HALLIBURTON

SAFETY DATA SHEET

Product Trade Name: **BaraLube™ W-511**

Revision Date: 24-Sep-2015 **Revision Number:** 8

1. Identification

1.1. Product Identifier

Product Trade Name: BaraLube™ W-511
Synonyms: None
Chemical Family: Surfactant Blend
Internal ID Code HM007961

1.2 Recommended use and restrictions on use

Application: Friction Reducer
Uses Advised Against No information available

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier
Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: 1-866-519-4752 (US, Canada, Mexico) or 1-760-476-3962

Halliburton Energy Services
645 - 7th Ave SW Suite 2200
Calgary, AB
T2P 4G8
Canada

Prepared By Chemical Stewardship
Telephone: 1-281-871-6107
e-mail: fdunexchem@halliburton.com

1.4. Emergency telephone number

Emergency Telephone Number 1-866-519-4752 or 1-760-476-3962

2. Hazard(s) Identification

2.1 Classification in accordance with paragraph (d) of §1910.1200

Serious Eye Damage / Eye Irritation	Category 1 - H318

2.2. Label Elements

Hazard Pictograms

Signal Word Danger

Hazard Statements H318 - Causes serious eye damage

Precautionary Statements

Prevention P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear eye protection/face protection

Response P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

Storage None

Disposal None

Contains

Substances	**CAS Number**
Aliphatic polyglycol ether phosphates	Proprietary
Triethylene glycol butyl ether	143-22-6

2.3 Hazards not otherwise classified
None known

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Aliphatic polyglycol ether phosphates	Proprietary	5 - 10%	Skin Irrit. 2 (H315) Eye Irrit. 2A (H319)
Triethylene glycol butyl ether	143-22-6	5 - 10%	Eye Corr. 1 (H318)

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First-Aid Measures

4.1. Description of first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

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

Ingestion If swallowed, give at least 3-4 glasses of water, but do not induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Get medical attention.

4.2 Most important symptoms/effects, acute and delayed

Causes eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

Avoid spraying water directly into storage containers due to danger of boilover.

5.2 Specific hazards arising from the substance or mixture

Special Exposure Hazards

Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

5.3 Special protective equipment and precautions for fire-fighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.
See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for Safe Handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Avoid breathing mist. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 12 months.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable	Not applicable

8.2 Appropriate engineering controls

Engineering Controls	Use in a well ventilated area.

8.3 Individual protection measures, such as personal protective equipment

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	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, AS/NZS 1715:2009, 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 cartridge with particulate prefilter.
Hand Protection	Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. (>= 0.35 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.
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

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color:**	Colorless to slight yellow
Odor:	Sweet	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	2.5 - 5 (10%)
Freezing Point/Range	< 5 °C / < 41 °F
Melting Point/Range	No data available
Boiling Point/Range	100 °C
Flash Point	> 100 °C / PMCC
Flammability (solid, gas) Not applicable	
upper flammability limit	-
lower flammability limit	-
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.1
Water Solubility	Miscible with water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available

Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

None anticipated

10.5. Incompatible Materials

Strong oxidizers.

10.6. Hazardous Decomposition Products

Carbon monoxide and carbon dioxide.

11. Toxicological Information

11.1 Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics

Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	Causes eye irritation.
Skin Contact	May cause mild skin irritation.
Ingestion	Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

11.3 Toxicity data

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Aliphatic polyglycol ether phosphates	Proprietary	> 2000mg/kg (Rat)	No data available	No data available
Triethylene glycol butyl ether	143-22-6	5300 mg/kg (Rat) 5170 mg/kg (Rat)	3480 mg/kg (Rabbit) 3540 mg/kg (Rat)	> saturated concentration (Rat)

Substances	CAS Number	Skin corrosion/irritation
Aliphatic polyglycol ether phosphates		Irritating to skin. (Rabbit)
Triethylene glycol butyl ether	143-22-6	Non-irritating to the skin (Rabbit)

Substances	CAS Number	Eye damage/irritation
Aliphatic polyglycol ether phosphates		Irritating to eyes. (Rabbit)
Triethylene glycol butyl ether	143-22-6	Causes severe eye irritation which may damage tissue. (Rabbit)

Substances	CAS Number	Skin Sensitization
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)

Substances	CAS Number	Respiratory Sensitization
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	No information available

Substances	CAS Number	Mutagenic Effects
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	Not mutagenic in AMES Test. In vitro tests did not show mutagenic effects (similar substances)

Substances	CAS Number	Carcinogenic Effects
Aliphatic polyglycol ether phosphates		No information available.
Triethylene glycol butyl ether	143-22-6	No information available.

Substances	CAS Number	Reproductive toxicity
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - single exposure
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - repeated exposure
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	Not applicable

12. Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Aliphatic polyglycol ether phosphates	Proprietary	No information available	No information available	No information available	No information available
Triethylene glycol butyl	143-22-6	EC50 (72h) >500 mg/L	LC50 (96h) 2200-4600	EC10 (30 min) > 1995	EC50 (48h) >500 mg/L

ether		(Desmodesmus subspicatus) EC50 (72h) >612.6 mg/L (Desmodesmus subspicatus) NOEC (72h) 62.5 mg/L (Desmodesmus subspicatus)	mg/L (Leuciscus idus) LC50 (96h) 2400 mg/L (Pimephales promelas)	mg/L (Activated sludge, industrial) IC50 (16h) > 5000 mg/L (Activated sludge)	(Daphnia magna) EC100 (48h) >5000 mg/L (Daphnia magna) LC50 (48h) 2210 ng/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Aliphatic polyglycol ether phosphates	Proprietary	No information available
Triethylene glycol butyl ether	143-22-6	(85% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Aliphatic polyglycol ether phosphates	Proprietary	No information available
Triethylene glycol butyl ether	143-22-6	0.51

12.4. Mobility in soil

Substances	CAS Number	Mobility
Aliphatic polyglycol ether phosphates	Proprietary	No information available
Triethylene glycol butyl ether	143-22-6	KOC = 10

12.5 Other adverse effects
No information available

13. Disposal Considerations

13.1. Waste treatment methods
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

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

US DOT Bulk
DOT (Bulk) Not applicable

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

IMDG/IMO
UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable

Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO
UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable
Special Precautions for User: None

15. Regulatory Information

US Regulations

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

TSCA Significant New Use Rules - S5A2

Substances	CAS Number	TSCA Significant New Use Rules - S5A2
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable

EPA SARA Title III Extremely Hazardous Substances

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable

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

EPA SARA (313) Chemicals

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable	Not applicable
Triethylene glycol butyl ether	143-22-6	1.0%	Not applicable

EPA CERCLA/Superfund Reportable Spill Quantity

Substances	CAS Number	CERCLA RQ
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable
Triethylene glycol butyl ether	143-22-6	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.

NFPA Ratings: Health 1, Flammability 1, Reactivity 0
HMIS Ratings: Health 1, Flammability 1, Physical Hazard 0 , PPE: X

Canadian Regulations

Canadian DSL Inventory All components listed on inventory or are exempt.

16. Other information

Preparation Information

Prepared By
Chemical Stewardship
Telephone: 1-281-871-6107
e-mail: fdunexchem@halliburton.com

Revision Date: 24-Sep-2015

Reason for Revision SDS sections updated:
1

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 Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
ErC50 – Effective Concentration growth rate 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

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End of Safety Data Sheet