Chemical Family:** Polysaccharide  
**Application:** Gelling Agent

**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	ACGIH TLV-TWA	OSHA PEL-TWA
Guar gum	9000-30-0	60 - 100%	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>

### 3. HAZARDS IDENTIFICATION

**Hazard Overview:** May cause eye and respiratory irritation. May cause allergic respiratory reaction. 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:** 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):	Min: > 200
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Min: > 93
Autoignition Temperature (C):	COC
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

**HMS 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** 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 oxidizers. Store in a cool, dry location. Product has a shelf life of 24 months.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** Use in a well ventilated area.

**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.

**Other Precautions** None known.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Solid  
**Color:** Off white

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Bean
pH:	6.5-7.5
Specific Gravity @ 20 C (Water=1):	1.42 -1.47
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	Not Determined
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 (centistrokes):	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.
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. May cause allergic respiratory reaction.
Skin Contact	None known.
Eye Contact	May cause 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	None known.
Toxicity Tests	
Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined

<b>Inhalation Toxicity:</b>	Not determined
<b>Primary Irritation Effect:</b>	Not determined
<b>Carcinogenicity</b>	Not determined
<b>Genotoxicity:</b>	Not determined
<b>Reproductive / Developmental Toxicity:</b>	Not determined

## 12. ECOLOGICAL INFORMATION

<b>Mobility (Water/Soil/Air)</b>	Not determined
<b>Persistence/Degradability</b>	Slowly biodegradable
<b>Bio-accumulation</b>	Not determined

### Ecotoxicological Information

<b>Acute Fish Toxicity:</b>	Not determined
<b>Acute Crustaceans Toxicity:</b>	Not determined
<b>Acute Algae Toxicity:</b>	Not determined

<b>Chemical Fate Information</b>	Not determined
<b>Other Information</b>	Not applicable

## 13. DISPOSAL CONSIDERATIONS

<b>Disposal Method</b>	Bury in a licensed landfill according to federal, state, and local regulations.
<b>Contaminated Packaging</b>	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

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	None
<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>	Not applicable.
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
<b>California Proposition 65</b>	The California Proposition 65 regulations apply to this product.
<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.

#### Canadian Regulations

<b>Canadian DSL Inventory</b>	Product contains one or more components not listed on the inventory.
<b>WHMIS Hazard Class</b>	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

I	Product Name:	<b>Chemical Frac Tracers (CFT)</b>			Updated: 02-14-12
	Generic Name(s):	CFT 1000 - 2500			
	Usage:	Diagnostic			
Composition:	Ingredients	CAS No	Percent	Hazardous	
	Proprietary Ingredient supplied as 10% w/v Aqueous Solution	Proprietary	10	No	
	Water	7732-18-5	90	No	

<b>Manufacturer</b> <b>ProTechnics</b> Division of Core Laboratories 6510 W. Sam Houston Pkwy N. Houston, Texas 77041 Tel: 713-328-2320	<b>Emergency Telephone Numbers</b> <b>24Hr. Response</b> <b>Emergency: 713-328-2320</b> <b>Transportation Emergency:</b> <b>US: 1-800-535-5053</b> <b>International: 1-352-323-3500 collect</b>
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<b>II Health Hazard Data/ Identification</b> <b>EMERGENCY OVERVIEW</b> <b>PHYSICAL APPEARANCE:</b> Cream colored liquid with no odor <b>IMMEDIATE CONCERNS:</b> May cause eye and skin irritation <b>POTENTIAL HEALTH EFFECTS</b> <b>EYES:</b> May cause irritation to the eyes. <b>SKIN:</b> May cause irritation to the skin. <b>INGESTION:</b> May cause irritation to the digestive tract. <b>INHALATION:</b> May cause irritation to the lungs, upper respiratory Tract and nose. <b>SIGNS AND SYMPTOMS OF OVEREXPOSURE</b> <b>EYES:</b> Irritation or tearing of the eyes. <b>SKIN:</b> Irritation or itching of the skin <b>INGESTION:</b> Possible nausea and/or vomiting. <b>INHALATION:</b> Possible coughing, burning, tightness of chest and/or shortness of breath. <b>ACUTE TOXICITY:</b> No test data is available for acute dermal toxicity. No test data is available for acute oral toxicity. No test data is available for acute inhalation toxicity. <b>CARCINOGENICITY:</b> Not Listed by NTP, IARC, or OSHA <b>MUTAGENICITY:</b> Not Available <b>REPRODUCTIVE TOXICITY</b> <b>REPRODUCTIVE EFFECTS:</b> Not Available <b>TERATOGENIC EFFECTS:</b> Not Available <b>MEDICAL CONDITIONS AGGRAVATED:</b> None known <b>TARGET ORGAN STATEMENT:</b> Contains material which may cause gastrointestinal tract and respiratory tract irritation. <b>SENSITIZATION:</b> Not Available	<b>III First Aid</b> <b>EYES:</b> Immediately flush eyes with water for two to three minutes. Remove any contact lenses and continue flushing for 15 minutes. If irritation continues, seek medical attention. <b>SKIN:</b> Remove contaminated clothing including shoes and wash affected area with soap and water. If irritation continues, seek medical attention. Wash contaminated clothing and shoes before reuse. <b>INGESTION:</b> Wash out mouth with water. Seek medical attention. <b>INHALATION:</b> Although unlikely, remove from further exposure. If cough or other symptoms develop, seek medical attention.
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<b>IV Fire Fighting Measures</b> <b>FLASHPOINT AND METHOD:</b> Not Available <b>FLAMMABLE LIMITS:</b> None – nonflammable <b>AUTOIGNITION TEMPERATURE:</b> Not Available <b>FLAMMABLE CLASS:</b> Nonflammable <b>FLAME PROPAGATION OR BURNING RATE OF SOLIDS:</b> Not Available <b>GENERAL HAZARD:</b> None <b>EXTINGUISHING MEDIA:</b> Non-needed <b>HAZARDOUS COMBUSTION PRODUCTS:</b> None <b>FIRE FIGHTING PROCEDURES:</b> product is a nonflammable substance <b>SENSITIVE TO STATIC DISCHARGE:</b> Not Available <b>SENSITIVITY TO IMPACT:</b> Not Available	<b>V Accidental Release Measures</b> <b>SMALL SPILL:</b> Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material Wearing the appropriate personal protective equipment designated in Section 7, move the leaking container to a containment area
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## Material Safety Data Sheet

<p><b>VI Handling &amp; Storage</b></p> <p><b>HANDLING:</b> Use appropriate personal protective equipment as specified in Section 7. Handle in a well-ventilated area, and use in a manner consistent with good industrial/manufacturing techniques and practices</p> <p><b>STORAGE:</b> Store in unopened containers under cool and dry conditions.</p>	<p><b>VII Exposure Controls/ Personal Protection</b></p> <p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p><b>EYES AND FACE:</b> Wear safety glasses with side shields or goggles when handling this material.</p> <p><b>SKIN:</b> To prevent any contact, wear latex or butyl rubber gloves when handling material.</p> <p><b>RESPIRATORY:</b> If airborne dust is present, use a NIOSH approved particulate respirator.</p> <p><b>WORK HYGIENIC PRACTICES:</b> Facilities storing or using this material should be equipped with an eyewash facility or a safety shower. Good personal hygiene practices should always be followed.</p> <p><b>COMMENTS:</b> No PEL's, TLV's or OEL's for this product or its ingredients are listed in the current issue of ACGIH's guide to Occupational Exposure Values, nor have they been determined by the manufacturer.</p>
<p><b>VIII Reactivity Data</b></p> <p><b>STABLE:</b> YES</p> <p><b>HAZARDOUS POLYMERIZATION:</b> NO</p> <p><b>CONDITIONS TO AVOID:</b> Extreme Cold</p> <p><b>STABILITY:</b> The product is stable under normal ambient conditions of temperature and pressure.</p> <p><b>POLYMERIZATION:</b> Will not occur</p> <p><b>HAZARDOUS DECOMPOSITION PRODUCTS:</b> None</p> <p><b>INCOMPATIBLE MATERIALS:</b> Strong acids</p>	<p><b>IX Toxicological Information</b></p> <p><b>ACUTE</b></p> <p><b>DERMAL LD<sub>50</sub>:</b> Not Available</p> <p><b>ORAL LD<sub>50</sub>:</b> Not Available</p> <p><b>INHALATION LC<sub>50</sub>:</b> Not Available</p> <p><b>EYE EFFECTS:</b> This material may cause irritation to the eyes</p> <p><b>SKIN EFFECTS:</b> This material may cause irritation to the skin</p> <p><b>TARGET ORGANS:</b> Eyes, Skin, Gastrointestinal tract, Respiratory system</p> <p><b>CARCINOGENICITY:</b></p> <p><b>IARC:</b> Listed by IARC - No</p> <p><b>NTP:</b> Listed by NTP - No</p> <p><b>OSHA:</b> Listed by OSHA - No</p> <p><b>MUTAGENICITY:</b> Not Available</p> <p><b>REPRODUCTIVE EFFECTS:</b> Not Available</p> <p><b>TERATOGENIC EFFECTS:</b> Not Available</p>
<p><b>X Ecological Information</b></p> <p><b>ENVIRONMENTAL DATA:</b> Not Available</p> <p><b>ECOTOXICOLOGICAL INFORMATION:</b> Not Available</p> <p><b>DISTRIBUTION:</b> Not Available</p> <p><b>CHEMICAL FATE INFORMATION:</b> Not Available</p>	<p><b>XI Disposal Considerations</b></p> <p><b>DISPOSAL METHOD:</b> Dispose of waste at an appropriate waste disposal facility according to current applicable laws and regulations.</p> <p><b>PRODUCT DISPOSAL:</b> Dispose of at a supervised appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal.</p> <p><b>EMPTY CONTAINER:</b> Contaminated containers should be cleaned and disposed of in the same manner as the product in accordance with applicable regulations.</p> <p><b>GENERAL COMMENTS:</b> Refer to Section 5, Accidental Release Measures for additional information.</p>
<p><b>XII Transport Information</b></p> <p><b>DOT (DEPARTMENT OF TRANSPORTATION)</b></p> <p><b>PROPER SHIPPING NAME:</b> Not Regulated</p> <p><b>TECHNICAL NAME:</b> CFT 1000-2500</p> <p><b>LABEL:</b> Use Product Identifier, "Trade Name", with technical name below.</p> <p><b>AIR (ICAO/IATA)</b></p> <p><b>PROPER SHIPPING NAME:</b> Not Regulated</p> <p><b>TECHNICAL NAME:</b> CFT 1000-2500</p> <p><b>LABEL:</b> Use Product Identifier, "Trade Name", with technical name below.</p> <p><b>VESSEL (IMO/IMDG)</b></p> <p><b>PROPER SHIPPING NAME:</b> Not Regulated</p> <p><b>TECHNICAL NAME:</b> CFT 1000-2500</p> <p><b>LABEL:</b> Use Product Identifier, "Trade Name", with technical name below.</p>	<p><b>XIII Regulatory Information United States</b></p> <p><b>UNITED STATES</b></p> <p>SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)</p> <p><b>311/312 HAZARD CATEGORIES:</b></p> <p><b>FIRE:</b> NO</p> <p><b>PRESSURE GENERATING:</b> NO</p> <p><b>REACTIVITY:</b> NO</p> <p><b>ACUTE:</b> NO</p> <p><b>CHRONIC:</b> NO</p> <p><b>313 REPORTABLE INGREDIENTS:</b> Not Applicable</p> <p><b>TITLE III NOTES:</b> Not Applicable</p> <p>CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)</p> <p><b>CERCLA RQ:</b> Not Applicable</p> <p><b>TSCA (TOXIC SUBSTANCE CONTROL ACT)</b></p> <p><b>TSCA REGULATORY:</b> All intentional ingredients are listed on the TSCA Inventory.</p> <p><b>NATIONAL RESPONSE CENTER: U.S. Coast Guard National Center telephone # 1-800-424-8802</b></p>

## Material Safety Data Sheet

### XIV additional information

CANADA  
WHMIS HAZARD SYMBOL AND CLASSIFICATION

WHMIS Toxic



**Class D, Division 2, Subdivision B: Toxic Material may cause eye and skin irritation.**  
WHMIS (WORKER HAZARDOUS MATERIALS INFORMATION SYSTEM): **This product is WHMIS controlled.**  
CANADA INGREDIENT DISCLOSURE LIST: **This product does not contain any known ingredient(s) on the "Ingredient Disclosure List"**  
CANADIAN ENVIRONMENTAL PROTECTION ACT: **All intentional ingredients are listed on the DSL (Domestic Substance List)**

EUROPEAN COMMUNITY  
EEC LABEL SYMBOL AND CLASSIFICATION

EEC Irritant - "Xi"



**R 36, R 38: Irritating to eyes and skin.**  
**S 24, S 25: Avoid contact with skin or eyes.**  
**S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.**  
**S 28: After contact with skin, wash immediately with plenty of soap and water.**  
EUROPEAN COMMUNITY REGULATORY: **All intentional ingredients are listed on the European's EINECS Inventory.**

MEXICO **This product is considered to be an irritant according to Mexican Standard, Instruction No. 9, ANNEX 1**  
STATE REGULATIONS **Not Available**  
REGULATIONS  
LOCAL REGULATIONS: **Not Available**

COMMENTS: **To the best of our knowledge, this Material Safety Data Sheet conforms to the requirements of US OSHA 29 CFR 1910.1200, 91/155/EEC and Canadian Hazardous Products Act.**