

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

BaraLube™ W-511

Revision Date: 24-Sep-2015

Revision Number: 8

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name BaraLube™ W-511
Internal ID Code HM007961

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Friction Reducer
Sector of use	SU2 - Mining, (including offshore industries)
Product category	PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

1.3. Details of the supplier of the safety data sheet

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

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

Emergency telephone - §45 - (EC)1272/2008	
Europe	112
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO): + 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture**REGULATION (EC) No 1272/2008**

Serious Eye Damage / Eye Irritation

Category 2 - H319

2.2. Label Elements**Hazard Pictograms****Signal Word****Warning****Hazard Statements**

H319 - Causes serious eye irritation

Precautionary Statements - EU (§28, 1272/2008)

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear eye protection/face protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

Contains**Substances**

Aliphatic polyglycol ether phosphates

Triethylene glycol butyl ether

Ethanol, 2,2',2''-nitrilotris-,

2-hydroxy-1,2,3-propanetricarboxylate (salt)

CAS Number

Proprietary

143-22-6

29340-81-6

2.3. Other Hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients**3.2. Mixtures**

Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Aliphatic polyglycol ether phosphates	Not Listed	Proprietary	5 - 10%	Skin Irrit. 2 (H315) Eye Irrit. 2A (H319)	No data available
Triethylene glycol butyl ether	205-592-6	143-22-6	5 - 10%	Eye Corr. 1 (H318)	01-2119475107-38
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	249-576-7	29340-81-6	10 - 30%	Not applicable	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

ACN No. 18-0000000386-74-0000

SECTION 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 and effects, both acute and delayed

Causes eye irritation.

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

Notes to Physician	Treat symptomatically
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SECTION 5: Firefighting 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. Special 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. Advice for firefighters**Special Protective Equipment for Fire-Fighters**

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

SECTION 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.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage
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7.1. Precautions for Safe Handling

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

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

7.3. Specific End Use(s)**Exposure Scenario**

No information available

Other Guidelines

No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters**Exposure Limits**

Substances	CAS Number	EU	UK	Netherlands	France
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Aliphatic polyglycol ether phosphates	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable	Not applicable	Not applicable	Not applicable
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable	Not applicable	Not applicable	Not applicable
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable	Not applicable	Not applicable	Not applicable
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable	Not applicable	Not applicable	Not applicable
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Aliphatic polyglycol ether phosphates	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable
Triethylene glycol butyl ether	143-22-6	Not applicable	Not applicable	Not applicable	Not applicable
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) Worker

No information available.

General Population

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls

Engineering Controls

Use in a well ventilated area.

Personal protective equipment

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

Respiratory Protection

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.

Hand Protection

Organic vapor cartridge with particulate prefilter.
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

Skin Protection**Eye Protection****Other Precautions**

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.

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

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

Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 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

Values

Remarks/ - Method

pH:

2.5 - 5 (10%)

Freezing Point/Range

< 5 °C

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

SECTION 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.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

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.

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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No data available	No data available	No data available

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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Not expected to be a skin irritant.

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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No data of sufficient quality are available.

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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Not regarded as a sensitizer.

Substances	CAS Number	Respiratory Sensitization
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	No information available
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects.

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

ether		
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No data of sufficient quality are 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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Animal testing did not show any effects on fertility.

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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No data of sufficient quality are available.

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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Aliphatic polyglycol ether phosphates		No information available
Triethylene glycol butyl ether	143-22-6	Not applicable
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No information available

SECTION 12: Ecological Information

12.1. Toxicity Ecotoxicity Effects

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 ether	143-22-6	EC50 (72h) >500 mg/L (Desmodesmus subspicatus) EC50 (72h) >612.6 mg/L (Desmodesmus subspicatus) NOEC (72h) 62.5 mg/L (Desmodesmus subspicatus)	LC50 (96h) 2200-4600 mg/L (Leuciscus idus) LC50 (96h) 2400 mg/L (Pimephales promelas)	EC10 (30 min) > 1995 mg/L (Activated sludge, industrial) IC50 (16h) > 5000 mg/L (Activated sludge)	EC50 (48h) >500 mg/L (Daphnia magna) EC100 (48h) >5000 mg/L (Daphnia magna) LC50 (48h) 2210 ng/L (Daphnia magna)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No information available	Mortality (96h) 11,800 mg/L (Pimephales promelas)	No information available	Reproduction (21d) 16 mg/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)
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No information available

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
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	Log Kow = -2.48

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
Ethanol, 2,2',2''-nitrilotris-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	29340-81-6	No information available

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Substances	PBT and vPvB assessment
Triethylene glycol butyl ether	Not PBT/vPvB

12.6. Other adverse effects**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations
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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.

SECTION 14: Transport Information
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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

RID

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

ADR

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

14.1. UN Number: Not restricted

14.2. UN Proper Shipping Name: Not restricted

14.3. Transport Hazard Class(es): Not applicable

14.4. Packing Group: Not applicable

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory or are exempt.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 1: Low hazard to waters.

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3

H315 - Causes skin irritation

H318 - Causes serious eye damage

H319 - Causes serious eye irritation

Key or legend to abbreviations and acronyms

bw – body weight

CAS – Chemical Abstracts Service

CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures

EC – European Commission

EC10 – Effective Concentration 10%

EC50 – Effective Concentration 50%

EEC – European Economic Community

ErC50 – Effective Concentration growth rate 50%

IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL0 – Lethal Loading 0%

LL50 – Lethal Loading 50%

MARPOL – International Convention for the Prevention of Pollution from Ships

mg/kg – milligram/kilogram

mg/L – milligram/liter

NIOSH – National Institute for Occupational Safety and Health

NOEC – No Observed Effect Concentration

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic

PC – Chemical Product category

PEL – Permissible Exposure Limit

ppm – parts per million

PROC – Process category

REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL – Short Term Exposure Limit

SU – Sector of Use category

Key literature references and sources for data

www.ChemADVISOR.com/

Revision Date: 24-Sep-2015

Revision Note

SDS sections updated: 1

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

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End of Safety Data Sheet