

MATERIAL SAFETY DATA SHEET

Product Trade Name: FDP-S1078-12

Revision Date: 10-Jul-2013

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: FDP-S1078-12
Synonyms: None
Chemical Family: Water in Oil Emulsion Polymer
Application: Friction Reducer

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 (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Hydrotreated light petroleum distillate	64742-47-8	10 - 30%	Not applicable	Not applicable
Alcohols, C12-16, ethoxylated	68551-12-2	5 - 10%	Not applicable	Not applicable
Ammonium chloride	12125-02-9	5 - 10%	TWA: 10 mg/m ³ STEL: 20 mg/m ³	10 mg/m ³
9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	1 - 5%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye irritation. May be harmful if swallowed.

4. FIRST AID MEASURES

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

Skin: Wash with soap and water. Get medical attention if irritation persists. 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: Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	> 200
Flash Point/Range (C):	> 93
Flash Point Method:	PMCC
Autoignition Temperature (F):	> 419
Autoignition Temperature (C):	> 215
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. 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 1, Flammability 1, Reactivity 0
HMS Ratings: Health 1, Flammability 1, Physical Hazard 0 , PPE: A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Spills of this product are very slippery.

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. Avoid breathing mist. Wash hands after use. Launder contaminated clothing before reuse. Material is slippery underfoot.

Storage Information 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.

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.

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

Organic vapor respirator.

Hand Protection

Impervious rubber gloves.

Skin Protection

Rubber apron.

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:	White
Odor:	Sweet hydrocarbon
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	1.01
Density @ 20 C (lbs./gallon):	8.84
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	>212
Boiling Point/Range (C):	>100
Freezing Point/Range (F):	< 14
Freezing Point/Range (C):	< -10
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	~ 50
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

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

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure**Acute Toxicity****Inhalation**

Inhalation of mist or heated vapors may cause respiratory irritation.

Eye Contact

May cause slight eye irritation.

Skin Contact

May cause skin defatting with prolonged exposure.

Ingestion

Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

Chronic Effects/Carcinogenicity

No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrotreated light petroleum distillate	64742-47-8	5000 mg/kg (Rat)	2000 mg/kg (Rabbit)	5.2 mg/L (Rat) 4 h
Alcohols, C12-16, ethoxylated	68551-12-2	No data available	No data available	No data available
Ammonium chloride	12125-02-9	1410 mg/kg (Rat)	No data available	No data available
9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-, (Z)	93-83-4	12400 µL/kg (Rat)	No data available	No data available

12. ECOLOGICAL INFORMATION**Ecotoxicological Information****Ecotoxicity Product****Acute Fish Toxicity:** Not determined**Acute Crustaceans Toxicity:** Not determined**Acute Algae Toxicity:** Not determined**Ecotoxicity Substance**

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Hydrotreated light petroleum distillate	64742-47-8	No information available	LC50: 2.4 mg/L (Oncorhynchus mykiss)	No information available	LC50: 4720 mg/L (Den-dronereides heteropoda)
Alcohols, C12-16, ethoxylated	68551-12-2	No information available	No information available	No information available	No information available
Ammonium chloride	12125-02-9	EC50: 40-70 mg/l (Skeletonema costatum)	No information available	No information available	TLM96: 16 mg/l (Crangon crangon)
9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-, (Z)	93-83-4	No information available	No information available	No information available	No information available

Persistence and degradability

No information available

Bioaccumulative potential

No information available

Mobility in soil

No information available

Results of PBT and vPvB assessment

No information available.

Other adverse effects

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

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

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class None

EPA SARA (313) Chemicals This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.
Canadian Regulations	
Canadian DSL Inventory	All components listed on inventory or are exempt.
WHMIS Hazard Class	Un-Controlled

16. OTHER INFORMATION

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

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

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

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

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

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: Cla-Web™

Revision Date: 22-Nov-2011

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: Cla-Web™
Synonyms: None
Chemical Family: Blend
Application: Additive

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
Ammonium salt		30 - 60%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

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

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.

Eyes Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

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

Notes to Physician Treat symptomatically.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear colorless
Odor:	Slight Amine
pH:	4-9 (1-10%)
Specific Gravity @ 20 C (Water=1):	1.0841-1.1142
Density @ 20 C (lbs./gallon):	9.16
Bulk Density @ 20 C (lbs/ft ³):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	-40
Freezing Point/Range (C):	-40
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):	1-20
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)	None known.
Hazardous Decomposition Products	Metal oxides.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation.
Skin Contact	May cause skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	Irritation of the mouth, throat, and stomach.
Aggravated Medical Conditions	Skin 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	

Sea Transportation

IMDG

Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	EPA Reportable Spill Quantity is 2185 Gallons based on Trimethylamine (CAS: 75-50-3).
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

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

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **GasPerm 1000**

Revision Date: 15-Jan-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: GasPerm 1000
Synonyms: None
Chemical Family: Blend
Application: 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

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Isopropanol	67-63-0	10 - 30%	200 ppm	400 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 harmful if swallowed. May be absorbed through the skin. Repeated overexposure may cause liver and kidney effects.
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 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. Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

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.

In high concentrations, supplied air respirator or a self-contained breathing apparatus.

Hand Protection

Impervious rubber gloves. Nitrile gloves.

Skin Protection

Rubber apron.

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:	Light amber
Odor:	Alcohol
pH:	8.7
Specific Gravity @ 20 C (Water=1):	0.918
Density @ 20 C (lbs./gallon):	7.65
Bulk Density @ 20 C (lbs/ft ³):	Not Determined
Boiling Point/Range (F):	310
Boiling Point/Range (C):	154
Freezing Point/Range (F):	< 0
Freezing Point/Range (C):	< -17.8
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	50-75
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Partially soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers. Iodine pentafluorethylene Strong acids. Strong alkalis.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	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

Isopropanol Solution, 3, UN1219, II, (21.1 C)
NAERG 129

Canadian TDG

Isopropanol Solution, 3, UN1219, II, (21.1 C)

ADR

UN1219, Isopropanol Solution, 3, II

Air Transportation

ICAO/IATA

UN1219, Isopropanol Solution, 3, II

Sea Transportation

IMDG

UN1219, Isopropanol Solution, 3, II, (21.1 C)
EmS F-E, S-D

Other Shipping Information

Labels: Flammable Liquid

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory All components listed on inventory.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class Acute Health Hazard
Chronic Health Hazard
Fire Hazard

EPA SARA (313) Chemicals This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

EPA CERCLA/Superfund Reportable Spill Quantity Not applicable.

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **LP-65**

Revision Date: 21-Dec-2012

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: LP-65
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

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

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

9. PHYSICAL AND CHEMICAL PROPERTIES

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	
Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	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 or are exempt.
WHMIS Hazard Class	Un-Controlled

16. OTHER INFORMATION

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

Additional Information

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

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

Disclaimer Statement

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

END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **BE-9**

Revision Date: 21-Dec-2012

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

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
Odor:	Slight
pH:	6-8
Specific Gravity @ 20 C (Water=1):	0.95-1.00
Density @ 20 C (lbs./gallon):	8.12
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	212
Boiling Point/Range (C):	100
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):	Miscible
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	55-65
Partition Coefficient/n-Octanol/Water:	< 3
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)	Reducing agents. Strong alkalis.
Hazardous Decomposition Products	Chlorine. Phosphorus acids. 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 be harmful if inhaled.
Skin Contact	May cause skin burns. Harmful if absorbed through the skin.
Eye Contact	May cause eye burns.
Ingestion	May be harmful if swallowed.
Aggravated Medical Conditions	Lung disorders. Skin disorders.
Chronic Effects/Carcinogenicity	Not determined

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)

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

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

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