Drilling Fluids & Proppant Carrier Fluids

Wressle Wellsite

Wressle-1

Hydrocarbon Production and Short Duration Well Operations, including Near Wellbore Treatments and Proppant Squeeze Operations

3rd June 2016

*** Page Left Blank Intentionally ***

DRILLING FLUID CONTINUANTS

*** Page Left Blank Intentionally ***

Safety Data Sheet
CALCIUM CHLORIDE (ALL GRADES)

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name	CALCIUM CHLORIDE (ALL GRADES)
Product code	MI10432
Molecular weight	111
Norway Pr. no.	46238
Denmark Pr. no.	988590

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

Recommended use Weighting agent.

Uses advised against None known.

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
WARNING

Hazard statements
H319 - Causes serious eye irritation

Precautionary Statements - EU (28, 1272/2008)
P280 - Wear protective gloves/protective clothing and eye/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
P501 - Dispose of contents/container in accordance with local regulations.

-

Contains
Calcium chloride

-

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on Ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Calcium chloride	233-140-8	10043-52-4	60-100	Xi; R36	Eye Irrit. 2 (H319)	01-2119494219-28-xxxx

3.2 Mixtures

4. First aid measures

4.1 Description of first-aid measures

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

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact — Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye contact — Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact — Please see Section 11. Toxicological Information for further information.

Eye contact — Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion
Contact with metals may evolve flammable hydrogen gas.

Hazardous combustion products
Fire or high temperatures create:, Chlorine, May release hydrogen gas (explosive) on contact with metals.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Avoid contact with skin and eyes. Avoid dust formation.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture Avoid contact with: Strong oxidising agents Strong acids.
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, WEL TWA 4mg/m³ Respirable Dust, 10mg/m³ Total Dust.

Component	EU OEL - Third List	Austria	Australia	Denmark
Calcium chloride	Not determined	Not determined	Not determined	Not determined

Component	Finland	France	Germany	Hungary
Calcium chloride	Not determined	Not determined	Not determined	Not determined

Component	Ireland	Italy	Netherlands	Norway
Calcium chloride	Not determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Calcium chloride	Not determined	Not determined	Not determined	2 mg/m³ MAC (aerosol)

Component	Spain	Switzerland	Turkey	UK
Calcium chloride	Not determined	Not determined	Not determined	Not determined

Component	ACGIH TLV	TWA / C
Calcium chloride 10043-52-4 (60-100)	Not Determined	Not Determined

Derived No Effect Level (DNEL)

Short term exposure local effects
Calcium chloride
Inhalation 10 mg/m³
Long term exposure local effects
Calcium chloride
Inhalation 5 mg/m³

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles.
Hand protection	Repeated or prolonged contact:, Use protective gloves made of:, Nitrile, Neoprene gloves, Rubber gloves.
Respiratory protection	No personal respiratory protective equipment normally required, In case of insufficient ventilation wear suitable respiratory equipment, Half mask with a particle filter P2 (BS EN 143).
Skin and body protection	Wear suitable protective clothing, Provide eyewash station.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odour	Odourless
Colour	off-white
Odor threshold	Not applicable

Property	Values	Remarks
pH	Not applicable	
pH regulating agent	7 - 10	5% sol
Melting/freezing point	772 °C	
Boiling point/range	> 1600 °C	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Relative density	2.1 g/cm³	@ 20°C.
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	Not determined	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	111
VOC content(%)	None
Density VALUE	No information available

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid contact with water and moist air - product is hygroscopic.

10.5 Incompatible materials

Metals. Strong oxidising agents. Strong acids.

10.6 Hazardous decomposition products

May release hydrogen gas (explosive) on contact with metals. See also section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
Eye contact	Causes serious eye irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Acute toxicity	.

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Calcium chloride	= 1000 mg/kg (Rat)	= 2630 mg/kg (Rat)	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This substance has no evidence of mutagenic properties.

carcinogenicity This substance has no evidence of carcinogenic properties.

Reproductive toxicity None known.

Routes of exposure Eye contact.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological Information

12.1 Toxicity

Ecotoxicity effects
The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Listed on PLONOR list of OSPAR.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Calcium chloride	10650 mg/L LC50 (Lepomis macrochirus) = 96 h	No information available	52 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility in soil

Mobility
Soluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal Considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 06 03 14 - solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13 Waste Code: 7091 Inorganic salts and other solids.

14. Transport Information

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA,ADR/RID/ADG).

14.1 UN number
Not regulated

14.2 Proper shipping name
Not regulated

14.3. Hazard class(es)
Hazard class Not regulated

14.4 Packing group
Packing group Not regulated

14.5 Environmental hazard
No

14.6 Special precautions

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

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

Germany, Water Endangering Classes (VwVwS)	Water endangering class = 1

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

-

15.2 Chemical Safety Report

No information available

16. Other Information

Prepared by	Global Chemical Regulatory Compliance (GCRC)
Supercedes date	15/Nov/2010

Revision date	01/Apr/2014
Version	5
The following sections have been revised	This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made, Updated according to CLP.

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

H319 - Causes serious eye irritation

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET
CITRIC ACID

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name CITRIC ACID

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

Identified uses Oil well drilling fluid additive. pH modifier.

1.3. Details of the supplier of the safety data sheet

Supplier

M-I SWACO
A Schlumberger Company
Woodlands Drive
Kirkhill Industrial Estate
Dyce, Aberdeen AB21 0GW
Scotland UK
T=+44(0)1224-246600
F=+11(0)1224-246699
Email - MISDS@slb.com

1.4. Emergency telephone number

(24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600.

National Emergency Telephone Number

+31 (0)30-2748888 Only for the purpose of informing medical personnel in cases of acute intoxications in the Netherlands.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Not classified.
Human health	Eye Irrit. 2 - H319
Environment	Not classified.

Classification (1999/45/EEC) Xi;R36.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2. Label elements

Label In Accordance With (EC) No. 1272/2008

Signal Word Warning

Hazard Statements

H319	Causes serious eye irritation.

Precautionary Statements

P337+313	If eye irritation persists: Get medical advice/attention.

Supplementary Precautionary Statements

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P264	Wash contaminated skin thoroughly after handling.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

Not Classified as PBT/vPvB by current EU criteria.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

CITRIC ACID MONOHYDRATE		60-100%
CAS-No.: 5949-29-1	EC No.:	
Classification (EC 1272/2008) Eye Irrit. 2 - H319	Classification (67/548/EEC) Xi;R36.	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition Comments

The data shown is in accordance with the latest EC Directives.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation

Move the exposed person to fresh air at once. If respiratory problems, artificial respiration/oxygen. Get medical attention if any discomfort continues.

Ingestion

Immediately give a couple of glasses of water or milk, provided the victim is fully conscious. Get medical attention if any discomfort continues.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.

Eye contact

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

General information

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop as described the casualty should be transferred to hospital as soon as possible. For further information, please refer to section 11.

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

Treat Symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

Water spray, foam, dry powder or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Fire or high temperatures create: Irritating gases/vapours/fumes of: Carbon monoxide (CO). Carbon dioxide (CO_2).

Unusual Fire & Explosion Hazards

High concentrations of dust may form explosive mixture with air.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Containers close to fire should be removed immediately or cooled with water.

Protective equipment for fire-fighters

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3. Methods and material for containment and cleaning up

Avoid generation and spreading of dust. Remove spillage with vacuum cleaner. If not possible, collect spillage with shovel, broom or the like. Flush with plenty of water to clean spillage area. Do not let washing down water contaminate ponds or waterways.

6.4. Reference to other sections

For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation of dust and contact with skin and eyes. Avoid handling which leads to dust formation.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Store separated from: Alkalis. Oxidising material.

Storage Class

Chemical storage.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Ingredient Comments

NUI = Nuisance dust, WEL TWA 4mg/m3 Respirable Dust, 10 mg/m3 Total Dust.

8.2. Exposure controls

Protective equipment

Process conditions

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures

Provide adequate general and local exhaust ventilation.

Respiratory equipment

No specific recommendation made, but respiratory protection may still be required under exceptional circumstances when excessive air contamination exists. Wear mask supplied with: Dust filter P2 (for fine dust).

Hand protection

For prolonged or repeated skin contact use suitable protective gloves. Butyl rubber. Polyvinyl chloride (PVC).

Eye protection

Wear approved safety goggles.

Other Protection

Wear appropriate clothing to prevent any possibility of skin contact. Provide eyewash station.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Crystals or crystalline
Colour	White.
Odour	Odourless.
Solubility	Soluble in water.
Melting point (°C)	153°C
Relative density	1.542g/cm3 @ 20°C
Bulk Density	900 kg/m3
pH-Value, Diluted Solution	1.6 @ 100g/l
Solubility Value (G/100G H2O@20°C)	60
Auto Ignition Temperature (°C)	1010°C

9.2. Other information

Not relevant

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Violent reaction with: Strong alkalis. Strong oxidising agents.

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Not known.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Materials To Avoid

Strong alkalis. Strong oxidising agents.

10.6. Hazardous decomposition products

Fire or high temperatures create: Irritating gases/vapours/fumes of: Carbon monoxide (CO). Carbon dioxide (CO2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Toxic Dose 1 - LD 50

5040 mg/kg (oral-mouse)

Toxic Dose 2 - LD 50

3000 mg/kg (oral rat)

Acute toxicity:

Acute Toxicity (Oral LD50)

> 7000 mg/kg Rabbit

ATE (Oral)

3000 mg/kg

Aspiration hazard:

Not anticipated to present an aspiration hazard based on chemical structure.

Inhalation

Dust may irritate respiratory system or lungs.

Ingestion

May irritate and cause stomach pain, vomiting and diarrhoea.

Skin contact

Skin irritation is not anticipated when used normally.

Eye contact

Causes serious eye irritation. Particles in the eyes may cause irritation and smarting.

Route of entry

No route of entry noted.

Target Organs

No specific target organs noted

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Contact M-I SWACO's QHSE Department for ecological information at env@miswaco.slb.com.

12.1. Toxicity

Acute Fish Toxicity

Not considered toxic to fish.

LC 50, 96 Hrs, Fish mg/l	440 - 760

12.2. Persistence and degradability

Degradability

There are no data on the degradability of this product.

12.3. Bioaccumulative potential

Bioaccumulative potential

No data available on bioaccumulation.

12.4. Mobility in soil

Mobility:

The product is soluble in water.

12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Recover and reclaim or recycle, if practical. Dispose of waste and residues in accordance with local authority requirements.

Waste Class

EWC-code: 06 01 06. 7134. Organic acids.

SECTION 14: TRANSPORT INFORMATION

General	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable. Please contact MISDS@slb.com for info regarding transport in Bulk.

SECTION 15: REGULATORY INFORMATION

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

Uk Regulatory References

Chemicals (Hazard Information & Packaging) Regulations. Control of Substances Hazardous to Health Regulations 2002 (as amended) Workplace Exposure Limits EH40.

EU Legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

National Regulations

In accordance with Dutch Mining Regulation 9.2 and ARBO regulation Chapter 4.

Water hazard classification

WGK 1

15.2. Chemical Safety Assessment

International Chemical Inventories

Contact REACH@miswaco.slb.com for REACH information. Complies with the following national/regional chemical inventory requirements: Australia (AICS), Canada (DSL / NDSL), China (IECSC), Europe (EINECS / ELINCS), Japan (METI / ENCS), Korea (TCCL / ECL), New Zealand (NZIoC), Phillipines (PICCS), United States (TSCA).

SECTION 16: OTHER INFORMATION

Information Sources

Product information provided by the commercial vendor(s). Material Safety Data Sheet, Misc. manufacturers. LOLI. European Chemicals Bureau - ESIS (European Chemical Substances Information).

Revision Comments

General revision.

Issued By	Sarah Malone
Revision Date	28-Feb-13
Revision	6
Supersedes date	14-Mar-08
SDS No.	11350
Signature	Laura McDonald
Signature 2	Sandra McWilliam

Risk Phrases In Full

R36	Irritating to eyes.

Hazard Statements In Full

H319	Causes serious eye irritation.

Disclaimer

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to tl product or to the data herein is made or incurred hereunder.

Material Safety Data Sheet

Issue: 10
Date: 17/05/2015

1. IDENTIFICATION

Name of substance : **Koplus® LO**

Use: Oilfield product for use in drilling and stimulation operations.

Manufacturer/Supplier: **Well-Flow International**
P.O. Box 11651
Manama, Kingdom of Bahrain
Tel: +973 17537833, Fax: +973 17537844

2. COMPOSITION/INFORMATION ON INGREDIENTS

The product is a preparation, containing the following ingredients classified as dangerous under EU regulations and/or for which there are Community workplace exposure limits.

INGREDIENT	EINECS/ELINCS No	% By Weight	EC Symbols and Risk Phrases
Tetrasodium Pyrophosphate	231-767-1	1-5%	Not Classified
2-Butoxyethanol	203-905-0	10-24%	Xn R20/21/22 Xi R36/38

3. HAZARDS IDENTIFICATION

Irritating to eyes and skin: avoid contact. If mist is formed inhalation can cause irritation of mucous membranes in airways, coughing and shortness of breath. 2-butoxyethanol ingredient is readily absorbed through the skin.

4. FIRST AID MEASURES

Inhalation:	Remove to fresh air.
Ingestion:	If the chemical has been confined to the mouth give large quantities of water as a mouth wash, ensuring this is not swallowed. If the chemical has been swallowed and the patient is conscious, give about 250 ml of water to dilute it. Obtain medical attention.
Skin contact:	Remove any contaminated clothing. Wash skin thoroughly with plenty of soap and with water. Obtain medical assistance if irritation persists.
Eye contact:	Irrigate thoroughly with plenty of clean water, including under the eyelids. Obtain medical assistance if irritation persists.

5. FIRE FIGHTING MEASURES

The product is combustible.

Suitable extinguishing media	:	Foam, CO_2, Dry powder.
NOT TO BE USED	:	Water Jet.
Special hazards	:	None
Protective equipment	:	Protection as appropriate to fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions :	Prevent eye contact - see section 8. Contain or absorb in sand.
Environmental precautions :	
Clean-up and disposal:	Contain or absorb in sand - see section 13.

7. HANDLING AND STORAGE

Store in sealed containers (plastic lined) away from direct sunlight, ignition sources and electrostatic discharges. Avoid high temperatures; no special requirements for segregation from other products apply.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits: 8-hour Workplace Exposure Limit for tetrasodium pyrophosphate 5mg/cu.m (EH40).

CLOTHING/EQUIPMENT	REQUIRED?	DETAILS
Protective clothing	Yes	Suitable for liquid splash protection (e.g. to EN 348)
Respiratory protection	Normally no	Avoid mist generation
Hand protection	Yes	impermeable gloves, PVC or similar (e.g. to EN 374-3).
Eye protection	yes	Goggles, face shield or safety glasses with side shields (to EN 166).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	**Multi-Phase** Clear Liquid
Odour	:	Slight.
pH	:	1.4 – 2.3 (aqueous phase)
Boiling point	:	>100 C
Melting point	:	<0 C
Flash point	:	>66 C (2-butoxyethanol)
Decomposition temp.	:	N/A
Auto ignition temp.	:	N/A
Solubility (water)	:	Freely Soluble
Density	:	1.128
Vapour pressure (25°C)	:	23.8 mm Hg (water), 0.76 mm Hg (2-butoxyethanol)

10. STABILITY AND REACTIVITY

Stability	:	Stable
Avoid contact with	:	Strong oxidising agents.
Decomposition products	:	None known to be hazardous.

11. TOXICOLOGICAL INFORMATION

The formulated product has not been tested. Toxicological properties are predictable from known properties of the product ingredients.

Acute oral toxicity:	low (rat acute oral LD50 >2000 mg/kg reported for all ingredients)
Repeat-dose toxicity:	2-butoxyethanol can cause haematotoxicity (NOAEL in rat 24.6 ppm (by inhalation: comparable to 22.5 mg/kg/day). Humans appear less sensitive to this effect than rats)
Dermal toxicity:	low for other ingredients, but 2-butoxyethanol is readily absorbed through the skin
Irritance/corrosion on the skin:	2-butoxyethanol irritates skin. Other ingredients not considered irritating
In the eye:	2-butoxyethanol irritates eyes and organic acid content may cause slight irritation. Other ingredients not considered irritating
Skin sensitisation:	data incomplete, but sensitization is not expected
Mutagenicity:	no ingredient is known to be mutagenic
Other available toxicity data:	no ingredient has been reported to be carcinogenic

12. ECOLOGICAL INFORMATION

Given the high solubility in water, mobility in the aqueous environment is expected to be high. All organic ingredients of the product are readily biodegradable.
Significant bioaccumulation is not expected.

The formulated product has not been tested but low ecotoxicity is predicted from known properties of the product ingredients. OCNS Category E.

Acute toxicity to fish:	low (>100 mg/l for all ingredients)
Acute toxicity to invertebrates (Daphnia):	low (>100 mg/l for all ingredients, except for organic acid (at high concentration causes pH-related effects)
Acute toxicity to algae:	low (>100 mg/l for all ingredients)
Other available toxicity data:	2-butoxyethanol shows very low toxicity to marine organisms (LC/EC50 values 437 mg/l and greater for fish, invertebrates, algae).

13. DISPOSAL CONSIDERATIONS

Pure material	:	May be incinerated. Consult licensed waste disposal contractor.
Contaminated sand, etc.	:	May be land-filled subject to proper authorisation.
Packaging	:	May be recycled. Consult licensed drum recycler.

Disposers must comply with all relevant statutory requirements.

14. TRANSPORT INFORMATION

Not classified as dangerous for carriage by road/air.

UN Number (SIN): N/A
Classification, Packing group: N/A

15. REGULATORY INFORMATION

Dangers and symbols: Xi (irritant)

Risk phrases: R36/38 Irritating to eyes and skin
Safety phrases: S23 – Do not breathe spray
S24/25 – Avoid contact with skin and eyes
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

Labelling requirements: as indicated above.

The information contained in this safety data sheet does not constitute the user's own assessment of workplace risk as required by health and safety legislation. The user is reminded of the requirement to comply with the provisions of the Health and Safety at Work Act and the Control of Substances Hazardous to Health Regulations.

16. OTHER INFORMATION

Training: users should ensure that personnel are trained in the correct use of this product.
Recommended uses: this product is supplied for the purposes notified to the customer on the data sheet. Its suitability or safety for use in any other circumstances cannot be warranted.
Technical advice: the user should contact the supplier if further advice is required.
Sources of data: this data sheet is compiled from laboratory analysis of the material and from published sources considered reliable.

THIS SAFETY DATA SHEET IS VERSION 10

ISSUE DATE 17/05/2015

The Supplier identified in Section 2 provides this Safety Data Sheet as required by Directives 91/155/EEC, 93/112/EC and 2001/58/EC, but gives no warranty as to accuracy or completeness. As conditions of use of this product will vary and are outside the control of the Supplier, the obligation to ensure safety in use rests with the user.

Safety Data Sheet
LIME

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name	LIME
Product code	MI10290
Synonyms	CALCIUM HYDROXIDE, HYDRATKALK
Norway Pr. no.	46235
Denmark Pr. no.	342757

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

Recommended use	pH modifier
Uses advised against	Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Environmental hazards	Not classified
Physical Hazards	Not classified

2.2 Label Elements

Signal word
DANGER

Hazard statements
H315 - Causes skin irritation
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary Statements - EU (§28, 1272/2008)
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
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
P501 - Dispose of contents/container in accordance with local regulations.

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P332 + P313 - If skin irritation occurs: Get medical advice/ attention
P362 - Take off contaminated clothing and wash before re-use
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Contains
Calcium hydroxide

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Calcium hydroxide	215-137-3	1305-62-0	60-100	Xi; R37/38 Xi; R41	Eye Dam. 1 (H318) Skin Irrit. 2 (H315) STOT SE 3 (H335)	01-2119475151-45-xxxx

3.2 Mixtures

Not Applicable

4. First aid measures

4.1 First Aid

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

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation persists.

Eye contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses. Continue to rinse for at least 15 minutes. Get immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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
Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
Water.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapours.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

Methods for cleaning up
Avoid dust formation. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure Do not eat, drink or smoke when using this product. Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture Avoid contact with: Acids

Storage class Chemical storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Calcium hydroxide	Not determined	Not determined	5 mg/m³ TWA	5 mg/m³ TWA

Component	Malaysia	France	Germany	Hungary
Calcium hydroxide	5 mg/m³ TWA	5 mg/m³	1 mg/m³ TWA	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Calcium hydroxide	5 mg/m³ TWA	Not determined	5 mg/m³	5 mg/m³ TWA 10 mg/m³ STEL

Component	Poland	Portugal	Romania	Russia
Calcium hydroxide	2 mg/m³ TWA NDS	5 mg/m³ TWA indicative limit value	5 mg/m³ TWA	2 mg/m³ MAC Skin

Component	Spain	Switzerland	Turkey	UK
Calcium hydroxide	5 mg/m³ TWA VLA-ED	5 mg/m³ TWA MAK	5 mg/m³ TWA	15 mg/m³ STEL calculated 5 mg/m³ TWA

Derived No Effect Level (DNEL)

Short term exposure local effects

Calcium hydroxide

Inhalation	4 mg/m³

Long term exposure local effects

Calcium hydroxide

Inhalation	1 mg/m³

Predicted No Effect Concentration (PNEC)

Calcium hydroxide

Fresh Water	0.49 mg/L
Sea Water	0.32 mg/L
Soil	1080 mg/kg
Impact on Sewage Treatment	3 mg/L
Intermittent release	0.49 mg/L

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure

Ensure adequate ventilation. Local exhaust ventilation.

Personal protective equipment

Eye protection	It is good practice to wear Safety Glasses with Side-shields when handling any chemical.
Hand protection	Use protective gloves made of:, Nitrile, Frequent change is advisable.
Respiratory protection	Half mask with a particle filter P2 (BS EN 143), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odour	Odourless
Colour	White - off-white
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	12.4	
pH @ dilution		
Melting/freezing point	> 450 °C / > 842 °F	
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	2.24	@ 20 °C
Bulk density	400 kg/m³	
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Viscosity, dynamic	No information available	
Log Pow	Not determined	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available
Particle Size (Micron)	< 500

10. Stability and reactivity

10.1 Reactivity

Exothermic reaction with:. Acids.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Acids. Water.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation May cause respiratory irritation.

Eye contact Causes serious eye damage.

Skin contact Causes skin irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium hydroxide	= 7340 mg/kg (Rat)	No data available	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure Skin contact. Inhalation. Eye contact.

Routes of entry Inhalation.

Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Not classified.
Target organ effects	Respiratory system.
Aspiration hazard	No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Calcium hydroxide	160 mg/L LC50 (Gambusia affinis) = 96 h	No information available	No information available

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 06 03 14 - solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13 Waste Code: 7132 Inorganic bases.

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Germany, Water Endangering Classes (VwVwS)	Water endangering class = 1

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No Poisons Schedule number allocated

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

ADG Code – Australian Dangerous Goods Code.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)

The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)
International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies

Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supercedes date	15/Apr/2013
Revision date	09/Jul/2015
Version	7
The following sections have been revised:	All sections, Updated according to GHS/CLP, No changes with regard to classification have been made.

Text of R phrases mentioned in Section 3
R41 - Risk of serious damage to eyes

R37/38 - Irritating to respiratory system and skin

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

H315 - Causes skin irritation
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Safety Data Sheet
SAFE-CARB† (All Grades)

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name	SAFE-CARB† (All Grades)
Product code	MI11713
Synonyms	SAFE-CARB 2, 10, 20, 25, 40, 250, 500, 600, 750, 1400 and 2500.
REACH Registration Name	Exempt
Norway Pr. no.	N/A
Denmark Pr. no.	2175905

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

Recommended use	Lost circulation material. Weighting agent. Bridging material.
Uses advised against	None known.

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards	Not classified
Environmental hazards	Not classified
Physical Hazards	Not classified

2.2 Label Elements

-

-

Contains
Calcium carbonate

Crystalline silica (impurity)

-

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

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on Ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Calcium carbonate		471-34-1	60-100	-	Not classified	No data available
Crystalline silica (impurity)	238-878-4	14808-60-7	<1	Xn; R48/20	STOT Rep. 2 - H373	No data available

3.2 Mixtures

Not Applicable

Comment
Naturally occuring mineral. This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First aid measures

4.1 Description of first-aid measures

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

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye contact Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion
None known.

Hazardous combustion products
Fire or high temperatures create:, Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Avoid contact with skin and eyes. Avoid dust formation.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture

Storage class Chemical storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Calcium carbonate	Not determined	Not determined	10 mg/m³ TWA (containing no asbestos and <1% crystalline silica, inspirable dust)	Not determined

Crystalline silica (impurity)	Not determined	Not determined	0.1 mg/m³ TWA	0.1mg/m³

Component	Finland	France	Germany	Hungary
Calcium carbonate	Not determined	10 mg/m³	Not determined	Not determined
Crystalline silica (impurity)	Not determined	0.1 mg/m³	Not determined	Not determined

Component	Ireland	Italy	Netherlands	Norway
Calcium carbonate	Not determined	Not determined	Not determined	Not determined
Crystalline silica (impurity)	Not determined	Not determined	0.075 mg/m³	0.3 mg/m³ total dust 0.1 mg/m³ respirable dust

Component	Poland	Portugal	Romania	Russia
Calcium carbonate	10 mg/m³ TWA <2% free crystalline silica total inhalable dust	10 mg/m³ TWA particulate matter containing no Asbestos and < 1% Crystalline silica	Not determined	Not determined
Crystalline silica (impurity)	2 mg/m³ TWA >50% free crystalline silica total inhalable dust 0.3 mg/m³ TWA >50% free crystalline silica respirable dust 4.0 mg/m³ TWA 2% to 50% free crystalline silica total inhalable dust 1.0 mg/m³ TWA 2% to 50% free crystalline silica respirable dust	0.025 mg/m³ TWA respirable fraction	Not determined	3 mg/m³ STEL 1 mg/m³ TWA aerosol

Component	Spain	Switzerland	Turkey	UK
Calcium carbonate	10 mg/m³ VLA-ED	Not determined	Not determined	Not determined
Crystalline silica (impurity)	0.1 mg/m³ VLA-ED respirable fraction	0.15 mg/m³ MAK respirable	Not determined	0.3 mg/m³ STEL calculated respirable 0.1 mg/m³ TWA respirable

Component	ACGIH TLV	TWA / C
Calcium carbonate 471-34-1 (60-100)	Not Determined	Not Determined
Crystalline silica (impurity) 14808-60-7 (<1)	0.025 mg/m³	total dust respirable fraction

Derived No Effect Level (DNEL)

Long term exposure systemic effects
Calcium carbonate
Inhalation 10 mg/m³

Predicted No Effect Concentration (PNEC) .

Calcium carbonate

Impact on Sewage Treatment	100 mg/l

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles.
Hand protection	Repeated or prolonged contact:, Use protective gloves made of:, Nitrile, Neoprene.
Respiratory protection	No personal respiratory protective equipment normally required, In case of insufficient ventilation wear suitable respiratory equipment, Suitable mask with particle filter P3 (European Norm 143).
Skin and body protection	Wear suitable protective clothing, Provide eyewash station.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odour	Odourless
Colour	White
Odor threshold	Not applicable

Property	Values	Remarks
pH	Not applicable	
pH regulating agent	8.5 - 9.5	@ 100 g/l
Melting/freezing point		
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	

Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	2.7 - 2.8	@ 20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	825 °C	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	Not determined	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Protect from moisture.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact May cause slight irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Acute toxicity .

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Calcium carbonate	= 6450 mg/kg (Rat)	No data available	No data available
Crystalline silica (impurity)	= 500 mg/kg (Rat)	No data available	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This substance has no evidence of mutagenic properties.

carcinogenicity This substance has no evidence of carcinogenic properties.

Reproductive toxicity None known.

Routes of exposure None known.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological Information

12.1 Toxicity

Ecotoxicity effects
The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Listed on PLONOR list of OSPAR.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
Not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
Not considered toxic.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Calcium carbonate	No information available	No information available	No information available
Crystalline silica (impurity)	No information available	No information available	No information available

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility in soil

Mobility
Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal Considerations

13.1 Waste treatment methods

Waste from residues / unused products — Dispose of in accordance with local regulations.

Contaminated packaging — Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.

EWC waste disposal No. — According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 06 03 99 - wastes not otherwise specified.

14. Transport Information

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA,ADR/RID/ADG).

14.1 UN number
Not regulated

14.2 Proper shipping name
Not regulated

14.3. Hazard class(es)

Hazard class	Not regulated

14.4 Packing group

Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

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

Germany, Water Endangering Classes (VwVwS)	Water endangering class = nwg

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

-

15.2 Chemical Safety Report

No information available

16. Other Information

Prepared by	Global Chemical Regulatory Compliance (GCRC)
Supercedes date	11/Jan/2011
Revision date	02/Apr/2014
Version	7
The following sections have been revised	This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made, Updated according to CLP.

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

Not classified

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety data sheet number MI11344
Version 6
Revision date 05/Dec/2014
Supercedes date 19/Nov/2014

Safety Data Sheet
TRUVIS†

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name TRUVIS†
Product code MI11344
REACH Registration Name Exempt

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

Recommended use Viscosifier.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
None

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger
Not classified

Contains
Crystalline silica (impurity)

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Crystalline silica (impurity)	238-878-4	14808-60-7	< 1	Xn; R48/20	STOT Rep. 2 - H373	No data available

3.2 Mixtures

Not Applicable

Comments
The product contains other ingredients which do not contribute to the overall classification.

This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First aid measures

4.1 First Aid

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye contact	Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Main symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapours.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. If spilled, take caution, as material can cause surfaces to become very slippery.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Remove all sources of ignition. If spilled, take caution, as material can cause surfaces to become very slippery.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits No biological limit allocated

Component	EU OEL - Third List	Austria	Australia	Denmark
Crystalline silica (impurity)	Not determined	Not determined	0.1 mg/m³ TWA	0.1mg/m³

Component	Finland	France	Germany	Hungary
Crystalline silica (impurity)	Not determined	0.1 mg/m³	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Crystalline silica (impurity)	0.2 mg/m³ TWA Known or presumed human carcinogen	Not determined	0.075 mg/m³	0.3 mg/m³ TWA total dust 0.1 mg/m³ TWA respirable dust Carcinogen

Component	Poland	Portugal	Romania	Russia
Crystalline silica (impurity)	2 mg/m³ TWA >50% free crystalline silica total inhalable dust 0.3 mg/m³ TWA >50% free crystalline silica respirable dust 4.0 mg/m³ TWA 2% to 50% free crystalline silica total inhalable dust 1.0 mg/m³ TWA 2% to 50% free crystalline silica respirable dust	0.025 mg/m³ TWA respirable fraction	Not determined	1 mg/m³ MAC 3 mg/m³ STEL 1 mg/m³ TWA aerosol Fibrogenic substance

Component	Spain	Switzerland	Turkey	UK
Crystalline silica (impurity)	0.1 mg/m³ VLA-ED respirable fraction	0.15 mg/m³ MAK respirable	Not determined	0.3 mg/m³ STEL calculated respirable 0.1 mg/m³ TWA respirable

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles.
Hand protection	Use protective gloves made of:, Neoprene, Nitrile.
Respiratory protection	Respirator must be worn if exposed to dust, Suitable mask with particle filter P3 (European Norm 143).
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odour	Odourless
Colour	off-white
Odor threshold	Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution		
Melting/freezing point		
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	

Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.5 - 1.7 sg	20 °C
Bulk density	560 kg/m³ (34.9 lb/ft3)	
Relative density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	190 °C / 374 °F	
Decomposition temperature	No information available	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	No information available

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact May cause slight irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Acute toxicity .

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica (impurity)	= 500 mg/kg (Rat)	No data available	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure Inhalation. Ingestion.

Routes of entry Inhalation. Ingestion.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Crystalline silica (impurity)	No information available	No information available	No information available

12.2 Persistence and degradability

Not readily biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

Mobility
Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 01 05 99 - wastes not otherwise specified

14. Transport information

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA,ADR/RID/ADG).

14.1 UN number
Not regulated

14.2 Proper shipping name
Not regulated

14.3. Hazard class(es)

ADR/RID/ADN Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Germany, Water Endangering Classes (VwVwS)	Water endangering class = 1

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No Poisons Schedule number allocated

New Zealand hazard classification	Not classified.
HSNO approval no.	Not required.
Group number	Not required.

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Does not Comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Chemical Regulatory Compliance (GCRC) , Anne Karin (Anka) Fosse
Supercedes date	19/Nov/2014
Revision date	05/Dec/2014
Version	6
The following sections have been revised	3. Composition/information on Ingredients, Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3

R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation

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

H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety data sheet number MI10605
Version 5
Revision date 12/Jun/2015
Supercedes date 24/Aug/2009

Safety Data Sheet
VERSACLEAN† FL

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name VERSACLEAN† FL
Product code MI10605

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

Recommended use Emulsifier

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Skin sensitisation	Category 1

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
WARNING

Hazard statements
H317 - May cause an allergic skin reaction

Precautionary Statements - EU (§28, 1272/2008)
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
P501 - Dispose of contents/container in accordance with local regulations.

Supplementary precautionary statements
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
P363 - Wash contaminated clothing before re-use

-

Contains

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Distillates (petroleum), hydrotreated light

(2-methoxymethylethoxy)propanol

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	273-601-0	68990-47-6	30-60	Xi; R43	Skin Sens. 1 (H317)	01-2119496070-42-xxxx
Distillates (petroleum), hydrotreated light	265-149-8	64742-47-8	10-30	Xn; R65	Asp. Tox. 1 (H304)	01-2119484819-18-xxxx
(2-methoxymethylethoxy)propanol	252-104-2	34590-94-8	5-10	-	Not classified	01-2119450011-60-xxxx

Comments
The product contains other ingredients which do not contribute to the overall classification.
The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply.

4. First aid measures

4.1 First Aid

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

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Seek immediate medical attention/advice.

Eye contact Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
Do not use halon type extinguisher.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Vapors are heavier than air and may spread along floors.

Hazardous combustion products
Fire or high temperatures create:, Amines, Carbon oxides (COx), Hydrocarbon, Nitrogen oxides (NOx), Aldehydes, Ketones.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustable material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use. Persons susceptible to allergic reactions should not handle this product.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition Avoid contact with: Aluminum Acids Strong bases Strong oxidising agents Strong reducing agents. Avoid: Exposure to air.

Storage class Chemical storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits Oil mist (mineral) workplace exposure limits are currently under review by legislative authorities. This workplace exposure limit (WEL) standard is applicable to highly refined mineral oils and is provided as a guidance limit only LT. EXP = 5mg/m^3 and ST. EXP = 10mg/m^3.

Component	EU OEL - Third List	Austria	Australia	Denmark
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined

(2-methoxymethylethoxy)propanol	50 ppm TWA 308 mg/m³ TWA Possibility of significant uptake through the skin	Not determined	skin notation 50 ppm TWA; 308 mg/m³ TWA	50 ppm TWA 300 mg/m³ TWA Potential for cutaneous absorption

Component	Malaysia	France	Germany	Hungary
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	100 ppm TWA 606 mg/m³ TWA Skin notation	50 ppm 308 mg/m³	50 ppm MAK 310 mg/m³ MAK	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not Determined	Not determined	Not determined	Not determined
Distillates (petroleum), hydrotreated light	Not Determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	150 ppm STEL 909 mg/m³ STEL 100 ppm TWA 606 mg/m³ TWA Possibility of significant uptake through the skin	Not determined	300 mg/m³	50 ppm TWA 300 mg/m³ TWA 75 ppm STEL 375 mg/m³ STEL Skin

Component	Poland	Portugal	Romania	Russia
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	480 mg/m³ STEL 240 mg/m³ TWA	Skin 150 ppm STEL 100 ppm TWA	50 ppm TWA; 308 mg/m³ TWA	Not determined

Component	Spain	Switzerland	Turkey	UK
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	Skin 50 ppm VLA-ED indicative limit value 308 mg/m³ VLA-ED indicative limit value	50 ppm STEL 15 min 300 mg/m³ STEL 15 min 50 ppm MAK 300 mg/m³ MAK	Skin 50 ppm TWA 308 mg/m³ TWA	150 ppm STEL calculated 924 mg/m³ STEL calculated Skin 50 ppm TWA 308 mg/m³ TWA

Derived No Effect Level (DNEL)

Short term exposure local effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	1388 µg/cm²
Inhalation	14693 µg/m³

Long term exposure local effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	1388 µg/cm²
Inhalation	14693 µg/m³

Short term exposure systemic effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	33332 µg/kg
Inhalation	29386 µg/m³

Long term exposure systemic effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	16666 µg/kg
Inhalation	14693 µg/m³
(2-methoxymethylethoxy)propanol	
Dermal	283 mg/kg
Inhalation	308 mg/m³

Predicted No Effect Concentration (PNEC)

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Fresh Water	0.00217 mg/L
Sea Water	0.000217 mg/L
Fresh water sediment	180 mg/kg
Sea sediment	18 mg/kg
Soil	146 mg/kg
Impact on Sewage Treatment	1 mg/l
Intermittent release	0.0217 mg/l
(2-methoxymethylethoxy)propanol	
Fresh Water	19 mg/l
Sea Water	1.9 mg/l
Fresh water sediment	70.2 mg/kg
Soil	2.74 mg/kg
Impact on Sewage Treatment	4168 mg/l
Intermittent release	190 mg/l

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure

Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Safety glasses with side-shields.
Hand protection	Use protective gloves made of:, Neoprene, Butyl, Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment, Use respirator with organic vapor protection (A, brown), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Viscous
Odour	Characteristic
Colour	Dark Amber
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution		
Melting/freezing point	No information available	
Boiling point/range	> 150 °C / 302 °F	
Flash Point	65 °C / 149 °F	
Evaporation rate	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Relative density	1 g/cm³	@ 20 °C.
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	1500 cSt	@ 40 °C
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	No information available

9.2 Other information

Pour point	-27°C / -16.6 °F

Molecular weight	No information available
VOC content(%)	No information available
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Do not allow evaporation to dryness. Avoid heat, flames and other sources of ignition. Exposure to air.

10.5 Incompatible materials

Acids. Aluminum. Strong bases. Strong oxidising agents. Strong reducing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	May cause irritation of respiratory tract.
Eye contact	Contact with eyes may cause irritation.
Skin contact	May cause an allergic skin reaction. May be absorbed through the skin in harmful amounts.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	No data available	No data available	No data available
Distillates (petroleum), hydrotreated light	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
(2-methoxymethylethoxy)propanol	= 5230 mg/kg (Rat)	= 9500 mg/kg (Rabbit)	No data available

Sensitisation May cause allergic skin reaction.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure Skin contact.

Routes of entry Skin contact.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	No information available	No information available	No information available
Distillates (petroleum), hydrotreated light	2.2 mg/L LC50 (Lepomis macrochirus) = 96 h 45 mg/L LC50 (Pimephales promelas) = 96 h 2.4 mg/L LC50 (Oncorhynchus mykiss) = 96 h	No information available	4720 mg/L LC50 (Den-dronereides heteropoda) = 96 h
(2-methoxymethylethoxy)propanol	10000 mg/L LC50 (Pimephales promelas) = 96 h	No information available	1919 mg/L LC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility in soil

Mobility
Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 07 01 04

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Does not Comply
China (IECSC)	Complies
Australia (AICS)	Does not Comply
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supercedes date	24/Aug/2009
Revision date	12/Jun/2015
Version	5
The following sections have been revised	This SDS have been made in a new database and therefore a new layout. There have been changes with regard to classification, Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3
R43 - May cause sensitization by skin contact
R65 - Harmful: may cause lung damage if swallowed

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

H317 - May cause an allergic skin reaction
H304 - May be fatal if swallowed and enters airways

†A mark of M-I L.L.C.

Disclaimer

The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Safety data sheet number MI10456
Version 5
Revision date 12/Jun/2015
Supercedes date 25/Aug/2009

Safety Data Sheet
VERSACLEAN† VB

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name VERSACLEAN† VB
Product code MI10456

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

Recommended use Emulsifier

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Skin sensitisation	Category 1

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
WARNING

Hazard statements
H317 - May cause an allergic skin reaction

Precautionary Statements - EU (§28, 1272/2008)
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
P501 - Dispose of contents/container in accordance with local regulations.

Supplementary precautionary statements
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
P363 - Wash contaminated clothing before re-use

-

Contains

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

(2-methoxymethylethoxy)propanol

Distillates (petroleum), hydrotreated light

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	273-601-0	68990-47-6	60-100	Xi; R43	Skin Sens. 1 (H317)	01-2119496070-42-xxxx
(2-methoxymethylethoxy)propanol	252-104-2	34590-94-8	10-30	-	Not classified	01-2119450011-60-xxxx
Distillates (petroleum), hydrotreated light	265-149-8	64742-47-8	5-10	Xn; R65	Asp. Tox. 1 (H304)	01-2119484819-18-xxxx

Comments
The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply.

4. First aid measures

4.1 First Aid

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

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Seek immediate medical attention/advice.

Eye contact Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
Do not use halon type extinguisher.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Vapors are heavier than air and may spread along floors.

Hazardous combustion products
Fire or high temperatures create:, Amines, Carbon oxides (COx), Hydrocarbon, Nitrogen oxides (NOx), Aldehydes, Ketones.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustable material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use. Persons susceptible to allergic reactions should not handle this product.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition Avoid contact with: Aluminum Acids Strong bases Strong oxidising agents Strong reducing agents. Avoid: Exposure to air.

Storage class Chemical storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits Oil mist (mineral) workplace exposure limits are currently under review by legislative authorities. This workplace exposure limit (WEL) standard is applicable to highly refined mineral oils and is provided as a guidance limit only LT. EXP = 5mg/m^3 and ST. EXP = 10mg/m^3.

Component	EU OEL - Third List	Austria	Australia	Denmark
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	50 ppm TWA 308 mg/m^3 TWA Possibility of significant uptake through the skin	Not determined	skin notation 50 ppm TWA; 308 mg/m^3 TWA	50 ppm TWA 300 mg/m^3 TWA Potential for cutaneous absorption

Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined

Component	Malaysia	France	Germany	Hungary
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	100 ppm TWA 606 mg/m³ TWA Skin notation	50 ppm 308 mg/m³	50 ppm MAK 310 mg/m³ MAK	Not determined
Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not Determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	150 ppm STEL 909 mg/m³ STEL 100 ppm TWA 606 mg/m³ TWA Possibility of significant uptake through the skin	Not determined	300 mg/m³	50 ppm TWA 300 mg/m³ TWA 75 ppm STEL 375 mg/m³ STEL Skin
Distillates (petroleum), hydrotreated light	Not Determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	480 mg/m³ STEL 240 mg/m³ TWA	Skin 150 ppm STEL 100 ppm TWA	50 ppm TWA; 308 mg/m³ TWA	Not determined
Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	Not determined	Not determined	Not determined	Not determined
(2-methoxymethylethoxy)propanol	Skin 50 ppm VLA-ED indicative limit value 308 mg/m³ VLA-ED indicative limit value	50 ppm STEL 15 min 300 mg/m³ STEL 15 min 50 ppm MAK 300 mg/m³ MAK	Skin 50 ppm TWA 308 mg/m³ TWA	150 ppm STEL calculated 924 mg/m³ STEL calculated Skin 50 ppm TWA 308 mg/m³ TWA
Distillates (petroleum), hydrotreated light	Not determined	Not determined	Not determined	Not determined

Derived No Effect Level (DNEL)

Short term exposure local effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	1388 µg/cm²
Inhalation	14693 µg/m³

Long term exposure local effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	1388 µg/cm²
Inhalation	14693 µg/m³

Short term exposure systemic effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	33332 µg/kg
Inhalation	29386 µg/m³

Long term exposure systemic effects

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Dermal	16666 µg/kg
Inhalation	14693 µg/m³

(2-methoxymethylethoxy)propanol

Dermal	283 mg/kg
Inhalation	308 mg/m³

Predicted No Effect Concentration (PNEC)

Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine

Fresh Water	0.00217 mg/L
Sea Water	0.000217 mg/L
Fresh water sediment	180 mg/kg
Sea sediment	18 mg/kg
Soil	146 mg/kg
Impact on Sewage Treatment	1 mg/l
Intermittent release	0.0217 mg/l

(2-methoxymethylethoxy)propanol

Fresh Water	19 mg/l
Sea Water	1.9 mg/l
Fresh water sediment	70.2 mg/kg
Soil	2.74 mg/kg
Impact on Sewage Treatment	4168 mg/l
Intermittent release	190 mg/l

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure

Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Safety glasses with side-shields.
Hand protection	Use protective gloves made of:, Neoprene, Butyl, Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment, Use respirator with organic vapor protection (A, brown), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Viscous
Odour	Characteristic
Colour	Dark Amber
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution		
Melting/freezing point	No information available	
Boiling point/range	> 150 °C / 302 °F	
Flash Point	65 °C / 149 °F	
Evaporation rate	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Relative density	0.96 g/cm³	@ 20 °C.
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	1500 cSt	@ 40 °C
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	No information available

9.2 Other information

Pour point	-27°C / -16.6 °F
Molecular weight	No information available
VOC content(%)	No information available
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Do not allow evaporation to dryness. Avoid heat, flames and other sources of ignition. Exposure to air.

10.5 Incompatible materials

Acids. Aluminum. Strong bases. Strong oxidising agents. Strong reducing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation May cause irritation of respiratory tract.

Eye contact Contact with eyes may cause irritation.

Skin contact May cause an allergic skin reaction. May be absorbed through the skin in harmful amounts.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	No data available	No data available	No data available
(2-methoxymethylethoxy)propanol	= 5230 mg/kg (Rat)	= 9500 mg/kg (Rabbit)	No data available
Distillates (petroleum), hydrotreated light	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h

Sensitisation	May cause allergic skin reaction.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of exposure	Skin contact.
Routes of entry	Skin contact.
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Fatty acids, tall-oil, reaction products with diethylenetriamine, maleic anhydride, tetraethylenepentamine and triethylenetetramine	No information available	No information available	No information available
(2-methoxymethylethoxy)propanol	10000 mg/L LC50 (Pimephales promelas) = 96 h	No information available	1919 mg/L LC50 (Daphnia magna) = 48 h

Distillates (petroleum), hydrotreated light	2.2 mg/L LC50 (Lepomis macrochirus) = 96 h 45 mg/L LC50 (Pimephales promelas) = 96 h 2.4 mg/L LC50 (Oncorhynchus mykiss) = 96 h	No information available	4720 mg/L LC50 (Den-dronereides heteropoda) = 96 h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility in soil

Mobility
Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products — Dispose of in accordance with local regulations.

Contaminated packaging — Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.

EWC waste disposal No. — According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 07 01 04

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies

Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Does not Comply
China (IECSC)	Complies
Australia (AICS)	Does not Comply
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supercedes date	25/Aug/2009
Revision date	12/Jun/2015
Version	5
The following sections have been revised	This SDS have been made in a new database and therefore a new layout. There have been changes with regard to classification, Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3
R43 - May cause sensitization by skin contact
R65 - Harmful: may cause lung damage if swallowed

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

H317 - May cause an allergic skin reaction
H304 - May be fatal if swallowed and enters airways

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Safety Data Sheet
VERSATROL† M

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name	VERSATROL† M
Product code	MI11334
REACH Registration Name	Exempt
Denmark Pr. no.	2303874

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

Recommended use	Fluid loss reducer.
Uses advised against	None known.

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

Denmark	Poison Control Hotline (DK): +45 82 12 12 12
Norway	Poison information centre: +47 22 59 13 00

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards	Not classified
Environmental hazards	Not classified
Physical Hazards	Not classified

2.2 Label Elements

Signal word
None

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger
Not Classified

Contains

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Not Applicable

Comments
No classified ingredients, or those having occupational exposure limits, present above the level of disclosure.

4. First aid measures

4.1 Description of first-aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye contact	Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create:, Carbon oxides (COx), Nitrogen oxides (NOx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. If spilled, take caution, as material can cause surfaces to become very slippery.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Remove all sources of ignition. If spilled, take caution, as material can cause surfaces to become very slippery.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid contact with: Strong oxidising agents Heat, flames and sparks
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles.
Hand protection	Repeated or prolonged contact:, Use protective gloves made of:, Neoprene, Nitrile.
Respiratory protection	No personal respiratory protective equipment normally required, In case of insufficient ventilation wear suitable respiratory equipment, Half mask with a particle filter P2 (BS EN 143).
Skin and body protection	Wear suitable protective clothing, Provide eyewash station.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odour	Odourless
Colour	black
Odor threshold	Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution		

Melting/freezing point	140 - 205 °C	
Boiling point/range	No information available	
Flash Point	310 °C / 590 °F	Cleveland Open Cup (COC)
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	250-500 g/m³	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.04 - 1.06	20 °C
Bulk density	540 kg/m³ / ~34 lb/ft³	
Relative density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	500 °C / 932 °F	
Decomposition temperature	288 °C / 550 °F	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	Not determined	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition.

10.5 Incompatible materials

Strong oxidising agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Acute toxicity	.
Sensitisation	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	None known.
Routes of exposure	None known.
Routes of entry	No route of entry noted.
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
Not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
Not considered toxic.

12.2 Persistence and degradability

The product is not biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

Mobility
Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 07 01 99.

14. Transport information

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA,ADR/RID/ADG).

14.1 UN number
Not regulated

14.2 Proper shipping name
Not regulated

14.3. Hazard class(es)

ADR/RID/ADN Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not Applicable

15. Regulatory information

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

Germany, Water Endangering Classes (VwVwS)	Water endangering class = nwg

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Chemical Regulatory Compliance (GCRC)
Supercedes date	15/Oct/2012
Revision date	14/Jul/2014
Version	3
The following sections have been revised	This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made, Updated according to GHS.

Text of R phrases mentioned in Section 3
Not classified

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

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety data sheet number MI15397
Version 2
Revision date 17/Jun/2015
Supercedes date 27/Aug/2012

Safety Data Sheet
M-I WATE† (ALL GRADES)

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name	M-I WATE† (ALL GRADES)
Product code	MI15397
Synonyms	M-I WATE†, M-I WATE† ULTRA FINE
REACH Registration Name	Exempt Annex V ENTRY 7.

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

Recommended use	Weighting agent.
Uses advised against	Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards	Not classified
Environmental hazards	Not classified
Physical Hazards	Not classified

2.2 Label Elements

Signal word
None

Hazard statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary Statements - EU (§28, 1272/2008)
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

-

Contains
Crystalline silica (impurity)

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Crystalline silica (impurity)	238-878-4	14808-60-7	1-5	Xn; R48/20	STOT Rep. 2 - H373	Exempt

3.2 Mixtures

Not Applicable

Comments
The product contains other ingredients which do not contribute to the overall classification.

This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First aid measures

4.1 First Aid

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye contact	Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Main symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapours.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Do not breathe dust.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water. Avoid generating or breathing dust. Product is slippery if wet.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Material becomes slippery when wet. Use caution if wet.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid wet and humid conditions.
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits No biological limit allocated

Component	EU OEL - Third List	Austria	Australia	Denmark
Crystalline silica (impurity)	Not determined	Not determined	0.1 mg/m³ TWA	0.1mg/m³

Component	Malaysia	France	Germany	Hungary
Crystalline silica (impurity)	0.1 mg/m³ TWA	0.1 mg/m³	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Crystalline silica (impurity)	0.2 mg/m³ TWA Known or presumed human carcinogen	Not determined	0.075 mg/m³	0.3 mg/m³ TWA total dust 0.1 mg/m³ TWA respirable dust 0.9 mg/m³ STEL total dust 0.3 mg/m³ STEL respirable dust Carcinogen

Component	Poland	Portugal	Romania	Russia
Crystalline silica (impurity)	2 mg/m³ TWA >50% free crystalline silica total inhalable dust 0.3 mg/m³ TWA >50% free crystalline silica respirable dust 4.0 mg/m³ TWA 2% to 50% free crystalline silica total inhalable dust 1.0 mg/m³ TWA 2% to 50% free crystalline silica respirable dust	0.025 mg/m³ TWA respirable fraction	Not determined	1 mg/m³ MAC 3 mg/m³ STEL 1 mg/m³ TWA aerosol Fibrogenic substance

Component	Spain	Switzerland	Turkey	UK
Crystalline silica (impurity)	0.1 mg/m³ VLA-ED respirable fraction	0.15 mg/m³ MAK respirable	Not determined	0.3 mg/m³ STEL calculated respirable 0.1 mg/m³ TWA respirable

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Safety glasses with side-shields.
Hand protection	Use protective gloves made of:, Neoprene, PVC, Nitrile, Frequent change is advisable.
Respiratory protection	Respirator must be worn if exposed to dust, Suitable mask with particle filter P3 (European Norm 143), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odour	Odourless
Colour	tan - Gray
Odor threshold	Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution		
Melting/freezing point	1580 °C / 2876 °F	
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate	No information available	

Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	1920 - 2400 kg/m³	
Relative density	4.10 - 4.25	@ 20 °C.
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid dust formation. Avoid wet and humid conditions.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Respirable quartz <0.3% . Report number: N0600517.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact May cause slight irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica (impurity)	= 500 mg/kg (Rat)	No data available	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Target organ effects Lungs.

Aspiration hazard No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

Listed on PLONOR list of OSPAR

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Crystalline silica (impurity)	No information available	No information available	No information available

12.2 Persistence and degradability

The product is not biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

Mobility
Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 01 05 07

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Germany, Water Endangering Classes (VwVwS)	Water endangering class = nwg

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)

The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)
International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supercedes date	27/Aug/2012
Revision date	17/Jun/2015
Version	2
The following sections have been revised	This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made, Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3

R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation

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

This product is not classified as hazardous therefore no (H) hazard statements assigned.
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

†A mark of M-I L.L.C.

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Liquid Flowzan® Biopolymer

Version 1.7 Revision Date 2014-02-27

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

Product information

Trade name : Liquid Flowzan® Biopolymer
Material : 1112192, 1106106, 1089411, 1088326, 1083196, 1087354, 1016833, 1028771, 1016798, 1105963

Company : Drilling Specialties Company
10001 Six Pines Drive
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
Brusselsesteenweg 355
B-3090 Overijse
Belgium

MSDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:msds@cpchem.com

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887
Asia: +800 CHEMCALL (+800 2436 2255)
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group
E-mail address : MSDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification

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

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

Classification (67/548/EEC, 1999/45/EC)

Non-hazardous substance or mixture.

Label elements

Labeling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

Additional Labeling:

EUH210 Safety data sheet available on request.
The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity:
60 %

SECTION 3: Composition/information on ingredients

Synonyms : Drilling Mud Additive

Molecular formula : Mixture

Mixtures

Hazardous ingredients

Chemical Name	CAS-No. EC-No. Index No.	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
C12-C14 Isoalkanes	**68551-19-9 271-369-5**	Xn; R65	Asp. Tox. 1; H304	0 - 60
Distillates (petroleum), hydrotreated light	64742-47-8			0 - 60

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

SECTION 4: First aid measures

General advice : No hazards which require special first aid measures.

If inhaled : Move to fresh air. If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point	:	76,7 °C (170,1 °F) Method: Tag closed cup
Autoignition temperature	:	> 200 °C (> 392 °F)
Suitable extinguishing media	:	Carbon dioxide (CO2).
Unsuitable extinguishing media	:	High volume water jet.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon oxides.

SECTION 6: Accidental release measures

Environmental precautions	:	Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Handling

Advice on safe handling	:	Avoid formation of aerosol. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers	:	No smoking. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

Chevron Phillips Chemical Company LP

Ingredients	Basis	Value	Control parameters	Note
C12-C14 Isoalkanes	Manufacturer	TWA	1.200 mg/m3	

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection	:	Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate:. Protective suit. Safety shoes.
Hygiene measures	:	Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state	:	Liquid
Color	:	Light brown
Odor	:	Negligible

Safety data

Flash point	:	76,7 °C (170,1 °F) Method: Tag closed cup
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Oxidizing properties	:	No
Autoignition temperature	:	> 200 °C (> 392 °F)
Molecular formula	:	Mixture
Molecular weight	:	Not applicable
pH	:	No data available
pour point	:	No data available
Boiling point/boiling range	:	217,8 - 237,8 °C (424,0 - 460,0 °F)
Vapor pressure	:	No data available
Relative density	:	0,97
Water solubility	:	Soluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity, dynamic	:	72.000 cP
Relative vapor density	:	No data available
Evaporation rate	:	No data available

SECTION 10: Stability and reactivity

Chemical stability	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Other data	:	No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity

C12-C14 Isoalkanes	:	LD50: > 3.900 mg/kg Species: rat
Distillates (petroleum), hydrotreated light		No data available

Acute inhalation toxicity

C12-C14 Isoalkanes	:	LC50: > 5,3 mg/l Exposure time: 4 h Species: rat Test atmosphere: dust/mist
Distillates (petroleum), hydrotreated light		No data available

Acute dermal toxicity

C12-C14 Isoalkanes	:	LD50: > 2.000 mg/kg Species: rabbit
Distillates (petroleum), hydrotreated light		No data available

Liquid Flowzan® Biopolymer
Skin irritation : No skin irritation

Liquid Flowzan® Biopolymer
Eye irritation : No eye irritation

Sensitization

Distillates (petroleum), hydrotreated light	:	Does not cause skin sensitization. Information given is based on data obtained from similar substances.

Repeated dose toxicity

C12-C14 Isoalkanes	:	Species: Monkey Dose: 0, 654 ppm Exposure time: 4 wk Number of exposures: 6 h/d, 3 d/wk NOEL: > 654 ppm

Liquid Flowzan® Biopolymer
Aspiration toxicity : No aspiration toxicity classification.

Liquid Flowzan® Biopolymer
Further information : Concentrations substantially above the TLV value may cause narcotic effects. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Solvents may degrease the skin. Inhalation of vapors in high concentration may cause irritation of respiratory system.

SECTION 12: Ecological information

Toxicity to fish

C12-C14 Isoalkanes	:	LL50: > 1.000 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203 Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates

C12-C14 Isoalkanes	:	EL50: > 1.000 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202 Information given is based on data obtained from similar substances.
Distillates (petroleum), hydrotreated light		EL50: > 100 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202 Aquatic toxicity is unlikely due to low solubility.

Toxicity to algae

C12-C14 Isoalkanes	:	EL50: > 1.000 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Growth inhibition Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances.

Elimination information (persistence and degradability)

Biodegradability	:	Expected to be inherently biodegradable.
Additional ecological information	:	This material is not expected to be harmful to aquatic organisms. Information given is based on data on the ingredients and the ecotoxicology of similar products.

SECTION 13: Disposal considerations

The information in this MSDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	:	Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the MSDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Testing (ASTM D4206) has shown product does not sustain combustion.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Directive 96/82/EC does not apply

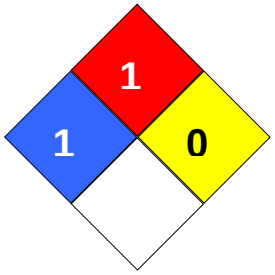
Water contaminating class (Germany) : WGK 1 slightly water endangering

Notification status

Europe REACH	:	A substance or substances in this product is not registered or notified to be registered. Importation or manufacture of this product is still permitted provided that it does not exceed the REACH minimum threshold quantity of the non-regulated substances.
United States of America TSCA	:	On TSCA Inventory
Canada DSL	:	All components of this product are on the Canadian DSL.
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	Not in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 1
Fire Hazard: 1
Reactivity Hazard: 0



Further information

Legacy MSDS Number : 630920

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this MSDS pertains only to the product as shipped.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Full text of R-phrases referred to under sections 2 and 3

R65 Harmful: may cause lung damage if swallowed.

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

PROPPANT FLUID CONTINUANTS

*** Page Left Blank Intentionally ***

PROPPANT CARRIER FLUID DISCLOSURE: **WRESSLE-1 WELL**

Proppant Carrier Fluid Data

Total Volume of Carrier Fluid (m^3)	170.34
% of Water Volume - fresh water	~40%
% of Potsium Chloride	~57%
% of Other Fluid Additives	~3%
Proppant (kg)	20, 000 to 30,000

Proppant Carrier Products

Product Trade Names	Product Purpose in Well	Concentration per M^3	Volume	Supplier	MSDS Provided
B197	Surfactant	1.93 ltr	0.34m^3	Schlumberger	Yes
B232	Demulsifier	1.93 ltr	0.34m^3	Schlumberger	Yes
B269	Gelling Agent	5.39 ltr	0.96m^3	Schlumberger	Yes
B390	BODOXIN AE	0.48 ltr	0.08m^3	Schlumberger	Yes
J218	Breaker	0.58 kg	102.06kg	Schlumberger	Yes
J450	Stabilizing Agent	0.96 ltr	0.17m^3	Schlumberger	Yes
J475	Breaker	1.16 kg	200.12kg	Schlumberger	Yes
J511	Stabilizing Agent	1.16 kg	142.88kg	Schlumberger	Yes
L010	Crosslinker	5.30 ltr	0.85m^3	Schlumberger	Yes
M117	Clay Control Agent	0.40 ltr	71.95m^3	Schlumberger	Yes
U028	Activator	2.89 ltr	0.51m^3	Schlumberger	Yes

Proppant Carrier Constituents

Chemical Substance in Proppant Carrier Fluid	Chemical Abstract Service Number (CAS Number)	Maximum Chemical substance Mass % in Carrier Fluid	Presumed Hazardous or Non-hazardous (EA/WFD)	Basis of Assessment
Sodium hydroxide	1310-73-2	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
Alkyl hydroxyethyl benzyl ammonium chloride	61789-68-2	<0.1	Hazardous	Refer to JAGDAG Assessment*
Propan-2-ol	67-63-0	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
Diannonium peroxidisulphate	7727-54-0	<1	Non-Hazardous	Refer to JAGDAG Assessment*
2,2'2"-nitrilotriethanol	102-71-6	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
2-butoxyethanol	111-76-2	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
Ethaxylated C11 linear/branched alcohols (7eo)	34398-01-1	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
Alcohols, C12-15 linear, ethoxylated	68131-39-5	<0.1	Hazardous	Refer to JAGDAG Assessment*
(Ethylenedioxy)dimenthanal	3586-55-8	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
Patassium Chloride	7447-40-7	~57	Non-Hazardous	Refer to JAGDAG Assessment*
Boric acid	10043-35-3	<1	Hazardous	Refer to JAGDAG Assessment*
Sorbitol	50-70-4	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
Silican dioxide	7631-86-9	<0.001	Non-Hazardous	Refer to JAGDAG Assessment*
Sodium chloride	7647-14-5	~2	Non-Hazardous	Refer to JAGDAG Assessment*
Guar gum	9000-30-0	<1	Non-Hazardous	Refer to JAGDAG Assessment*
Poly(tetrafluoroethylene)	9002-84-0	<0.001	Non-Hazardous	Refer to JAGDAG Assessment*
Magnesium silcate hydrate (talc)	14807-96-6	<0.001	Non-Hazardous	Refer to JAGDAG Assessment*
Vinylidene chloride/methylacrylate copolymer	25038-72-6	<0.1	Non-Hazardous	Refer to JAGDAG Assessment*
Distillates, petroleum, hydrotreated light	64742-47-8	<1	Non-Hazardous	Refer to JAGDAG Assessment*
Amine treated smectite clay	68153-30-0	<0.01	Non-Hazardous	Refer to JAGDAG Assessment*

*Assessed using Methodology for the determination of hazardous substances for the purposes of the Groundwater Daughter Directive (2006/118EC), issued by the Joint Agencies Groundwater Directive Advisory Group ("JAGDAG") comprising the Environment Agency, the Scottish Environment Protection Agency, and the Northern Ireland Environment Agency, the Department of Environment, Food & Rural Affairs, Welsh Assembly Government, the Environmental Protection Agency Ireland, Health Protection Agency and industry representatives.

Notes:
All chemical substance data is consistent with the Material Safety Data Sheets (MSDS), which are provided with document number ER-EPRA-W1-FC-009.

Land work Stimulation - UK **Jun-16** **Version 2**

Components (CAS No)	Components (Name)	Hazardous Classification	List I (hazardous)	List II (non-Hazardous)	Radioactive substance?	PBT substance? (REACH definition and TGB)	1)High B or High T (REACH/TGD and CLP)	2) vPvB substance? (REACH)	3)CMT substance (CLP)?	4) is the substance very acutely toxic to aquatic biota? (LC50/EC50<0.1mg/l;	5) persistent substance and potentially very toxic to human?	Echa data available	JAGDAG hazardous substance?	Comments
1310-73-2	Sodium hydroxide	Met. Corr. 1 (H290) Skin Corr. 1A (H314)	No	No	No	PBT doesn't apply it is inorganic	No	N/A	No	No	No	yes	Non-hazardous according JAGDAG's guidelines	Does not meet criteria for hazardous
61789-68-2	Alkyl hydroxyethyl benzyl ammonium chloride	Skin Corr. 1B (H314) Acute Tox. 4 (H302) Aquatic Acute 1 (H400)	No	No	No	No	NoEC is <0.05mg/l Algae Aquatic Acute 1 (H400)	No	No	No	No	No	Hazardous	
67-63-0	Propan-2-ol	Flam. Liq. 2, (H225) STOT SE 3 (H336) Eye Irrit. 2 (H319)	No	No	No	No	No	No	No	No	No	Yes	Non-hazardous according report AmecFosterWheeler	PLONOR
7727-54-0	Diammonium peroxidisulphate	STOT SE 3 (H335) Skin Irrit. 2 (H315) Ox. Sol 3 (H272) Acute Tox. 4 (H302) Skin Sens. 1 (H317) Eye Irrit. 2 (H319) Resp. Sens. 1 (H334)	No	No	No	PBT doesn't apply it is inorganic	No	N/A	No	No	N/A	Yes	Non-hazardous according JAGDAG's guidelines	
102-71-6	2,2`,2"-nitrilotriethanol	NC	No	No	No	No	No	No	No	No	No		Non-hazardous according JAGDAG's guidelines	
111-76-2	2-butoxyethanol	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	No	No	No	No	No	No	No	No	No	Yes	Non-hazardous according report AmecFosterWheeler	
34398-01-1	Ethoxylated C11 linear/branched alcohols (7eo)	Acute toxicity (Oral) Cat.4 (H302) Eye Dam. 1 (H318) Skin Irritation Cat. 2 (H315) Aquatic Chronic Cat. 2 (H411)	No	No	No	No	No	No	No	No	No	No	Non-hazardous	
68131-39-5	Alcohols, C12-15 linear, ethoxylated	Eye Dam. 1 (H318) Aquatic Acute. 1 (H400) Aquatic Chronic. 3 (H412)	No	No	No	No	Aquatic Acute. 1 (H400)	No	No	No	No	Yes	Hazardous	
3586-55-8	(Ethylenedioxy)dimethanol	Acute Tox. 4; H302 Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Dam. 1; H318	No	No	No	No	No	No	No	No	No	No	Non-hazardous	
7447-40-7	Potassium Chloride	NC	No	No	No	PBT doesn't apply it is inorganic	No	N/A	No	No	N/A	Yes	Non-hazardous	PLONOR
10043-35-3	Boric acid	Repr. 1B (H360FD)	No	No	No	PBT doesn't apply it is inorganic	Yes	N/A	Yes	No	N/A	No	Hazardous	
50-70-4	Sorbitol	NC	No	No	No	No	No	No	No	No	No	No	Non-hazardous	PLONOR
7631-86-9	Silicone dioxide	NC	No	No	No	PBT doesn't apply it is inorganic	No	No	No	No	No	Yes	Non-hazardous	PLONOR
7647-14-5	Sodium chloride	NC	No	No	No	PBT doesn't apply it is inorganic	No	No	No	No	No	Yes	Non-hazardous	PLONOR
9000-30-0	Guar gum	NC	No	No	No	No	No	No	No	No	No	No	Non-hazardous	PLONOR
9002-84-0	Poly(tetrafluoroethylene)	NC	No	No	No	No	No	Not known	No	No	No	No	Non-hazardous	
14807-96-6	Magnesium silicate hydrate (talc)	NC	No	No	No	PBT doesn't apply it is inorganic	No	No	No	No	No	No	Non-hazardous	
25038-72-6	Vinylidene chloride/methylacrylate copolymer	NC	No	No	No	No	No	No	No	No	No	No	Non-hazardous	
64742-47-8	Distillitaes, petroleum, hydrotreated light	Asp. Tox. 1 (H304) EUH066	No	No	No	No	No	No	No	No	No	Yes	Non-hazardous	
68153-30-0	Amine treated smectitie clay	NC	No	No	No	No	No	No	No	No	No	No	Non-hazardous	

*ECHA data
NC: not classified
EA: UK Environmental Agency

Safety Data Sheet
Guar Slurry B269

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name	Guar Slurry B269
Product code	B269
Denmark Pr. no.	1946018

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

Recommended use	Used as a fracturing additive in oilfield applications
Uses advised against	Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards	Not classified
Environmental hazards	Not classified
Physical Hazards	Not classified

2.2 Label Elements

Signal word
None

Hazard statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary Statements - EU (§28, 1272/2008)
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

-

Contains

Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	926-141-6	*	30-60	Xn; R65, R66	Asp. Tox. 1 (H304) EUH066	01-2119456620-43-xxxx

Comments
The product contains other ingredients which do not contribute to the overall classification.
*Substances which have an EC Number that begins with the number "9" is a Provisional List Number. The list numbers published by ECHA do not have any legal significance. The EC substance definition and related classification & labelling has been developed in the framework of the Regulation (EC) No 1907/2006 (REACH). For information about the related CAS number see section 15 of this SDS. The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply.

4. First aid measures

4.1 First Aid

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

Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash skin thoroughly with soap and water. Get medical attention if irritation persists.
Eye contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Vapors are heavier than air and may spread along floors.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapours.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustable material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid contact with: Oxidizing agents
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits

The product does not contain any hazardous materials with occupational exposure limits established. Oil mist (mineral) workplace exposure limits are currently under review by legislative authorities. This workplace exposure limit (WEL) standard is applicable to highly refined mineral oils and is provided as a guidance limit only LT. EXP = 5mg/m³ and ST. EXP = 10mg/m³.

Component	EU OEL - Third List	Austria	Australia	Denmark
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	Not determined	Not determined	Not determined	Not determined

Component	Malaysia	France	Germany	Hungary
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	Not determined	Not determined	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	Not Determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	Not determined	Not determined	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	Not determined	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure

Ensure adequate ventilation. Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment.

Personal protective equipment

Eye protection	Safety glasses with side-shields.
Hand protection	Use protective gloves made of:, Butyl, Gloves- Neoprene, Nitrile Unless Specified, Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required, In case of insufficient ventilation wear suitable respiratory equipment, Use respirator with organic vapor protection (A, brown), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Slurry
Appearance	Slurry
Odour	Hydrocarbon odor. Sweet
Colour	tan
Odor threshold	Not applicable

Property	Values	Remarks
pH	Not applicable	
pH @ dilution		
Melting/freezing point	< 18 °C / <64 °F	
Boiling point/range	209 °C / 408 °F	
Flash Point	> 71 °C / > 159 °F	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	8.1%	
Lower flammability limit	1.3%	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Relative density	1.0	@ 20 °C.
Water solubility	Slightly soluble in water.	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	>20.5 mm2/s	@ 40 °C
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded

Oxidizing properties	No information available

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapours in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	No data available	No data available	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure Skin contact. Eye contact.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard The viscosity of this product is high enough that it is not an aspiration risk and the R65/H304 phrase does not apply.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, < 2% aromatics	No information available	No information available	No information available

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

Mobility
Slightly soluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: Waste Code: 16 03 06 - organic wastes other than those mentioned in 16 03 05

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Does not Comply
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Does not Comply
Philippines (PICCS)	Does not Comply
Inventory - Japan - Existing and New Chemicals list	Does not Comply
China (IECSC)	Does not Comply
Australia (AICS)	Does not Comply
Korea (KECL)	Does not Comply
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Does not Comply

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Muriel Martin Beurel
Revision date	12/Oct/2015
Version	1
The following sections have been revised:	New issue.

Text of R phrases mentioned in Section 3
R65 - Harmful: may cause lung damage if swallowed
R66 - Repeated exposure may cause skin dryness or cracking

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

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

SAFETY DATA SHEET (1907/2006)

21456GHSEU

Revision Date: 06/28/2012
Print Date: 06/28/2012

Bodoxin® AE

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name: Bodoxin® AE

Product Code: 21456GHSEU

Registration Number: No information available.

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Use Description: Biocide

1.3 Details of the Supplier of the Safety Data Sheet

Company/Undertaking Identification:
ISP Horhausen GmbH
Industriepark 23
D-56593 Horhausen,Germany
Tel: +49 2687 926530

E-mail Address: MSDS@ISPCORP.COM

Prepared By: Product Stewardship

1.4 Emergency Telephone Number

Emergency Telephone: +32.3.575.55.55 (SGS)

2. HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture/ 2.2 Label Elements

CLP Regulation, EC 1272/2008

Signal Word: **Danger**

Hazard Statements
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage

Hazard Category:

Acute Oral Toxicity	Category 4

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1

Physical Hazard Category:

None

Precautionary Statements:

P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
P330 - Rinse mouth
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P302+ P352 - IF ON SKIN: Wash with plenty of soap and water
P321 - Specific treatment (see supplemental first aid instructions on this label)
P332 + P313 - If skin irritation occurs: Get medical advice/ attention
P362 - Take off contaminated clothing and wash before reuse
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
P501 - Dispose of contents/ container to an approved waste disposal plant

Directive 67/548/EEC

Indication of Danger: Xn - Harmful

R-phrase(s):

R22 - Harmful if swallowed.
R38 - Irritating to skin
R41 - Risk of serious damage to eyes.

2.3 Other Hazards

Other Information

- None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components:	Weight %	CAS-No	ECC Number	EU - GHS Substance Classification	Directive 67/548/EEC
Methanol, [1,2-ethanediylbis(oxy)]bis-	50-100	3586-55-8	222-720-6	NA	NA

4. FIRST AID MEASURES

4.1 Description of First-Aid Measures

Eye Contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.

Skin Contact: Wash off immediately with soap and plenty of water. Consult a physician.

Inhalation: Move to fresh air. Get medical attention immediately if symptoms occur.

Ingestion: Do NOT induce vomiting. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician immediately.

Protection of First-aiders: Use personal protective equipment.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Most Important Symptoms and Effects, Both Acute and Delayed: None known

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: Carbon dioxide (CO2). Dry powder. Foam. Water spray.

Extinguishing Media Which Shall Not Be Used For Safety Reasons: No information available.

5.2 Special Hazards Arising From the Substance or Mixture

Special Hazard: No information available.

Flammable Properties: None known.

Explosive Properties: Not explosive.

5.3 Advice for Firefighters

Protective Equipment and Precautions for Firefighters: Wear self-contained breathing apparatus and protective suit

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions: Use personal protective equipment. Ensure adequate ventilation.

6.2 Environmental Precautions

Environmental Precautions: Prevent product from entering drains. Inform the responsible authorities in case of gas leakage, or of entry into waterways, soil or drains.

6.3 Methods and Materials for Containment and Cleaning Up

Methods for Cleaning Up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

6.4 Reference to Other Sections

Other Information: Not applicable

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Handling: Avoid formation of aerosol. Handle and open container with care. Wash thoroughly after handling.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Storage: Store in original container. Keep containers tightly closed in a cool, well-ventilated place.

Incompatible Materials: Acids.

7.3 Specific End Use(s)

Product Use Description: Biocide

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Components:	German Recommended Exposure Limits (MAK):	UK Workplace Exposure Limits (WELs):	Belgium - Recommended Exposure Limits:	Italy - Recommended Exposure Limits:	France - Recommended Exposure Limits:
Methanol, [1,2-ethanediylbis(oxy)]bis- 3586-55-8 (50-100)	Not determined	Not determined	Not Determined	Not Determined	Not Determined

8.2 Exposure Controls

Engineering Measures: Use only in well-ventilated areas.

Respiratory Protection: Use only in well-ventilated areas.. In case of insufficient ventilation wear suitable respiratory equipment.

Hand Protection: butyl-rubber. Nitrile rubber. Gloves.

Eye Protection: Chemical resistant goggles must be worn. Face-shield.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

Environmental Controls: Not determined.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Appearance:

Physical State: Liquid

Color: Colorless

Odor: Pungent

Odor Threshold : No information available

pH: 6-8 (1% Solution)

Melting point (°C):	Not determined
Freezing Point (°C):	Not determined
Boiling point (°C):	Not determined
Initial Boiling Point (°C):	No information available
Boiling point/boiling range (°C):	Not determined
Flash point (°C):	>100
Evaporation Rate:	No data available
Flammable Properties:	None known.
Flammability Limits in Air	
Upper:	Not determined
Lower:	Not determined
Vapor Pressure:	<10 hPa
Vapor Density:	1.1-1.3 g/cm³
Specific Gravity:	Not determined
Solubility:	Miscible in water
Partition coefficient: n-octanol/water:	Not determined
Autoignition Temperature (°C):	Not determined
Decomposition Temperature (°C):	Not determined
Viscosity:	Not determined.
Explosive Properties:	Not explosive
Oxidizing Properties:	No information available

9.2 Other Information

Other Information: None known

10. STABILITY AND REACTIVITY

10.1 Reactivity

Reactivity: No data available

10.2 Chemical Stability

Chemical Stability: Stable under normal conditions.

10.3 Possibility of Hazardous Reactions

Hazardous Reactions: None under normal processing

10.4 Conditions to Avoid

Conditions to Avoid: Heat, flames and sparks

10.5 Incompatible Materials

Incompatible Materials: Acids.

10.6 Hazardous Decomposition Products

Hazardous Decomposition Products: Formaldehyde.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Product Information:

Acute Oral Toxicity (LD50): 760 mg/kg (Rat) (female)
1000 mg/kg (Rat) (male)

Acute Dermal Toxicity (LD50): >2000 mg/kg (Rat)

Acute Inhalation Toxicity (LC50): Not Determined

Eye Irritation: May cause irreversible eye damage

Skin Irritation: Causes skin irritation.

Sensitization: Does not cause skin sensitization

Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ecotoxicity: LC50= 71 mg/L 96hour (Brachydanio rerio (zebra fish))
EC50=28 mg/L 48hour (Daphnia magna (Water flea))
EC50=4.62 mg/L 72hour (Algae)

12.2 Persistence and Degradability

Persistence and Degradability: Readily biodegradable.

12.3 Bioaccumulative Potential

Bioaccumulative Potential: Not determined

12.4 Mobility in Soil

Mobility: Not determined

12.5 Results of PBT and vPvB Assessment

Results of PBT Assessment: Unknown

12.6 Other Adverse Effects

Other effects None known

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Waste Disposal Methods: Dispose of in accordance with local regulations

Contaminated Packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

IMDG/IMO: Not regulated

IATA: Not regulated

DOT (NON-BULK): Not regulated

DOT(BULK): Not regulated

ADR: Not regulated
Tunnel restriction code: None

Transport in bulk (Annex II of MARPOL 73/78) and IBC Code: Not applicable

15. REGULATORY INFORMATION

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

Council Directive 96/82/EC (SEVESO): Not applicable

Inventories	Status
TSCA	Not Listed
DSL	Not Listed
NDSL	Not Listed
ENCS	Listed
AICS	Listed
EINECS	Listed
ELINCS	Not Listed
NZIoC	Listed
KECI	Listed
PICCS	Listed
IECSC	Listed

Germany VCI Assigned Classification into Water Endangering Classes (WGK) List:

Components:	Germany VCI Assigned Classification into Water Endangering Classes (WGK) List:
Methanol, [1,2-ethanediylbis(oxy)]bis- 3586-55-8	Annex 3: 5222

15.2 Chemical Safety Assessment

A chemical safety assessment has not been carried out for this product by the supplier.

16. OTHER INFORMATION

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

H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage

Full text of R-phrases referred to under Sections 2 and 3:

R22 - Harmful if swallowed.
R38 - Irritating to skin
R41 - Risk of serious damage to eyes.

Prepared By: Product Stewardship

Revision Date: 06/28/2012

MSDS sections updated: This data sheet contains changes from the previous version in section(s) 15

Legend: N.Av.= Not Available; N.A.= Not Applicable

Disclaimer: For purposes of this MSDS, International Specialty Products, as responsible party, provides the information herein which is intended for use by persons who have or should obtain professional knowledge and experience in the subjects discussed. ISP's industrial products are used as materials in the production of products by industrial customers. ISP usually has only limited information about the products of its customers and their composition, methods of manufacture and use. Accordingly, ISP MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS OR RELIABILITY OF INFORMATION HEREIN EXCEPT THAT SUCH INFORMATION IS, TO THE BEST OF ISP'S KNOWLEDGE AND BELIEF, ACCURATE AS OF THE DATE INDICATED. ISP recommends that customers independently test and evaluate its products and their products and processes in which ISP products are used in order to decide their safety and effectiveness.

*****End of Safety Data Sheet*****

Schlumberger

Safety Data Sheet
Breaker J218

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Breaker J218
Product code J218
REACH registration number 01-2119495973-19-xxxx

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

Recommended use Used as a fracturing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 920 12570
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)

2. Hazards Identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Acute oral toxicity	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Respiratory sensitisation	Category 1
Skin sensitisation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Environmental hazards Not classified

Physical Hazards

Oxidizing Solids	Category 3

2.2 Label Elements

Signal word
DANGER

Hazard statements
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335 - May cause respiratory irritation
H272 - May intensify fire; oxidizer
EU specific hazard statements
EUH208 - Contains (.?). May produce an allergic reaction

Precautionary Statements - EU (28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P280 - Wear protective gloves/protective clothing and eye/face protection
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
P304 + P341 - IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician

Supplementary precautionary statements
P221 - Take any precaution to avoid mixing with combustibles
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P285 - In case of inadequate ventilation wear respiratory protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
P337 + P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to an approved waste disposal plant

The substance/preparation is classified as dangerous in accordance with Directive(s) 67/548/EEC with amendments and/or 1999/45/EC with amendments

Indication of danger
O - Oxidizing
Xn - Harmful
Xi - Irritant

R-code(s)
R8, R22, R36/37/38, R42/43

Contains
Diammonium peroxidisulphate

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on Ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Diammonium peroxidisulphate	231-786-5	7727-54-0	60-100	O; R8, Xn; R22, Xi;R36/37/38, R42/43	STOT SE 3 (H335) Skin Irrit. 2 (H315) Ox. Sol 3 (H272) Acute Tox. 4 (H302) Skin Sens. 1 (H317) Eye Irrit. 2 (H319) Resp. Sens. 1 (H334)	01-2119495973-19-xxxx

3.2 Mixtures

Not Applicable

4. First aid measures

4.1 Description of 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 immediate medical attention.

Ingestion — Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Skin contact — Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Seek medical attention.

Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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 spray.

Extinguishing media which shall not be used for safety reasons
Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion
Oxidising material - Keep away from flammable and combustible materials.

Hazardous combustion products
Heating or fire can release toxic gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Avoid contact with the skin and the eyes. Avoid breathing dust; if exposed to high dust concentration, leave area immediately.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Take up mechanically and collect in suitable container for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid handling causing generation of dust. Do not breathe dust. May produce an allergic reaction.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do no eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture Keep away from open flames, hot surfaces and sources of ignition Oxidising material - Keep away from flammable and combustible materials. Keep away from direct sunlight Incompatible with strong acids and bases Metal salts Reducing agents
Storage class	Oxidiser storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, WEL TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Component	EU OEL - Third List	Austria	Australia	Denmark
Diammonium peroxidisulphate	Not determined	Not determined	Not determined	Not determined

Component	Finland	France	Germany	Hungary
Diammonium peroxidisulphate	Not determined	Not determined	Not determined	Not determined

Component	Ireland	Italy	Netherlands	Norway
Diammonium peroxidisulphate	Not determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Diammonium peroxidisulphate	Not determined	Not determined	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Diammonium peroxidisulphate	0.1 mg/m³ VLA-ED	Not determined	Not determined	Not determined

Component	ACGIH TLV	TWA / C
Diammonium peroxidisulphate 7727-54-0 (60-100)	Not Determined	Not Determined

Derived No Effect Level (DNEL)

Short term exposure local effects

Diammonium peroxidisulphate

Dermal	2.248 mg/cm²

Long term exposure local effects

Diammonium peroxidisulphate

Dermal	0.102 mg/cm²
Inhalation	2.06 mg/m³

Short term exposure systemic effects

Diammonium peroxidisulphate

Dermal	400 mg/kg bw/day
Inhalation	590 mg/m³

Long term exposure systemic effects

Diammonium peroxidisulphate

Dermal	18.2 mg/kg bw/day
Inhalation	2.06 mg/m³

Predicted No Effect Concentration (PNEC) .

Diammonium peroxidisulphate

Fresh Water	0.0763 mg/L
Sea Water	0.011 mg/L
Fresh water sediment	0.275 mg/kg
Sea sediment	0.0396 mg/kg
Soil	0.015 mg/kg
Impact on Sewage Treatment	3.6 mg/L
Intermittent release	0.763 mg/L

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Wear dust resistant safely goggles where there is a danger of eye contact.
Hand protection	Polyvinyl alcohol or nitrile-butyl-rubber gloves.
Respiratory protection	Effective dust mask, Half mask with a particle filter P2 (BS EN 143).
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Crystalline
Odour	Odourless
Colour	White
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution		
Melting/freezing point	120 °C	
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Relative density	1.26 g/cm³	@ 20°C.
Water solubility	Soluble in water	

Solubility in other solvents	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	
Viscosity, dynamic	No information available
Log Pow	Does not bioaccumulate

Explosive properties	Not Applicable
Oxidizing properties	Strong oxidizer. Contact with other material may cause fire

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and Reactivity

10.1 Reactivity

H272 - May intensify fire; oxidiser.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Heat, flames and sparks. S16 - Keep away from sources of ignition - No smoking. Protect from moisture. Avoid dust formation. Avoid strong sunlight.

10.5 Incompatible materials

Incompatible with strong acids and bases. Metal salts. Reducing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Product information	May produce an allergic reaction.
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause irritation of respiratory tract.
Eye contact	Causes serious eye irritation.

Skin contact Irritating to skin. May cause an allergic skin reaction.

Ingestion HARMFUL IF SWALLOWED.

Acute toxicity .

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Diammonium peroxidisulphate	= 495 mg/kg (Rat)	No data available	= 520 mg/L (Rat) 1 h

Sensitisation May cause sensitization by inhalation and skin contact.

Mutagenic effects This substance has no evidence of mutagenic properties.

Carcinogenicity This substance has no evidence of carcinogenic properties.

Reproductive toxicity None known.

Routes of exposure Inhalation.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Category 3

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological Information

12.1 Toxicity

Ecotoxicity effects
The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates

Diammonium peroxidisulphate	323 mg/L LC50 (Poecilia reticulata) = 96 h 76.3 mg/L LC50 (Oncorhynchus mykiss) = 96 h 103 mg/L LC50 (Lepomis macrochirus) = 96 h	No information available	120 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal Considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of as special waste in compliance with local and national regulations.
Contaminated packaging	If recycling is not practicable, dispose of in compliance with local regulations.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: Waste Code: 16 03 03 - inorganic wastes containing dangerous substances 16 03 04 - inorganic wastes other than those mentioned in 16 03 03

14. Transport Information

14.1 UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN 1444
UN/ID no	UN 1444
UN No. (ICAO)	UN 1444

14.2 Proper shipping name

AMMONIUM PERSULFATE,

14.3. Hazard class(es)

Hazard class	5.1
IMDG Page	5.1
ICAO = International Civil Aviation Organization	5.1

14.4 Packing group

Packing group	III
Packing group	III
ICAO Packing group	III

14.5 Environmental hazard

Marine pollutant	No

14.6 Special precautions

EmS	F-A, S-Q

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

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

Germany, Water Endangering Classes (VwVwS)	Hazardous to water/Class 1

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Diammonium peroxidisulphate
Schedule 6

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

-

15.2 Chemical Safety Report

No information available

16. Other Information

Prepared by	Global Chemical Regulatory Compliance (GCRC)
Supercedes date	23/Dec/2008
Revision date	15/May/2014
Version	2
The following sections have been revised	SDS fully updated in the new database.

Text of R phrases mentioned in Section 3
R 8 - Contact with combustible material may cause fire.
R22 - Harmful if swallowed

R36/37/38 - Irritating to eyes, respiratory system and skin
R42/43 - May cause sensitization by inhalation and skin contact

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

H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335 - May cause respiratory irritation
H272 - May intensify fire; oxidizer
EUH208 - Contains (.?). May produce an allergic reaction

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety Data Sheet
Stabilizer J450

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Stabilizer J450
Product code J450
Denmark Pr. no. 1008945

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

Recommended use Used as a fracturing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

Denmark	Poison Control Hotline (DK): +45 82 12 12 12
Norway	Poison information centre: +47 22 59 13 00
Croatia	01-23-48-342(for medical information) -Center for Poison

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
None

Hazard statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains

2,2`,2"-nitrilotriethanol

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
2,2`,2"-nitrilotriethanol	203-049-8	102-71-6	60-100	-	Not classified	01-2119486482-31-xxxx

Ingredient notes
Trade Control Substance Chemical Weapon - Controlled Chemicals Lists
Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First aid measures

4.1 First Aid

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye contact	Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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
Dry chemical, CO_2, alcohol-resistant foam or water spray.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Heating or fire can release toxic gas, Nitrogen oxides (NOx), Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustable material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid excessive heat for prolonged periods of time. Avoid extreme temperatures. Store above 0°C Store away from incompatibles, Oxidizing agents Strong acids.
Storage class	Chemical storage.
Packaging material	Steel or high density polyethylene (HDPE) container

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
2,2`,2"-nitrilotriethanol	Not determined	Not determined	5 mg/m³ TWA	0.5 ppm TWA 3.1 mg/m³ TWA

Component	Malaysia	France	Germany	Hungary
2,2`,2"-nitrilotriethanol	5 mg/m³ TWA	Not determined	5 mg/m³ TWA	Not determined

Component	New Zealand	Italy	Netherlands	Norway
2,2`,2"-nitrilotriethanol	5 mg/m³ TWA	Not determined	Not determined	5 mg/m³ TWA 10 mg/m³ STEL

Component	Poland	Portugal	Romania	Russia
2,2`,2"-nitrilotriethanol	Not determined	5 mg/m³ TWA	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
2,2`,2"-nitrilotriethanol	5 mg/m³ TWA VLA-ED	20 mg/m³ STEL inhalable 5 mg/m³ TWA MAK	Not determined	Not determined

Derived No Effect Level (DNEL)

Long term exposure local effects

2,2`,2"-nitrilotriethanol

Inhalation	5 mg/m³

Long term exposure systemic effects

2,2`,2"-nitrilotriethanol

Dermal	6.3 mg/kg
Inhalation	5 mg/m³

Predicted No Effect Concentration (PNEC)

2,2`,2"-nitrilotriethanol

Fresh Water	0.32 mg/L
Sea Water	0.032 mg/L
Fresh water sediment	1.7 mg/kg
Sea sediment	0.17 mg/kg

Soil	0.151 mg/kg
Impact on Sewage Treatment	10 mg/L
Intermittent release	5.12 mg/L

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Safety glasses with side-shields.
Hand protection	Wear chemical resistant gloves such as nitrile or neoprene.
Respiratory protection	No protective equipment is needed under normal use conditions, When workers are facing concentrations above the exposure limit they must use appropriate certified respirators, Use respirator with organic vapor protection (A, brown), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before breaks and immediately after handling the product, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Odour	Ammoniacal
Colour	Colourless
Odor threshold	Not applicable

Property	Values	Remarks
pH	~ 11	
pH @ dilution		
Melting/freezing point	<-5 °C / 23 °F	
Boiling point/range	121 °C / 250 °F	
Flash Point	204 °C / 399 °F	Cleveland Open Cup (COC)
Evaporation rate		
Flammability (solid, gas)	Not Applicable	

Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	< 0.001 kPa	@ 20 °C
Vapor density	1.1 (air = 1)	
Specific gravity	1.1	@ 20 °C
Bulk density	No information available	Not applicable
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity		
Viscosity, dynamic	140 mPa s	@ 20 °C
Log Pow	-2.3	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid excessive heat for prolonged periods of time. Avoid extreme temperatures. Store above 0°C.

10.5 Incompatible materials

Oxidizing agents. Strong acids.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of vapours in high concentration may cause irritation of respiratory system.

Eye contact May cause temporary eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2,2`,2"-nitrilotriethanol	= 4190 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity No information available.

Routes of exposure Skin contact.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
2,2`,2"-nitrilotriethanol	10600 - 13000 450 - 1000 1000	169 216	1386

12.2 Persistence and degradability

Readily biodegradable.

12.3 Bioaccumulative potential

The product does not contain any substances expected to be bioaccumulating.

Log Pow
-2.3

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of contents/container to an approved waste disposal plant. In accordance with local and national regulations.
Contaminated packaging	Dispose of contents/container to an approved waste disposal plant. Do not puncture or incinerate cans.

EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 07 07 99 - wastes not otherwise specified

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Germany, Water Endangering Classes (VwVwS)	Hazardous to water/Class 1

Australian Standard for the Uniform Scheduling of Drugs and Poisons

2,2`,2"-nitrilotriethanol
Schedule 5

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Ingrid Helland
Supercedes date	19/Jun/2014
Revision date	23/Jun/2015
Version	3
The following sections have been revised	Updated according to GHS/CLP.

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

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Safety Data Sheet
EB-Clean* J475 Breaker

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name EB-Clean* J475 Breaker
Product code J475
Denmark Pr. no. 1008929

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

Recommended use Used as a fracturing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Croatia	01-23-48-342(for medical information) -Center for Poison

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Acute oral toxicity	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Respiratory sensitisation	Category 1
Skin sensitisation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Environmental hazards Not classified

Physical Hazards

Oxidizing Solids	Category 3

2.2 Label Elements

Signal word
DANGER

Hazard statements
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 - May cause respiratory irritation
H272 - May intensify fire; oxidizer

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P280 - Wear protective gloves/protective clothing and eye/face protection
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician

Supplementary precautionary statements
P221 - Take any precaution to avoid mixing with combustibles
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P285 - In case of inadequate ventilation wear respiratory protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
P337 + P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash before re-use
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/ container to an approved waste disposal plant

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger
O - Oxidizing
Xn - Harmful
Xi - Irritant

R-code(s)
Xn;R22 - Xi;R36/37/38 - R42/43 - O;R8

Contains

Diammonium peroxodisulphate

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Diammonium peroxodisulphate	231-786-5	7727-54-0	60 - 100	Xn; R22 Xi; R36/37/38 R42/43 O; R8	Ox. Sol.3 (H272) Acute Tox.4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Resp. Sens. 1 (H334) Skin Sens.1 (H317) STOT SE 3 (H335)	No data available

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First aid measures

4.1 First Aid

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

Ingestion Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Seek medical attention.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Main symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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
Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Extinguishing media which shall not be used for safety reasons
High volume water jet.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
May intensify fire; oxidiser.

Hazardous combustion products
Heating or fire can release toxic gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Do not breathe dust. Avoid contact with the skin and the eyes.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Take up mechanically and collect in suitable container for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Avoid breathing dust; if exposed to high dust concentration, leave area immediately. Avoid contact with skin and eyes. Avoid handling causing generation of dust. Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do not eat, drink or smoke when using this product

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Provide appropriate exhaust ventilation at places where dust is formed. Keep away from heat, sparks, and flame. Keep containers in cool areas out of direct sunlight and away from combustibles.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep at a temperature not exceeding 110°F /43 °C Incompatible with strong acids and bases Strong reducing agents. Heavy metals Protect from moisture

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Diammonium peroxodisulphate	Not determined	Not determined	Not determined	Not determined

Component	Malaysia	France	Germany	Hungary
Diammonium peroxodisulphate	0.1 mg/m³ TWA	Not determined	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Diammonium peroxodisulphate	Not Determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Diammonium peroxodisulphate	Not determined	Not determined	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Diammonium peroxodisulphate	0.1 mg/m³ VLA-ED	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection — It is good practice to wear goggles when handling any chemical. Wear dust resistant safety goggles where there is a danger of eye contact.

Hand protection — Polyvinyl alcohol or nitrile-butyl rubber gloves.

Respiratory protection — Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust), Effective dust mask.

Skin and body protection — Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.

Hygiene measures — Wash hands before breaks and immediately after handling the product, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odour	Sweet
Colour	White
Odor threshold	Not applicable

Property	Values	Remarks
pH		
pH @ dilution	6.5 - 8	@ 10g/l
Melting/freezing point	Decomposes	
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.8 @ 20°C	
Bulk density	1150 kg/m³	
Relative density	No information available	
Water solubility	10 - 20 g/l	@ 20 °C
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	120 °C/ 248 °F	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	No information available

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

May intensify fire; oxidizer.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Heat, flames and sparks. Keep away from sources of ignition - No smoking. Protect from moisture. Avoid dust formation. Avoid strong sunlight.

10.5 Incompatible materials

Incompatible with strong acids and bases. Metal salts. Reducing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information May produce an allergic reaction.

Inhalation May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause irritation of respiratory tract. May cause drowsiness or dizziness.

Eye contact Causes serious eye irritation.

Skin contact Irritating to skin. May cause an allergic skin reaction.

Ingestion Harmful if swallowed.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Diammonium peroxodisulphate	= 495 mg/kg (Rat)	No data available	= 520 mg/L (Rat) 1 h

Sensitisation May cause sensitization by inhalation and skin contact.

Mutagenic effects This substance has no evidence of mutagenic properties.

Carcinogenicity This substance has no evidence of carcinogenic properties.

Reproductive toxicity	No information available.
Developmental toxicity	Not known to cause birth defects or have a deleterious effect on a developing fetus.
Routes of exposure	Inhalation. Skin contact. Eye contact.
Routes of entry	Inhalation.
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Not classified.
Target organ effects	Respiratory system.
Aspiration hazard	No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Diammonium peroxodisulphate	323 mg/L LC50 (Poecilia reticulata) = 96 h 76.3 mg/L LC50 (Oncorhynchus mykiss) = 96 h 103 mg/L LC50 (Lepomis macrochirus) = 96 h	No information available	120 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of as special waste in compliance with local and national regulations.
Contaminated packaging	Dispose of contents/container to an approved waste disposal plant.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. The following Waste Codes are only suggestions: EWC waste disposal No: 16 10 01

14. Transport information

14.1 UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN 1444
UN No. (IMDG)	UN 1444
UN No. (ICAO)	UN 1444

14.2 Proper shipping name

AMMONIUM PERSULFATE,

14.3. Hazard class(es)

ADR/RID/ADN Hazard class	5.1
IMDG Hazard class	5.1
ICAO Hazard class/division	5.1

14.4 Packing group

ADR/RID/ADN Packing Group	III

IMDG Packing group	III
ICAO Packing group	III

14.5 Environmental hazard

Marine pollutant
No

14.6 Special precautions

EmS (IMDG)	F-A, S-Q
Tunnel restriction code	E

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Germany, Water Endangering Classes (VwVwS)	Hazardous to water/Class 1

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Diammonium peroxodisulphate
Schedule 6

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies

Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Ingrid Helland
Supercedes date	30/Sep/2013
Revision date	21/May/2015
Version	2
The following sections have been revised	SDS fully updated in the new database, Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3
R 8 - Contact with combustible material may cause fire.
R22 - Harmful if swallowed

R36/37/38 - Irritating to eyes, respiratory system and skin
R42/43 - May cause sensitization by inhalation and skin contact

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

H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 - May cause respiratory irritation

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety data sheet number J511
Version 2
Revision date 31/Aug/2015
Supercedes date 21/Feb/2011

Safety Data Sheet
Stabilizer/Delay Agent J511

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Stabilizer/Delay Agent J511
Product code J511

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

Recommended use Used as a fracturing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards identification

2.1 Classification of the substance or mixture

GHS - Classification Regulation (EC) No. 1272/2008

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
None

Hazard statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

-

Contains
Aliphatic polyol

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Aliphatic polyol	Listed	Proprietary	60-100	-	Not classified	No data available

3.2 Mixtures

Not Applicable

4. First aid measures

4.1 First Aid

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

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if symptoms occur.

Eye contact — Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Main symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
When heated strongly or burned, oxides of carbon and harmful organic chemical fumes are released.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Avoid generating or breathing dust. Take up mechanically and collect in suitable container for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid handling causing generation of dust. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed. Keep airborne concentrations below exposure limits.
Storage precautions	Keep away from open flames, hot surfaces and sources of ignition Protect from moisture Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatibles, Oxidizing agents
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Component	EU OEL - Third List	Austria	Australia	Denmark
Aliphatic polyol	Not determined	Not determined	Not determined	Not determined

Component	Malaysia	France	Germany	Hungary
Aliphatic polyol	Not determined	Not determined	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Aliphatic polyol	Not Determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Aliphatic polyol	Not determined	Not determined	Not determined	10 mg/m³ MAC

Component	Spain	Switzerland	Turkey	UK
Aliphatic polyol	Not determined	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection Safety glasses with side-shields.

Hand protection Use protective gloves made of:, Nitrile, Neoprene gloves, Rubber, PVC, Frequent change is advisable.

Respiratory protection Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust), Effective dust mask, Type P2, At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before breaks and immediately after handling the product, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odour	Odourless
Colour	White
Odor threshold	Not applicable

Property	Values	Remarks
pH	Not applicable	
pH @ dilution	6 - 7	@ 50 g/l
Melting/freezing point	95 °C / 203 °F	
Boiling point/range	No information available	
Flash Point	Not applicable	
Evaporation rate	Not applicable	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	No information available	
Lower flammability limit	No information available	
Vapor pressure	Not applicable	
Vapor density	Not applicable	
Specific gravity	1.5	@ 20 °C
Bulk density	No information available	
Relative density	~ 1.5 (@ 20°C)	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	> 242 °C / 468 °F	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

Eye contact Dust may cause mechanical irritation.

Skin contact Repeated exposure may cause skin dryness or cracking.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Aliphatic polyol	= 15900 mg/kg (Rat)	No data available	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of exposure	Inhalation. Skin contact. Eye contact.
Routes of entry	Inhalation.
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	Not Applicable.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Aliphatic polyol	No information available	No information available	No information available

12.2 Persistence and degradability

The product is not biodegradable.

12.3 Bioaccumulative potential

The product does not contain any substances expected to be bioaccumulating.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 07 07 99, 16 03 06

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No Poison Schedule number allocated.

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Nicola Anderson

Supercedes date 21/Feb/2011

Revision date	31/Aug/2015
Version	2
The following sections have been revised:	Updated according to GHS/CLP, No changes with regard to classification have been made.

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

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Safety Data Sheet
Crosslinker L10

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Crosslinker L10
Product code L010
REACH registration number 01-2119486683-25-XXXX

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

Recommended use Crosslinker in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Reproductive toxicity	Category 1B

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
DANGER

Hazard statements
H360 - May damage fertility or the unborn child

Precautionary Statements - EU (§28, 1272/2008)
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/protective clothing and eye/face protection
P308 + P313 - IF exposed or concerned: Get medical advice/ attention
P501 - Dispose of contents/ container to an approved waste disposal plant

-

-

Contains
Boric acid

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Boric acid	233-139-2	10043-35-3	60 - 100	Repr.Cat2;R60-61	Repr. 1B (H360FD)	01-2119486683-25-xxxx

3.2 Mixtures

Not Applicable

Comments
Listed on SVHC

4. First aid measures

4.1 First Aid

Inhalation Keep at rest. Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. Seek medical attention at once.

Ingestion Do NOT induce vomiting. Rinse mouth. If conscious, drink plenty of water. Immediate medical attention is required.

Skin contact Remove contaminated clothing and launder before reuse. Rinse immediately with plenty of water and seek medical advice.

Eye contact Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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 spray or fog is preferred; if water not available use dry chemical, CO_2 or regular foam.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Heating or fire can release toxic gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Do not breathe dust. Avoid contact with the skin and the eyes. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Prevent dust cloud.

Methods for cleaning up
Avoid generating or breathing dust. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding. Do not breathe dust. Avoid handling causing generation of dust. Avoid contact with skin, eyes and clothing.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store at ambient conditions Protect from moisture Store away from incompatibles, Bases Strong reducing agents. Active metals. Anhydrides.

Packaging material Use specially constructed containers only

Packaging materials to be avoided Metal

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Boric acid	Not determined	Not determined	Not determined	Not determined

Component	Malaysia	France	Germany	Hungary
Boric acid	Not determined	Not determined	10 mg/m³ MAK	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Boric acid	Not Determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Boric acid	Not determined	6 mg/m³ STEL inhalable fraction 2 mg/m³ TWA inhalable fraction Borate compounds, inorganic	Not determined	10 mg/m³ MAC

Component	Spain	Switzerland	Turkey	UK
Boric acid	6 mg/m³ VLA-EC 2 mg/m³ VLA-ED it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary o biocide compound	10 mg/m³ STEL inhalable 15 min 10 mg/m³ MAK inhalable	Not determined	Not determined

Component Information

Derived No Effect Level (DNEL)

Long term exposure systemic effects

Boric acid	
Dermal	392 mg/kg bw/day
Inhalation	8.3 mg/m³

Predicted No Effect Concentration (PNEC)

Boric acid	
Fresh Water	2.9 mg/L
Sea Water	2.9 mg/L
Soil	5.7 mg/kg
Impact on Sewage Treatment	10 mg/L
Intermittent release	13.7 mg/L

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	It is good practice to wear Safety Glasses with Side-shields when handling any chemical.
Hand protection	Impervious gloves made of:, Neoprene, Nitrile, Rubber, Frequent change is advisable.
Respiratory protection	Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust), Half mask with a particle filter P2 (BS EN 143), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Granules
Odour	Odourless
Colour	White
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	No information available	

pH @ dilution	4	10g/L@20°C
Melting/freezing point	> 171 °C / 339.8 °F	
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	0.27 kPa	
Vapor density	No information available	
Specific gravity	1.4	@ 20 °C
Bulk density	780-815 kg/m³	
Relative density	1.49	@ 23 °C.
Water solubility	5g/100ml	@ 20 °C
Solubility in other solvents	No information available	
Autoignition temperature	Not Applicable	
Decomposition temperature	169-185°C	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	-1.09	

Explosive properties	Not Applicable
Oxidizing properties	Not Applicable

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

May release hydrogen gas (explosive) on contact with metals,. Active metals.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Protect from moisture. Store at ambient conditions.

10.5 Incompatible materials

Bases. Strong reducing agents. Anhydrides. Active metals.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Contact with eyes may cause irritation.

Skin contact May cause skin irritation and/or dermatitis.

Ingestion Swallowing large amounts may be harmful. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Unknown acute toxicity Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Boric acid	= 2660 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 0.16 mg/L (Rat) 4 h

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity May damage fertility or the unborn child.

Routes of exposure Oral.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Boric acid	1020 mg/L LC50 (Carassius auratus) = 72 h	No information available	115 - 153 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

The product is not biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

Log Pow
-1.09

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of as hazardous waste in compliance with local and national regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 16 03 03 - inorganic wastes containing dangerous substances

14. Transport information

14.1 UN number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard

Marine pollutant
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Boric acid
Schedule 5

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Nicola Anderson
Supercedes date	12/May/2014
Revision date	22/Jul/2015
Version	8
The following sections have been revised:	Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3
R60 - May impair fertility
R61 - May cause harm to the unborn child

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

H360 - May damage fertility or the unborn child

Disclaimer

The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Safety data sheet number M117
Version 3
Revision date 14/May/2015
Supercedes date 16/Aug/2010

Safety Data Sheet
Potassium Chloride M117

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Potassium Chloride M117
Product code M117
Denmark Pr. no. 1008953

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

Recommended use Clay control agent in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements

Signal word
None

Hazard statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger
Not classified

Contains

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

No classified ingredients, or those having occupational exposure limits, present above the level of disclosure.

4. First aid measures

4.1 First Aid

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye contact	Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Main symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Heating or fire can release toxic gas, Hydrogen chloride gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Avoid breathing dust; if exposed to high dust concentration, leave area immediately.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Avoid generating or breathing dust. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid handling causing generation of dust. Do not breathe dust. Avoid contact with skin and eyes.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do not eat, drink or smoke when using this product

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.
Substances which, in contact with water, emit flammable gases	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Safety glasses with side-shields.
Hand protection	Repeated or prolonged contact:, Use protective gloves made of:, Neoprene, Nitrile, Rubber, PVC, Frequent change is advisable.
Respiratory protection	No protective equipment is needed under normal use conditions, Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust), Effective dust mask, Type P2, At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before breaks and immediately after handling the product, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Crystalline
Odour	very faint

Colour	White
Odor threshold	Not applicable

Property	Values	Remarks
pH		
pH @ dilution	8-10	@ 25°C Aqueous soln
Melting/freezing point	770 °C / 1418 °F	
Boiling point/range	Not Applicable	
Flash Point	Not applicable	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Not applicable	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	1.100 kg/m³	
Relative density	1.989 g/cm³	
Water solubility	300 g/l	@ 20 °C
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	Not determined	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid dust formation.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not Applicable.

Sensitisation	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of exposure	Inhalation. Eye contact. Skin contact.
Routes of entry	No route of entry noted.
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.

Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 06 03 14

14. Transport information

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA,ADR/RID/ADG).

14.1 UN number
Not regulated

14.2 Proper shipping name
Not regulated

14.3. Hazard class(es)

ADR/RID/ADN Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Germany, Water Endangering Classes (VwVwS)	Hazardous to water/Class 1

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Nicola Anderson
Supercedes date	16/Aug/2010
Revision date	14/May/2015
Version	3
The following sections have been revised	Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3
Not classified

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

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Disclaimer

The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Schlumberger

Safety Data Sheet
Gelling Agent U28 - 30% Active

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Gelling Agent U28 - 30% Active
Product code U028
Molecular weight 40.01

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

Recommended use Used as a gelling agent in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 920 12570
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)

2. Hazards Identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Skin corrosion/irritation	Category 1 Subcategory 1A

Environmental hazards Not classified

Physical Hazards

Substances/mixtures corrosive to metal	Category 1

2.2 Label Elements

Signal word
DANGER

Hazard statements
H314 - Causes severe skin burns and eye damage
H290 - May be corrosive to metals

Precautionary Statements - EU (28, 1272/2008)
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing and eye/face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Supplementary precautionary statements
P234 - Keep only in original container
P264 - Wash face, hands and any exposed skin thoroughly after handling
P363 - Wash contaminated clothing before reuse
P310 - Immediately call a POISON CENTER or doctor/ physician
P390 - Absorb spillage to prevent material damage
P501 - Dispose of contents/container to an approved waste disposal plant

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger
C - Corrosive

R-code(s)
R35

Contains

Sodium hydroxide

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on Ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Sodium hydroxide	215-185-5	1310-73-2	30	C;R35	Met. Corr. 1 (H290) Skin Corr. 1A (H314)	01-2119457892-27-xxxx

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First aid measures

4.1 Description of 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 immediate medical attention.

Ingestion Do NOT induce vomiting. Rinse mouth. Risk of product entering the lungs on vomiting after ingestion. Never give anything by mouth to an unconscious person. Immediate medical attention is required.

Skin contact Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns must be treated by a physician.

Eye contact Get immediate medical attention. Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.

4.2 Most important symptoms and effects, both acute and delayed

General advice Seek medical attention for all burns, regardless how minor they may seem. The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion
Contact with metals may evolve flammable hydrogen gas.

Hazardous combustion products
Heating or fire can release toxic gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

Hazchem code ADG
2R

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not get on skin or clothing. Wash thoroughly after handling. Do not breathe vapors or spray mist. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see Section 13).

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do no eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Store between 15-25 deg. C (59-77 deg. F) Avoid extreme temperatures. Store away from incompatibles, Strong acids. Halogenated compounds Metals

Storage class Corrosive storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Sodium hydroxide	Not determined	4 mg/m³ STEL inhalable fraction, 8x5 min 2 mg/m³ TWA inhalable fraction	2 mg/m³ Peak	2 mg/m³ Ceiling

Component	Finland	France	Germany	Hungary
Sodium hydroxide	2 mg/m³ Ceiling 2 mg/m³ STEL	2 mg/m³	Not determined	2 mg/m³ STEL 2 mg/m³ TWA

Component	New Zealand	Italy	Netherlands	Norway
Sodium hydroxide	2 mg/m³ Ceiling	2 mg/m³ Ceiling	Not determined	2 mg/m³ Ceiling

Component	Poland	Portugal	Romania	Russia

Sodium hydroxide	1 mg/m³ STEL 0.5 mg/m³ TWA	2 mg/m³ Ceiling	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Sodium hydroxide	2 mg/m³ VLA-EC	2 mg/m³ STEL inhalable 15 min 2 mg/m³ MAK inhalable	Not determined	2 mg/m³ STEL

Derived No Effect Level (DNEL)

Long term exposure local effects

Sodium hydroxide

Inhalation 1 mg/m³

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure

Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles. Face-shield.

Hand protection Wear chemical resistant gloves such as nitrile or neoprene, Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations, Respirator with combination filter for vapour/particulate (EN 141), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state Liquid

Appearance	clear
Odour	Odourless
Colour	Colourless
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	13.5	
pH @ dilution		
Melting/freezing point	0 °C	
Boiling point/range	> 100 °C	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.31 - 1.35	ASTM D4052
Bulk density	No information available	
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	Not Applicable	
Decomposition temperature	No information available	
Kinematic viscosity		
Viscosity, dynamic	75 mPa s	@ 20 °C
Log Pow	No information available	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	40.01
VOC content(%)	None
Density VALUE	No information available

10. Stability and Reactivity

10.1 Reactivity

Gives off hydrogen by reaction with metals.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid extreme temperatures. Store at ambient conditions.

10.5 Incompatible materials

Strong acids. Halogenated compounds. Metals.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Product information Causes severe skin burns and eye damage.

Inhalation Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate.

Eye contact Causes burns. Causes serious eye damage.

Skin contact Corrosive. Causes burns.

Ingestion Can burn mouth, throat, and stomach.

Acute toxicity .

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Sodium hydroxide	No data available	1350 mg/kg (Rabbit)	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects No evidence of mutagenic properties.

Carcinogenicity No evidence of carcinogenic properties.

Reproductive toxicity None known.

Routes of exposure Skin contact. Eye contact.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Sodium hydroxide 1310-73-2 (30)	45.4 mg/L LC50 (Oncorhynchus mykiss) = 96 h	No information available	No information available

12.2 Persistence and degradability

This product is expected to be readily biodegradable.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal Considerations

13.1 Waste treatment methods

Waste from residues / unused products — Dispose of as special waste in compliance with local and national regulations.

Contaminated packaging — Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.

EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 06 02 04

14. Transport Information

14.1 UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN 1824
UN No. (IMDG)	UN 1824
UN No. (ICAO)	UN 1824

14.2 Proper shipping name
SODIUM HYDROXIDE SOLUTION,

14.3. Hazard class(es)

ADR/RID/ADN Hazard class	8
IMDG Hazard class	8
ICAO Hazard class/division	8

14.4 Packing group

ADR/RID/ADN Packing Group	II
IMDG Packing group	II
ICAO Packing group	II

14.5 Environmental hazard
No

14.6 Special precautions

Hazard ID	80
EmS (IMDG)	F-A, S-B
Emergency action code	2R
Tunnel restriction code	(E)
Hazchem code ADG	2R

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

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

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Sodium hydroxide
Schedule 6
Schedule 5

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other Information

Prepared by	Global Chemical Regulatory Compliance (GCRC)
Supercedes date	11/Jun/2010
Revision date	03/Jun/2014
Version	4
The following sections have been revised	SDS fully updated in the new database.

Text of R phrases mentioned in Section 3
R35 - Causes severe burns

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

H314 - Causes severe skin burns and eye damage

H290 - May be corrosive to metals

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety data sheet number B197
Version 6
Revision date 30/Nov/2015
Supercedes date 29/Mar/2012

Safety Data Sheet
EZEFLO* Surfactant B197

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name	EZEFLO* Surfactant B197
Product code	B197
Country Limitations	For use only in North Sea countries (NSG)
Norway Pr. no.	54338
Denmark Pr. no.	1685495

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

Recommended use	Used as a fracturing additive in oilfield applications
Uses advised against	Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

Denmark	Poison Control Hotline (DK): +45 82 12 12 12 +31 (0)30-2748888 Only for the purpose of informing medical personnel in cases of acute intoxications
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poison information centre: +47 22 59 13 00

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Acute oral toxicity	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

Environmental hazards

Chronic aquatic toxicity	Category 3

Physical Hazards

Flammable Liquids	Category 3

2.2 Label Elements

Signal word
DANGER

Hazard statements
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H336 - May cause drowsiness or dizziness
H412 - Harmful to aquatic life with long lasting effects
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P273 - Avoid release to the environment
P280 - Wear protective gloves/ protective clothing/ 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
P310 - Immediately call a POISON CENTER or doctor/ physician
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell

Supplementary precautionary statements
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P330 - Rinse mouth
P332 + P313 - If skin irritation occurs: Get medical advice/ attention
P362 - Take off contaminated clothing and wash before re-use
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/ container to an approved waste disposal plant

-

Contains

Propan-2-ol

Ethoxylated C11 linear/branched alcohols (7eo)

2-butoxyethanol

Alcohols, C12-15 linear, ethoxylated

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Propan-2-ol	200-661-7	67-63-0	10 - 30	F;R11 R67 Xi;R36	Flam. Liq. 2, (H225) STOT SE 3 (H336) Eye Irrit. 2 (H319)	No data available
Ethoxylated C11 linear/branched alcohols (7eo)	Polymer	34398-01-1b	10 - 30	Xn;R22 Xi;R41	Acute toxicity (Oral) Cat.4 (H302) Eye Dam. 1 (H318) Skin Irritation Cat. 2 (H315) Aquatic Chronic Cat. 2 (H411)	No data available
2-butoxyethanol	203-905-0	111-76-2	10 - 25	Xn; R20/21/22 Xi; R36/38	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	01-2119475108-36-xxxx
Alcohols, C12-15 linear, ethoxylated	500-195-7	68131-39-5	5-10	Xn;R22 Xi;R41	Eye Dam. 1 (H318) Acute Tox. 4 (H302)	No data available

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First aid measures

4.1 First Aid

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

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention.

Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation persists.

Eye contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses. Continue to rinse for at least 15 minutes. Get immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

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
Use extinguishing media appropriate for surrounding material.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
FLAMMABLE. Vapors are heavier than air and may spread along floors. Vapors may travel considerable distance to source of ignition and flash back.

Hazardous combustion products
Fire or high temperatures create:, Carbon oxides (COx), Harmful organic chemical fumes.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Remove all sources of ignition. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Take precautionary measures against static discharges. Absorb with earth, sand or other non-combustable material and transfer to containers for later disposal. Use clean non-sparking tools to collect absorbed material. Ground and bond containers when transferring material. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. Ensure all equipment is electrically grounded before beginning transfer operations.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition Store away from incompatibles, Incompatible with oxidising agents.

Storage class Flammable liquid storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Propan-2-ol	Not determined	800 ppm STEL 2000 mg/m³ STEL 200 ppm TWA 500 mg/m³ TWA	500ppmSTEL 1230mg/m³STEL 400ppmTWA 983mg/m³TWA	200 ppm 490 mg/m³
Ethoxylated C11 linear/branched alcohols (7eo)	Not determined	Not determined	Not determined	Not determined
2-butoxyethanol	50 ppm STEL 246 mg/m³ STEL 20 ppm TWA 98 mg/m³ TWA Possibility of significant uptake through the skin	40 ppm STEL 200 mg/m³ STEL 20 ppm TWA 98 mg/m³ TWA	50ppmSTEL 242mg/m³STEL 20ppmTWA 96.9mg/m³TWA skin notation	20 ppm 98 mg/m³
Alcohols, C12-15 linear, ethoxylated	Not determined	Not determined	Not determined	Not determined

Component	Malaysia	France	Germany	Hungary
Propan-2-ol	400 ppm TWA 983 mg/m³ TWA	400ppmSTEL 980mg/m³STEL	200 ppm TWA 500 mg/m³ TWA	500mg/m³TWA 2000mg/m³STEL
Ethoxylated C11 linear/branched alcohols (7eo)	Not determined	Not determined	Not determined	Not determined
2-butoxyethanol	20 ppm TWA 96.7 mg/m³ TWA Skin notation	50ppmSTEL 246mg/m³STEL 10 ppmTWA 49 mg/m³TWA	10 ppm MAK 49 mg/m³ MAK	98mg/m³TWA 246mg/m³STEL
Alcohols, C12-15 linear, ethoxylated	Not determined	Not determined	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Propan-2-ol	500 ppm STEL 1230 mg/m³ STEL 400 ppm TWA 983 mg/m³ TWA	Not determined	Not determined	100 ppm TWA 245 mg/m³ TWA 150 ppm STEL 306.25 mg/m³ STEL
Ethoxylated C11 linear/branched alcohols (7eo)	Not Determined	Not determined	Not determined	Not determined

2-butoxyethanol	25 ppm TWA 121 mg/m³ TWA Possibility of significant uptake through the skin	Not determined	100 mg/m³ GW	10 ppm TWA 50 mg/m³ TWA 20 ppm STEL 75 mg/m³ STEL Skin
Alcohols, C12-15 linear, ethoxylated	Not Determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Propan-2-ol	1200 mg/m³ STEL NDSCh 900 mg/m³ TWA NDS	400 ppm STEL VLE-CD 200 ppm TWA	203ppmSTEL 500mg/m³STEL 81ppmTWA 200mg/m³TWA	50 mg/m³ STEL vapor 10 mg/m³ TWA vapor
Ethoxylated C11 linear/branched alcohols (7eo)	Not determined	Not determined	Not determined	Not determined
2-butoxyethanol	200 mg/m³ STEL Skin 98 mg/m³ TWA	20 ppm TWA	50ppmSTEL 250mg/m³STEL 246mg/m³STEL 30ppmTWA 150mg/m³TWA	5 mg/m³ MAC
Alcohols, C12-15 linear, ethoxylated	Not determined	Not determined	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Propan-2-ol	400 ppm STEL 1000 mg/m³ STEL 200 ppm TWA VLA-ED 500 mg/m³ TWA VLA-ED	400 ppm STEL 1000 mg/m³ STEL 200 ppm TWA MAK 500 mg/m³ TWA MAK	Not determined	500 ppm STEL 1250 mg/m³ STEL 400 ppm TWA 999 mg/m³ TWA
Ethoxylated C11 linear/branched alcohols (7eo)	Not determined	Not determined	Not determined	Not determined
2-butoxyethanol	50 ppm VLA-EC 245 mg/m³ VLA-EC Skin 20 ppm VLA-ED indicative limit value 98 mg/m³ VLA-ED indicative limit value	20 ppm STEL 98 mg/m³ STEL Skin 10 ppm MAK 49 mg/m³ MAK	50 ppm STEL 246 mg/m³ STEL Skin 20 ppm TWA 98 mg/m³ TWA	50 ppm STEL 246 mg/m³ STEL Skin 25 ppm TWA 123 mg/m³ TWA
Alcohols, C12-15 linear, ethoxylated	Not determined	Not determined	Not determined	Not determined

Derived No Effect Level (DNEL)

Short term exposure local effects

2-butoxyethanol

Inhalation	246 mg/m³

Short term exposure systemic effects

2-butoxyethanol

Dermal	89 mg/kg
Inhalation	1091 mg/m³

Long term exposure systemic effects

2-butoxyethanol

Dermal	125 mg/kg
Inhalation	98 mg/m³

Predicted No Effect Concentration (PNEC)

2-butoxyethanol

Fresh Water	8.8 mg/l
Sea Water	0.88 mg/l
Fresh water sediment	34.6 mg/kg
Sea sediment	3.46 mg/kg
Soil	2.33 mg/kg
Impact on Sewage Treatment	463 mg/l
Intermittent release	9.1 mg/l

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Safety glasses with side-shields.
Hand protection	Use protective gloves made of:, Butyl, Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required, In case of insufficient ventilation wear suitable respiratory equipment, Use respirator with organic vapor protection (A, brown), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Aqueous solution
Odour	Alcohol
Colour	Clear Colourless
Odor threshold	Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution	5	@ 10g/l
Melting/freezing point	-40 °C / -40 °F	

Boiling point/range	88 °C / 190 °F	
Flash Point	32 °C / 89 °F	Pensky-Martens CC
Evaporation rate	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Relative density	~0.9	@ 25 °C.
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

FLAMMABLE LIQUID AND vapour.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded.

10.5 Incompatible materials

Incompatible with oxidising agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation May cause drowsiness and dizziness based on components.

Eye contact Causes serious eye damage.

Skin contact Causes skin irritation. Components of the product may be absorbed into the body through the skin.

Ingestion Harmful if swallowed.

Unknown acute toxicity Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Propan-2-ol	= 1870 mg/kg (Rat)	= 4059 mg/kg (Rabbit)	= 72600 mg/m³ (Rat) 4 h
Ethoxylated C11 linear/branched alcohols (7eo)	No data available	No data available	No data available
2-butoxyethanol	= 470 mg/kg (Rat)	= 99 mg/kg (Rabbit)	= 450 ppm (Rat) 4 h
Alcohols, C12-15 linear, ethoxylated	= 2 g/kg (Rat) = 1600 mg/kg (Rat)	= 2500 mg/kg (Rabbit)	No data available

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure Skin contact. Eye contact. Inhalation. Ingestion.

Routes of entry Skin contact. Eye contact. Inhalation.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard Not Applicable.

12. Ecological information

12.1 Toxicity

Harmful to aquatic life with long lasting effects

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Propan-2-ol	> 1400000 µg/L LC50 Lepomis macrochirus 96 h = 11130 mg/L LC50 Pimephales promelas 96 h = 9640 mg/L LC50 Pimephales promelas 96 h	> 1000 mg/L EC50 Desmodesmus subspicatus 72 h > 1000 mg/L EC50 Desmodesmus subspicatus 96 h	= 13299 mg/L EC50 Daphnia magna 48 h
Ethoxylated C11 linear/branched alcohols (7eo)	No information available	No information available	No information available
2-butoxyethanol	= 2950 mg/L LC50 Lepomis macrochirus 96 h = 1490 mg/L LC50 Lepomis macrochirus 96 h	No information available	= 1698 - 1940 mg/L (LC50; Daphnia magna) = 1720 mg/L (EC50; water flea)
Alcohols, C12-15 linear, ethoxylated	No information available	No information available	No information available

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

Mobility
Soluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 16 05 08 - discarded organic chemicals consisting of or containing dangerous substances. Waste Code: 7152 Organic waste without halogen.

14. Transport information

14.1 UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN1993
UN No. (IMDG)	UN1993
UN No. (ICAO)	UN1993

14.2 Proper shipping name
FLAMMABLE LIQUID, N.O.S. (propan-2-ol)

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	3
IMDG Hazard class	3
ICAO Hazard class/division	3

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	III
IMDG Packing group	III
ICAO Packing group	III

14.5 Environmental hazard
No

14.6 Special precautions

Hazard ID	30
EmS (IMDG)	F-E, S-E
Emergency action code	3Y
Tunnel restriction code	(D/E)

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Australian Standard for the Uniform Scheduling of Drugs and Poisons

2-butoxyethanol
Schedule 6

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Does not Comply
Inventory - Japan - Existing and New Chemicals list	Does not Comply
China (IECSC)	Does not Comply
Australia (AICS)	Does not Comply
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Does not Comply

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Muriel Martin Beurel
Supercedes date	29/Mar/2012
Revision date	30/Nov/2015
Version	6
The following sections have been revised:	Updated according to GHS/CLP, This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made.

Text of R phrases mentioned in Section 3
R11 - Highly flammable
R22 - Harmful if swallowed
R36 - Irritating to eyes
R41 - Risk of serious damage to eyes
R67 - Vapors may cause drowsiness and dizziness

R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed
R36/38 - Irritating to eyes and skin

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

H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H336 - May cause drowsiness or dizziness
H412 - Harmful to aquatic life with long lasting effects
H225 - Highly flammable liquid and vapor
H226 - Flammable liquid and vapor
H312 - Harmful in contact with skin
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H411 - Toxic to aquatic life with long lasting effects

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Schlumberger

Safety Data Sheet
Non-Emulsifying Agent B232

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Non-Emulsifying Agent B232
Product code B232

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

Recommended use Additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 920 12570
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Skin corrosion/irritation	Category 1 Subcategory 1B
Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards

Flammable Liquids	Category 3

2.2 Label Elements

Signal word
DANGER

Hazard statements
H314 - Causes severe skin burns and eye damage
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/protective clothing and eye/face protection
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Supplementary precautionary statements
P403 + P235 - Store in a well-ventilated place. Keep cool
P264 - Wash face, hands and any exposed skin thoroughly after handling
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P363 - Wash contaminated clothing before re-use
P310 - Immediately call a POISON CENTER or doctor/ physician
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P501 - Dispose of contents/ container to an approved waste disposal plant

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger
C - Corrosive

R-code(s)
R10; R34

Contains

Alkyl hydroxyethyl benzyl ammonium chloride

Propan-2-ol

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on Ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Alkyl hydroxyethyl benzyl ammonium chloride	263-078-7	61789-68-2	10 - <25	C;R34 Xn;R22 F;R11 N;R50	Skin Corr. 1B (H314) Acute Tox. 4 (H302) Aquatic Acute 1 (H400)	No data available
Propan-2-ol	200-661-7	67-63-0	5 - 15	F;R11 R67 Xi;R36	Flam. Liq. 2, (H225) STOT SE 3 (H336) Eye Irrit. 2 (H319)	01-2119457558-25-xxxx

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First aid measures

4.1 Description of first-aid measures

Inhalation Keep at rest. Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. Seek medical attention at once.

Ingestion Do NOT induce vomiting. Rinse mouth. Risk of product entering the lungs on vomiting after ingestion. Never give anything by mouth to an unconscious person. Immediate medical attention is required.

Skin contact Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns must be treated by a physician.

Eye contact Remove contact lenses. Immediately flush eyes with water for 15 minutes while holding eyelids open. Seek medical attention at once.

4.2 Most important symptoms and effects, both acute and delayed

General advice Seek medical attention for all burns, regardless how minor they may seem. The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

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, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion
flammable liquid. Runoff may create fire or explosion hazard. Flash back possible over considerable distance.

Hazardous combustion products
Fire or high temperatures create:, Carbon oxides (COx), Harmful organic chemical fumes.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Do not breathe vapors or spray mist. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for Containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see Section 13).

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid spills and splashing during use. Do not breathe vapors or spray mist.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded Do not store and transport with oxidizers.
Storage class	Corrosive storage.
Packaging material	Use specially constructed containers only Steel or high density polyethylene (HDPE) container approved for flammables

7.3 Specific end uses

See also Section 1.2.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark

Alkyl hydroxyethyl benzyl ammonium chloride	Not determined	Not determined	Not determined	Not determined
Propan-2-ol	Not determined	Not determined	400 ppm TWA; 983 mg/m³ TWA 500 ppm STEL; 1230 mg/m³ STEL	200 ppm 490 mg/m³

Component	Finland	France	Germany	Hungary
Alkyl hydroxyethyl benzyl ammonium chloride	Not determined	Not determined	Not determined	Not determined
Propan-2-ol	Not determined	Not determined	200 ppm MAK 500 mg/m³ MAK	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Alkyl hydroxyethyl benzyl ammonium chloride		Not determined	Not determined	Not determined
Propan-2-ol	500 ppm STEL 1230 mg/m³ STEL 400 ppm TWA 983 mg/m³ TWA	Not determined	Not determined	100 ppm 245 mg/m³

Component	Poland	Portugal	Romania	Russia
Alkyl hydroxyethyl benzyl ammonium chloride	Not determined	Not determined	Not determined	Not determined
Propan-2-ol	1200 mg/m³ STEL Skin 900 mg/m³ TWA	400 ppm STEL 200 ppm TWA	Not determined	50 mg/m³ STEL vapor 10 mg/m³ TWA vapor

Component	Spain	Switzerland	Turkey	UK
Alkyl hydroxyethyl benzyl ammonium chloride	Not determined	Not determined	Not determined	Not determined
Propan-2-ol	400 ppm VLA-EC 1000 mg/m³ VLA-EC 200 ppm VLA-ED it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary o biocide compound 500 mg/m³ VLA-ED it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary o biocide compound	400 ppm STEL 1000 mg/m³ STEL 200 ppm MAK 500 mg/m³ MAK	Not determined	500 ppm STEL 1250 mg/m³ STEL 400 ppm TWA 999 mg/m³ TWA

Component Information

Derived No Effect Level (DNEL)

Long term exposure systemic effects

Propan-2-ol

Dermal	888 mg/kg bw/day
Inhalation	500 mg/m³

Predicted No Effect Concentration (PNEC)

Propan-2-ol

Fresh Water	140.9 mg/L

Sea Water	140.9 mg/L
Fresh water sediment	552 mg/kg
Sea sediment	552 mg/kg
Soil	28 mg/kg
Impact on Sewage Treatment	2251 mg/L
Intermittent release	140.9 mg/L

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Control the source.

Personal protective equipment

Eye protection	Chemical splash goggles and face shield.
Hand protection	Impervious gloves made of:, Neoprene, Nitrile, PVC, Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment, Type A/P3.
Skin and body protection	Chemical resistant suit, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Odour	Alcohol
Colour	Colourless
Odor threshold	No information available

Property	Values	Remarks
pH	2.0 - 4.0	
pH @ dilution		
Melting/freezing point	< -5°C	
Boiling point/range	~ 83 °C	
Flash Point	> 24 °C	Closed cup
Evaporation rate	No information available	
Flammability (solid, gas)	Not Applicable	

Flammability Limits in Air		
Upper flammability Limit	No data available	
Lower flammability limit	No data available	
Vapor pressure	No information available	
Vapor density	> 1 (air = 1)	
Specific gravity	No information available	
Bulk density	No information available	Not Applicable
Relative density	0.95 - 1.02	@ 16°C.
Water solubility	Soluble	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	< 10 cSt @ 40 °C	
Viscosity, dynamic	No information available	
Log Pow	No information available	

Explosive properties	To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density VALUE	No information available

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Heat, flames and sparks. S16 - Keep away from sources of ignition - No smoking. Keep away from direct sunlight.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Corrosive to respiratory system. May cause drowsiness or dizziness. Inhaled corrosive substances can lead to a toxic oedema of the lungs. VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.

Eye contact Causes burns. Causes serious eye damage.

Skin contact Causes severe skin burns.

Ingestion Causes burns.

Acute toxicity .

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Alkyl hydroxyethyl benzyl ammonium chloride	No data available	No data available	No data available
Propan-2-ol	= 4396 mg/kg (Rat)	= 12870 mg/kg (Rabbit) = 12800 mg/kg (Rat)	= 72.6 mg/L (Rat) 4 h

Sensitisation This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity None known.

Routes of exposure None known. Skin contact. Eye contact. Inhalation. Ingestion.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological Information

12.1 Toxicity

This product contains an ingredient that is classified, according to European regulations, as "Very toxic to aquatic life."

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Alkyl hydroxyethyl benzyl ammonium chloride 61789-68-2 (10 - <25)	No information available	No information available	No information available
Propan-2-ol 67-63-0 (5 - 15)	9640 mg/L LC50 (Pimephales promelas) = 96 h 1400000 µg/L LC50 (Lepomis macrochirus) = 96 h 11130 mg/L LC50 (Pimephales promelas) = 96 h	1000 mg/L EC50 (Desmodesmus subspicatus) = 96 h 1000 mg/L EC50 (Desmodesmus subspicatus) = 72 h	13299 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal Considerations

13.1 Waste treatment methods

Waste from residues / unused products — Dispose of in accordance with local regulations.

Contaminated packaging — Dispose of in accordance with local regulations. Dispose of contents/container to an approved waste disposal plant.

EWC waste disposal No. — According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: 16 03 05; 16 10 01

14. Transport Information

14.1 UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN 2924
UN No. (IMDG)	UN 2924
UN No. (ICAO)	UN 2924

14.2 Proper shipping name
FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Propan-2-ol, Alkyl hydroxyethyl benzyl ammonium chloride)

14.3. Hazard class(es)

ADR/RID/ADN Hazard class	3 (8)
IMDG Hazard class	3 (8)
ICAO Hazard class/division	3 (8)

14.4 Packing group

ADR/RID/ADN Packing Group	III
IMDG Packing group	III
ICAO Packing group	III

14.5 Environmental hazard
No

14.6 Special precautions

Hazard ID	38
EmS (IMDG)	F-E, S-C
Emergency action code	•3W
Tunnel restriction code	(D/E)

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not Applicable Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

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

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Does not Comply
Inventory - Japan - Existing and New Chemicals list	Does not Comply
China (IECSC)	Complies
Australia (AICS)	Does not Comply
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other Information

Prepared by	Global Chemical Regulatory Compliance (GCRC) , Beilin Li
Supercedes date	29/Jul/2010
Revision date	25/Jun/2014
Version	1

Text of R phrases mentioned in Section 3
R34 - Causes burns
R11 - Highly flammable
R50 - Very toxic to aquatic organisms
R22 - Harmful if swallowed
R67 - Vapors may cause drowsiness and dizziness
R36 - Irritating to eyes

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

H314 - Causes severe skin burns and eye damage
H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H400 - Very toxic to aquatic life
H225 - Highly flammable liquid and vapor
H336 - May cause drowsiness or dizziness
H319 - Causes serious eye irritation

N/A - Not Applicable, N/D - Not Determined.

Disclaimer

The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this MSDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.