



SAFETY DATA SHEET SODIUM HYDROXIDE SOLID

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

1.1. Product identifier

Product name SODIUM HYDROXIDE SOLID
Synonyms, Trade Names CAUSTIC SODA, SODIUM HYDROXIDE PRILLS

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

Identified uses pH modifier.

1.3. Details of the supplier of the safety data sheet

Supplier M-I Drilling Fluids UK Limited
C/O Schlumberger
Enterprise Drive
Westhill Industrial Estate
Westhill, AB32 6TQ
Scotland UK
Contact Person 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.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)
Physical and Chemical Hazards Met. Corr. 1 - H290
Human health Skin Corr. 1A - H314
Environment Not classified.
Classification (67/548/EEC) C;R35.

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

2.2. Label elements

Contains SODIUM HYDROXIDE

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



Signal Word Danger

Hazard Statements

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary Statements

P260 Do not breathe dust.
P280 Wear protective clothing, gloves, eye and face protection.
P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

SODIUM HYDROXIDE SOLID

| | |
|---|--|
| P501 | Dispose of contents/container in accordance with local regulations. |
| Supplementary Precautionary Statements | |
| P234 | Keep only in original container. |
| P264 | Wash contaminated skin thoroughly after handling. |
| P321 | Specific treatment (see medical advice on this label). |
| P303+361+353 | IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. |
| P304+340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |
| P310 | Immediately call a POISON CENTER or doctor/physician. |
| P363 | Wash contaminated clothing before reuse. |
| P390 | Absorb spillage to prevent material damage. |
| P405 | Store locked up. |
| P406 | Store in corrosive resistant/... container with a resistant inner liner. |

2.3. Other hazards

Not Classified as PBT/vPvB by current EU criteria.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1. Substances**

| | |
|--|--------------------------------------|
| SODIUM HYDROXIDE | 60-100% |
| CAS-No.: 1310-73-2 | EC No.: 215-185-5 |
| Classification (EC 1272/2008) Met. Corr. 1 - H290 Skin Corr. 1A - H314 | Classification (67/548/EEC) C;R35 |

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****General information**

Seek medical attention for all burns, regardless how minor they may seem.

Inhalation

Move the exposed person to fresh air at once. Provide fresh air, warmth and rest, preferably in a comfortable upright sitting position. If respiratory problems, artificial respiration/oxygen. Get medical attention if any discomfort continues.

Ingestion

Do not induce vomiting. Immediately give a couple of glasses of water or milk, provided the victim is fully conscious. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention immediately!

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately!

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. Get medical attention immediately. Continue to rinse.

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**

SODIUM HYDROXIDE SOLID**Extinguishing media**

Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture**Hazardous combustion products**

When heated, toxic and corrosive vapours/gases may be formed.

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. Shovel into dry containers. Cover and move the containers. Flush the area with water. This material and its container must be disposed of as hazardous waste.

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. Never add water directly to this product - may cause vigorous reaction/boiling. Always dilute by carefully pouring the product into the water.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Unsuitable containers: metals.

Storage Class

Corrosive storage.

7.3. Specific end use(s)

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

Usage Description

Do not add water directly to the product. It may cause a violent reaction.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters**

| Name | STD | TWA - 8 Hrs | STEL - 15 Min | Notes |
|------------------|-----|-------------|---------------------|-------|
| SODIUM HYDROXIDE | WEL | | 2 mg/m ³ | |

WEL = Workplace Exposure Limit.

SODIUM HYDROXIDE (CAS: 1310-73-2)**DNEL**

Inhalation.

Long Term

Local Effects

1 mg/m³

8.2. Exposure controls

SODIUM HYDROXIDE SOLID**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

Use respiratory equipment with particle filter, type P2.

Hand protection

Use protective gloves made of: Impermeable material. Butyl rubber. Polyvinyl chloride (PVC). Neoprene.

Eye protection

Wear tight-fitting goggles or face shield.

Other Protection

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

Hygiene measures

Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash hands after handling. Use appropriate skin cream to prevent drying of skin. Promptly remove any clothing that becomes wet or contaminated.

Skin protection

Wear apron or protective clothing in case of contact.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

| | |
|---|-------------------------------|
| <u>Appearance</u> | Pellets |
| <u>Colour</u> | White. |
| <u>Odour</u> | Odourless. |
| <u>Solubility</u> | Completely soluble in water |
| <u>Initial boiling point and boiling range</u> | 1390°C 760 mm Hg |
| <u>(°C)</u> | |
| <u>Melting point (°C)</u> | 318°C |
| <u>Relative density</u> | 2.13 g/cm ³ @ 25°C |
| <u>Bulk Density</u> | 1.1 - 1.25 g/cm ³ |
| <u>Vapour pressure</u> | 3.5 h Pa @ 800°C |
| <u>pH-Value, Diluted Solution</u> | 14.0 @ 5% |
| <u>Solubility Value (G/100G H₂O@20°C)</u> | 50.0 |

9.2. Other information

| | |
|---------------------------|-------------|
| <u>Mol. Weight</u> | 49.99 g/mol |
|---------------------------|-------------|

SECTION 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

Not known.

10.4. Conditions to avoid

Water, moisture. Do not add water directly to the product. It may cause a violent reaction.

SODIUM HYDROXIDE SOLID**10.5. Incompatible materials****Materials To Avoid**

Avoid contact with: Acids. Metals.

10.6. Hazardous decomposition products

When heated, toxic and corrosive vapours/gases may be formed.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects****Toxicological information**

Causes severe skin burns and eye damage.

Acute toxicity:**Acute Toxicity (Dermal LD50)**

1350 mg/kg Rabbit

Aspiration hazard:

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

Inhalation

Dust may irritate respiratory system or lungs.

Ingestion

Corrosive. Even small amounts may cause serious damage. May irritate and cause stomach pain, vomiting and diarrhoea.

Skin contact

Causes severe burns.

Eye contact

Risk of serious damage to eyes.

SECTION 12: ECOLOGICAL INFORMATION**Ecotoxicity**

Contact M-I SWACO's QHSE Department for ecological information at M-ISWACOenv@slb.com. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

12.1. Toxicity**Acute Toxicity - Fish**

LC50 96 hours 45.4 mg/l Onchorhynchus mykiss (Rainbow trout)

12.2. Persistence and degradability**Degradability**

There are no data on the degradability of this product.

12.3. Bioaccumulative potential**Bioaccumulative potential**

The product does not contain any substances expected to be bioaccumulating.

12.4. Mobility in soil**Mobility:**

Completely 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.

SODIUM HYDROXIDE SOLID**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. This material and its container must be disposed of as hazardous waste.

Waste Class

The definitive European Waste code for this product will depend upon the final use that is made of this material. EWC-code: 06 02 04

SECTION 14: TRANSPORT INFORMATION**14.1. UN number**

| | |
|-----------------------------|------|
| UN No. (ADR/RID/ADN) | 1823 |
| UN No. (IMDG) | 1823 |
| UN No. (ICAO) | 1823 |

14.2. UN proper shipping name

Proper Shipping Name SODIUM HYDROXIDE, SOLID

14.3. Transport hazard class(es)

| | |
|----------------------------|--------------------------------|
| ADR/RID/ADN Class | 8 |
| ADR/RID/ADN Class | Class 8: Corrosive substances. |
| IMDG Class | 8 |
| ICAO Class/Division | 8 |

Transport Labels**14.4. Packing group**

| | |
|----------------------------------|----|
| ADR/RID/ADN Packing group | II |
| IMDG Packing group | II |
| ICAO Packing group | II |

14.5. Environmental hazards**Environmentally Hazardous Substance/Marine Pollutant**

No.

14.6. Special precautions for user

| | |
|------------------------------|----------|
| EMS | F-A, S-B |
| Emergency Action Code | 2W |
| Hazard No. (ADR) | 80 |

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

Not applicable. Ship Types are stored in 14.0 General to assign search all phrases

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

SODIUM HYDROXIDE SOLID**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.

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

The following sections have been revised: 7

| | |
|-------------------------------|------------------|
| <u>Issued By</u> | Sarah Malone |
| <u>Revision Date</u> | 17.07.2013 |
| <u>Revision</u> | 6 |
| <u>Supersedes date</u> | 27.05.2013 |
| <u>SDS No.</u> | 11233 |
| <u>Signature</u> | Sandra McWilliam |

Risk Phrases In Full

R35 Causes severe burns.

Hazard Statements In Full

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

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. It 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 this product or to the data herein is made or incurred hereunder.



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SODIUM HYDROXIDE

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Compilation date: 03/05/2017

Revision No: 1

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

1.1. Product identifier

Product name: SODIUM HYDROXIDE

REACH registered number(s): 01-2119457892-27-XXXX

CAS number: 1310-73-2

EINECS number: 215-185-5

Index number: 011-002-00-6

Synonyms: CAUSTIC SODA PEARL

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

Use of substance / mixture: ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing) ERC11a: Wide dispersive indoor use of long-life articles and materials with low release ERC11b: Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)

1.3. Details of the supplier of the safety data sheet

Company name: J.V. Barrett & Co Ltd

St Ivel way

Warmley

Bristol

BS30 8TY

United Kingdom

Tel: 01179600060

Fax: 01179352437

Email: sales@barrettine.co.uk

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1.4. Emergency telephone number

Emergency tel: +44 (0) 1179 600060 (Office hours only 8am - 5pm Mon- Thurs. 8 am - 4.30 pm Fri.)
+44 (0) 1270 502891 (Out of hours emergency number)

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Met. Corr. 1: H290; Skin Corr. 1A: H314

Most important adverse effects: May be corrosive to metals. Causes severe skin burns and eye damage.

2.2. Label elements

Label elements:

Hazard statements: H290: May be corrosive to metals.

H314: Causes severe skin burns and eye damage.

Hazard pictograms: GHS05: Corrosion



Signal words: Danger

Precautionary statements: P234: Keep only in original container.

P260: Do not breathe dust/fumes.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+330+331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+361+353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P305+351+338: 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/doctor.

P321: Specific treatment (see medical advice on this label).

P363: Wash contaminated clothing before reuse.

P390: Absorb spillage to prevent material damage.

P405: Store locked up.

P501: Dispose of contents/container to hazardous or special waste collection point.

2.3. Other hazards

Other hazards: Reactions with the following materials may generate heat: Strong acids, Water.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: SODIUM HYDROXIDE

CAS number: 1310-73-2

EINECS number: 215-185-5

REACH registered number(s): 01-2119457892-27-XXXX

[cont...]

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Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Wash out mouth with water. Do not induce vomiting. Give 1 cup of water to drink every 10 minutes. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious and breathing is OK, place in the recovery position. If conscious, ensure the casualty sits or lies down. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

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

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.

Eye contact: Corneal burns may occur. May cause permanent damage.

Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

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

Immediate / special treatment: Treat Symptomatically

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Carbon dioxide. Foam. Dry chemical powder. Do not use water jet

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Corrosive. In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

[cont...]

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6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Do not create dust.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Transfer to a closable, labelled salvage container for disposal by an appropriate method. Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Refer to section 13 of SDS for suitable method of disposal.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS. Refer to section 13 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Do not handle in a confined space. Avoid the formation or spread of dust in the air.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Specific end use(s): PC1: Adhesives, sealants. PC2: Adsorbents. PC3: Air care products. PC4: Anti-Freeze and de-icing products. PC7: Base metals and alloys. PC8: Biocidal products (e.g. Disinfectants, pest control). PC9a: Coatings and paints, thinners, paint removers. PC9b: Fillers, putties, plasters, modelling clay. PC15: Non-metal-surface treatment products. PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents. PC35: Washing and cleaning products (including solvent based products). PC36: Water softeners. PC37: Water treatment chemicals. PC39: Cosmetics, personal care products.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits:

Respirable dust

| State | 8 hour TWA | 15 min. STEL | 8 hour TWA | 15 min. STEL |
|-------|------------|---------------------|------------|--------------|
| UK | - | 2 mg/m ³ | - | - |

[cont...]

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Hazardous ingredients:

SODIUM HYDROXIDE

Workplace exposure limits:

Respirable dust

| State | 8 hour TWA | 15 min. STEL | 8 hour TWA | 15 min. STEL |
|-------|------------|---------------------|------------|--------------|
| UK | - | 2 mg/m ³ | - | - |

DNEL/PNEC Values

SODIUM HYDROXIDE

| Type | Exposure | Value | Population | Effect |
|------|----------------------------|---------------------|------------|--------|
| DNEL | Inhalation (repeated dose) | 1 mg/m ³ | Consumers | Local |
| DNEL | Dermal | 2 mg/kg/day | Workers | Local |
| DNEL | Inhalation | 2mg/m ³ | Workers | Local |
| DNEL | Inhalation (repeated dose) | 1 mg/m ³ | Workers | Local |

Hazardous ingredients:

SODIUM HYDROXIDE

| Type | Exposure | Value | Population | Effect |
|------|----------------------------|---------------------|------------|--------|
| DNEL | Inhalation (repeated dose) | 1 mg/m ³ | Consumers | Local |
| DNEL | Dermal | 2 mg/kg/day | Workers | Local |
| DNEL | Inhalation | 2mg/m ³ | Workers | Local |
| DNEL | Inhalation (repeated dose) | 1 mg/m ³ | Workers | Local |

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: If ventilation is insufficient suitable respiratory protection must be provided. Respiratory protective device with particle filter.

Hand protection: Protective gloves. Nitrile gloves. Breakthrough time of the glove material > 8 hours.

Eye protection: Tightly fitting safety goggles.

Skin protection: Protective clothing. Rubber apron.

Environmental: Prevent from entering in public sewers or the immediate environment.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Solid

Colour: White

Odour: Odourless

Evaporation rate: No data available.

Oxidising: No data available.

Solubility in water: Soluble

Also soluble in: Alcohols.

[cont...]

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Viscosity: No data available.

Boiling point/range°C: 1388-1390

Melting point/range°C: 318

Flammability limits %: lower: No data available.

upper: No data available.

Flash point°C: No data available.

Part.coeff. n-octanol/water: No data available.

Autoflammability°C: No data available.

Vapour pressure: 1 Pa @ 513 oC

Relative density: 2.13 @ 20 oC

pH: 14 @ 10% Diluted Sol

VOC g/l: No data available.

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids. Water. Organic materials.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

| Route | Species | Test | Value | Units |
|-------|---------|------|-------|-------|
| ORL | RBT | LDLO | 500 | mg/kg |
| IPR | MUS | LD50 | 40 | mg/kg |

Hazardous ingredients:

SODIUM HYDROXIDE

| | | | | |
|-----|-----|------|----|-------|
| IPR | MUS | LD50 | 40 | mg/kg |
|-----|-----|------|----|-------|

[cont...]

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| | | | | |
|-----|-----|------|-----|-------|
| ORL | RBT | LDLO | 500 | mg/kg |
|-----|-----|------|-----|-------|

Relevant hazards for product:

| Hazard | Route | Basis |
|-------------------------------|-------|-----------------------|
| Skin corrosion/irritation | DRM | Hazardous: calculated |
| Serious eye damage/irritation | OPT | Hazardous: calculated |

Symptoms / routes of exposure

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.

Eye contact: Corneal burns may occur. May cause permanent damage.

Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values:

| Species | Test | Value | Units |
|---------------|----------|--------|-------|
| ALGAE | 96H LC50 | 33-189 | mg/l |
| Daphnia magna | 48H EC50 | 40-240 | mg/l |

Hazardous ingredients:

SODIUM HYDROXIDE

| | | | |
|---------------|----------|--------|------|
| ALGAE | 96H LC50 | 33-189 | mg/l |
| Daphnia magna | 48H EC50 | 40-240 | mg/l |

12.2. Persistence and degradability

Persistence and degradability: Not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Product is water soluble and may spread in water systems.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: No data available.

[cont...]

SAFETY DATA SHEET

SODIUM HYDROXIDE

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Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

Disposal of packaging: Dispose of in a regulated landfill site or other method for hazardous or toxic wastes.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1823

14.2. UN proper shipping name

Shipping name: SODIUM HYDROXIDE, SOLID

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: E

Transport category: 2

Section 15: Regulatory information

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

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H290: May be corrosive to metals.

H314: Causes severe skin burns and eye damage.

[cont...]

SAFETY DATA SHEET

SODIUM HYDROXIDE

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Legend to abbreviations: PNEC = predicted no effect concentration

DNEL = derived no effect level

LD50 = median lethal dose

LC50 = median lethal concentration

LDLO = lethal dose low

EC50 = median effective concentration

IC50 = median inhibitory concentration

dw = dry weight

bw = body weight

cc = closed cup

oc = open cup

MUS = mouse

GPG = guinea pig

RBT = rabbit

HAM = hamster

HMN = human

MAM = mammal

PGN = pigeon

IVN = intravenous

SCU = subcutaneous

ORL = oral

SKN = skin

DRM = dermal

OCC = ocular/corneal

OPT = optical

ING = ingestion

INH = inhalation

PCP = physico-chemical properties

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

Safety data sheet number PID971
Version 4
Revision date 17/Feb/2020
Supercedes Date: 01/Feb/2016



Safety Data Sheet M-I GEL*

1. Identification of the Substance/Preparation and of the Company/Undertaking

1.1 Product identifier

Product name M-I GEL*
Product code PID971

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

Schlumberger Oilfield UK PLC
Schlumberger House, Buckingham Gate
Gatwick Airport
West Sussex RH6 0NZ

+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 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

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

Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on Ingredients

3.1 Substances

| Chemical Name | EC No | CAS No | Weight-% | Component information | REACH registration number |
|-------------------------------|-----------|------------|----------|-----------------------|---------------------------|
| Crystalline silica (impurity) | 238-878-4 | 14808-60-7 | < 10 | STOT RE. 2 (H373) | Not applicable |

3.2 Mixtures

Not applicable

Comments

Naturally occurring 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.

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

4. First Aid Measures

4.1 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 skin thoroughly with soap and water. Get medical attention immediately if symptoms occur. |
| Eye Contact | Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. 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.

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. Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing media appropriate for surrounding material.

Extinguishing media which must 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

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

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to applicable federal, state and local regulations.

Environmental exposure controls

Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment

Cover powder spill with plastic sheet or tarp to minimise spreading. 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.

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.

Storage class Chemical storage.

Packaging materials 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 No biological limit allocated

Component Information

| Chemical Name | EU OEL - Third List | Austria | Denmark |
|-------------------------------|---|---|--|
| Crystalline silica (impurity) | 0.1 mg/m ³ TWA respirable fraction | 0.15 mg/m ³ TWA alveolar dust, respirable fraction | 0.1mg/m ³ |
| Chemical Name | France | Germany | Hungary |
| Crystalline silica (impurity) | 0.1 mg/m ³ TWA | Not determined | 0.15mg/m ³ TWA |
| Chemical Name | Italy | Netherlands | Norway |
| Crystalline silica (impurity) | Not determined | 0.075 mg/m ³ | 0.3 mg/m ³ TWA total dust 0.1 mg/m ³ TWA respirable dust 0.9 mg/m ³ STEL total dust 0.3 mg/m ³ STEL respirable dust Carcinogen |
| Chemical Name | Poland | Portugal | Romania |
| Crystalline silica (impurity) | 0.1 mg/m ³ TWA NDS | 0.025 mg/m ³ TWA respirable fraction | 0.1mg/m ³ TWAdust, respirable fraction |
| Chemical Name | Spain | Switzerland | UK |
| Crystalline silica (impurity) | 0.05 mg/m ³ TWA VLA-ED | 0.15 mg/m ³ TWA MAK | 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 Controls

Ensure adequate ventilation. Local exhaust ventilation.

Personal protective equipment

Eye protection

Use eye protection according to EN 166, designed to protect against powders and dusts. Safety glasses with side-shields. Tightly fitting safety goggles.

Hand protection

Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Neoprene Nitrile Frequent change is advisable

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators, 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, Provide eyewash station.

Hygiene Measures

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



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state Solid
Appearance Powder
Odour Odourless
Colour Cream - Grey
Odour threshold Not applicable

| <u>Property</u> | <u>Values</u> | <u>Remarks</u> |
|------------------------------|---|----------------|
| pH | 9-10 | |
| pH @ dilution | No information available | |
| Melting / freezing point | No information available | |
| Boiling point/range | No information available | |
| Flash point | Not applicable | |
| Evaporation rate | No information available | |
| Flammability (solid, gas) | Not applicable | |
| Flammability Limit in Air | | |
| Upper flammability limit | Not applicable | |
| Lower flammability limit | Not applicable | |
| Vapour pressure | No information available | |
| Vapour density | No information available | |
| Specific gravity | 2.3 - 2.6 | @ 20 °C |
| Bulk density | 48 – 52 lb/ft ³ (769 – 833 kg/m ³) | |
| Relative density | No information available | |
| 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 | |
| Dynamic viscosity | No information available | |
| log Pow | No information available | |

Explosive properties Not applicable
Oxidising properties None known

9.2 Other information

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

Comments

The data listed above are typical physical and chemical properties and should not be construed as product specification.

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 polymerisation

Hazardous polymerisation does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See Section 5.

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

Dust may cause mechanical irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

Ingestion may cause stomach discomfort.

Unknown acute toxicity

Not applicable.

Toxicology data for the components

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-------------------------------|-------------------|-------------------|-------------------|
| Crystalline silica (impurity) | 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 | 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. |
| Aspiration hazard | Not applicable. |
| Other information | Key literature references and sources for data. See Section 16 for more information. |

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

See component information below.

Toxicity to fish

See component information below.

Toxicity to daphnia and other aquatic invertebrates

See component information below.

Toxicology data for the components

| Chemical Name | Toxicity to fish | Toxicity to algae | Toxicity to daphnia and other aquatic invertebrates |
|-------------------------------|--|-----------------------|---|
| Crystalline silica (impurity) | LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h | EC50: > 1000 mg/l 72h | LC50 Daphnia magna (Water flea): > 10000 mg/l 24h |

12.2 Persistence and degradability

Not Applicable - Inorganic chemical. See component information below.

| Chemical Name | Persistence and degradability |
|-------------------------------|-------------------------------|
| Crystalline silica (impurity) | Inorganic compound |

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical. See component information below.

| Chemical Name | Bioaccumulation |
|-------------------------------|--------------------------------|
| Crystalline silica (impurity) | Product/Substance is inorganic |

12.4 Mobility

Mobility

Insoluble in water. See component information below.

| Chemical Name | Mobility |
|-------------------------------|--------------------|
| Crystalline silica (impurity) | Insoluble in water |

Mobility in soil

See component information below.

| Chemical Name | Mobility in soil |
|-------------------------------|--------------------------------|
| Crystalline silica (impurity) | Not expected to adsorb on soil |

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

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 taken to an approved waste handling site for recycling or

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

14.1. UN number

Not regulated

14.2. UN 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 I/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

This safety data sheet complies with the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008
Commission Regulation (EU) No 2015/830 of 28 May 2015
Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

Dangerous substance category per Seveso Directive (2012/18/EU)

This product does not contain substances listed under Dangerous substance category per Seveso Directive (2012/18/EU)

Netherlands

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

SZW list; Crystalline Silica (respirable) is listed in the SZW list of carcinogenic substances and processes

International inventories

| | |
|--|----------|
| USA, Toxic Substances Control Act inventory (TSCA) | Complies |
| Canada (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 |

Europe - REACH

All products supplied from the European Economic Area (EEA) are compliant with the REACH Regulation EC 1907/2006. For products supplied from the EEA, Schlumberger and/or its suppliers have pre-registered and is registering all of the substances that it and/or its suppliers manufactures in or imports into the EEA that are subject to Title II of the REACH Regulation. All products supplied from outside the EEA are subject to REACH only if imported into the EEA. The importer of the products must comply with REACH for each imported substance. Contact REACH@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 |
| Supersedes Date: | 01/Feb/2016 |
| Revision date | 17/Feb/2020 |

Version 4

This SDS has been revised in the following section(s) All sections No changes with regard to classification have been made. Updated according to GHS/CLP.

Key literature references and sources for data

www.ChemADVISOR.com

Supplier

National Chemical Inventories

National regulatory information

National occupational exposure limits

Training Advice

Do not handle until all safety precautions have been read and understood

Follow general hygiene considerations recognised as common good workplace practices

HMIS classification

| | |
|-----------------|----|
| Health | 1* |
| Flammability | 0 |
| Physical hazard | 0 |
| PPE | E |

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., a Schlumberger Company

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.

This Document is Confidential and Proprietary. Unless Otherwise Marked, It is an Uncontrolled Copy.

Safety Data Sheet M-I WATE*

1. Identification of the Substance/Preparation and of the Company/Undertaking

1.1 Product identifier

Product name M-I WATE*
Product code PID13503

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

Recommended Use Weighting agent. Drilling fluid additive.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier

Schlumberger Oilfield UK PLC
Schlumberger House, Buckingham Gate
Gatwick Airport
West Sussex RH6 0NZ

+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 001 281 561 1600

National Poison Center Numbers

| | |
|--------|--|
| Norway | Poison information centre: +47 22 59 13 00 |
|--------|--|

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

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

Barite

Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Thermal decomposition can lead to release of irritating gases and vapours

3. Composition/information on Ingredients

3.1 Substances

| Chemical Name | EC No | CAS No | Weight-% | Component information | REACH registration number |
|-------------------------------|-----------|------------|----------|-----------------------|---------------------------|
| Barite | 236-664-5 | 13462-86-7 | 60 - 100 | Not classified | Exempt |
| Crystalline silica (impurity) | 238-878-4 | 14808-60-7 | 5 - <10 | STOT RE. 2 (H373) | Not applicable |

3.2 Mixtures

Not applicable

Comments

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 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 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, if worn. 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.

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. Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing media appropriate for surrounding material.

Extinguishing media which must 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. Material becomes slippery when wet. Use caution if wet.

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 material 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 minimise spreading.

Methods for cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid generating or breathing dust. Product is slippery if wet. 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, eyes and clothing. 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.

Storage class, TRGS 510, Germany Storage class 9: no classification

Packaging materials Use specially constructed containers only

7.3 Specific end uses

See Section 1.2.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

| Chemical Name | EU OEL - Third List | Austria | Denmark |
|-------------------------------|---|---|--|
| Barite | Not determined | Not determined | Not determined |
| Crystalline silica (impurity) | 0.1 mg/m ³ TWA respirable fraction | 0.15 mg/m ³ TWA alveolar dust, respirable fraction | 0.1mg/m ³ |
| Chemical Name | France | Germany | Hungary |
| Barite | Not determined | Not determined | Not determined |
| Crystalline silica (impurity) | 0.1 mg/m ³ TWA | Not determined | 0.15mg/m ³ TWA |
| Chemical Name | Italy | Netherlands | Norway |
| Barite | Not determined | Not determined | Not determined |
| Crystalline silica (impurity) | Not determined | 0.075 mg/m ³ | 0.3 mg/m ³ TWA total dust 0.1 mg/m ³ TWA respirable dust 0.9 mg/m ³ STEL total dust 0.3 mg/m ³ STEL respirable dust Carcinogen |
| Chemical Name | Poland | Portugal | Romania |
| Barite | Not determined | Not determined | Not determined |
| Crystalline silica (impurity) | 0.1 mg/m ³ TWA NDS | 0.025 mg/m ³ TWA respirable fraction | 0.1mg/m ³ TWAdust, respirable fraction |
| Chemical Name | Spain | Switzerland | UK |
| Barite | Not determined | Not determined | Not determined |
| Crystalline silica (impurity) | 0.05 mg/m ³ TWA VLA-ED | 0.15 mg/m ³ TWA MAK | 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 Controls

Ensure adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed.

Personal protective equipment

Eye protection

Use eye protection according to EN 166, designed to protect against powders and dusts.
 Tightly fitting safety goggles. Safety glasses with side-shields.

Hand protection

Wear gloves according to EN 374 to protect against skin effects from powders
 Use protective gloves made of: Neoprene PVC Nitrile
 Frequent change is advisable

Respiratory protection

No personal respiratory protective equipment normally required, Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (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 and gloves, 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.



8.2.3 Environmental exposure controls

Environmental exposure

Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

| | |
|------------------------|-------------------|
| Physical state | Solid |
| Appearance | Powder Dust |
| Odour | Odourless |
| Colour | Grey - Tan - Pink |
| Odour threshold | Not applicable |

| <u>Property</u> | <u>Values</u> | <u>Remarks</u> |
|------------------------------|-------------------------------|----------------|
| pH | Not applicable | |
| pH @ dilution | No information available | |
| Melting / freezing point | 1580 °C / 2876 °F | |
| Boiling point/range | No information available | |
| Flash point | Not applicable | |
| Evaporation rate | No information available | |
| Flammability (solid, gas) | Not applicable | |
| Flammability Limit in Air | | |
| Upper flammability limit | Not applicable | |
| Lower flammability limit | Not applicable | |
| Vapour pressure | No information available | |
| Vapour density | No information available | |
| Specific gravity | 4.1 - 4.25 | 20 °C |
| Bulk density | 1920 - 2400 kg/m ³ | |
| Relative density | No information available | |
| Water solubility | Insoluble in water | |
| Solubility in other solvents | No information available | |
| Autoignition temperature | No information available | |
| Decomposition temperature | No information available | |
| Kinematic viscosity | Not applicable | |
| Dynamic viscosity | No information available | |
| log Pow | No information available | |

Explosive properties Not applicable
Oxidising properties None known

9.2 Other information

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

Comments

The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Hazardous polymerisation does not occur.

10.3 Possibility of Hazardous Reactions

Hazardous polymerisation

Hazardous polymerisation does not occur.

Hazardous Reactions

None known.

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 Section 5.

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 | Dust may cause mechanical irritation. |
| Skin contact | Prolonged contact may cause redness and irritation. |
| Ingestion | Ingestion may cause stomach discomfort. |
| Unknown acute toxicity | Not applicable. |

Toxicology data for the components

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-------------------------------|-----------------------|-------------------|-------------------|
| Barite | > 15000 mg/kg (Rat) | No data available | No data available |
| Crystalline silica (impurity) | 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 | Contains a known or suspected carcinogen. 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. |
| Aspiration hazard | Not applicable. |
| Other information | Key literature references and sources for data. See Section 16 for more information. |

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.
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.

Toxicology data for the components

| Chemical Name | Toxicity to fish | Toxicity to algae | Toxicity to daphnia and other aquatic invertebrates |
|-------------------------------|--|--------------------------|---|
| Barite | No information available | No information available | No information available |
| Crystalline silica (impurity) | LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h | EC50: > 1000 mg/l 72h | LC50 Daphnia magna (Water flea): > 10000 mg/l 24h |

12.2 Persistence and degradability

See component information below.

| Chemical Name | Persistence and degradability |
|-------------------------------|-------------------------------|
| Barite | Inorganic compound |
| Crystalline silica (impurity) | Inorganic compound |

12.3 Bioaccumulative potential

See component information below.

| Chemical Name | Bioaccumulation |
|-------------------------------|--------------------------------|
| Barite | Product/Substance is inorganic |
| Crystalline silica (impurity) | Product/Substance is inorganic |

12.4 Mobility

Mobility

Insoluble in water. See component information below.

| Chemical Name | Mobility |
|-------------------------------|--------------------|
| Barite | Insoluble in water |
| Crystalline silica (impurity) | Insoluble in water |

Mobility in soil

See component information below.

| Chemical Name | Mobility in soil |
|-------------------------------|--------------------------------|
| Barite | Not expected to adsorb on soil |
| Crystalline silica (impurity) | Not expected to adsorb on soil |

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

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 taken to an approved waste handling site for recycling or 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: 01 05 07

14. Transport information

14.1. UN number

Not regulated

14.2. UN 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 I/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

This safety data sheet complies with the requirements of:
 Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008
 Commission Regulation (EU) No 2015/830 of 28 May 2015
 Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

Dangerous substance category per Seveso Directive (2012/18/EU)

This product does not contain substances listed under Dangerous substance category per Seveso Directive (2012/18/EU)

Netherlands

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

SZW list; Crystalline Silica (respirable) is listed in the SZW list of carcinogenic substances and processes

Germany

Regulations governing systems for handling substances hazardous to waters
 Hazardous substances ordinance

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

Technical Rules for Hazardous Substances (TRGS) TRGS 220 National aspects when compiling safety data sheets
 TRGS 510 Storage of hazardous substances in non stationary containers
 TRGS 900 Occupational exposure limits
 TRGS 905 List of substances that are carcinogenic, mutagenic or toxic for reproduction

International inventories

| | |
|---|----------|
| USA, Toxic Substances Control Act inventory (TSCA) | Complies |
| Canada (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 |

Europe - REACH

All products supplied from the European Economic Area (EEA) are compliant with the REACH Regulation EC 1907/2006. For products supplied from the EEA, Schlumberger and/or its suppliers have pre-registered and is registering all of the substances that it and/or its suppliers manufactures in or imports into the EEA that are subject to Title II of the REACH Regulation. All products supplied from outside the EEA are subject to REACH only if imported into the EEA. The importer of the products must comply with REACH for each imported substance. Contact REACH@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 |
| Supersedes Date: | 01/Aug/2019 |
| Revision date | 20/Jan/2020 |
| Version | 5 |
| This SDS has been revised in the following section(s) | 1, 2, 3, 8, 11, 12, 15, 16 No changes with regard to classification have been made. Updated according to GHS/CLP. |

Key literature references and sources for data

www.ChemADVISOR.com

Supplier

National Chemical Inventories

National regulatory information

National occupational exposure limits

Training Advice

Do not handle until all safety precautions have been read and understood

Follow general hygiene considerations recognised as common good workplace practices

HMIS classification

| | |
|-----------------|----|
| Health | 1* |
| Flammability | 0 |
| Physical hazard | 0 |
| PPE | E |

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

*A mark of M-I L.L.C., a Schlumberger Company

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.

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Safety Data Sheet SODA ASH

1. Identification of the Substance/Preparation and of the Company/Undertaking

1.1 Product identifier

Product name SODA ASH
Product code PID1477
Country Limitations For use only in North Sea countries (NSG)
Synonyms SODIUM CARBONATE

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

M-I Drilling Fluids UK Limited
Westhill Business Park
Westhill AB32 6JL Aberdeenshire
Scotland United Kingdom

+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 001 281 561 1600

| | |
|--------------------|---|
| Denmark | Poison Control Hotline (DK): +45 82 12 12 12 |
| Netherlands | National Poisons Information Centre (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

Classification according to Regulation (EC) No. 1272/2008 [CLP] Commission Regulation (EU) No 2015/830 of 28 May 2015

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

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

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

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

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Contains

Sodium carbonate

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Reacts violently with acids.

3. Composition/information on Ingredients

3.1 Substances

| Chemical Name | EC No | CAS No | Weight-% | Component information | REACH registration number |
|------------------|-----------|----------|----------|-----------------------|---------------------------|
| Sodium carbonate | 207-838-8 | 497-19-8 | 60-100 | Eye Irrit. 2 (H319) | 01-2119485498-19-XXXX |

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 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 while 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, if worn. 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.

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. Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Water Fog, Alcohol Foam, CO₂, Dry Chemical.

Extinguishing media which must 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

Fire or high temperatures create: Carbon oxides (COx), Sodium oxides.

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 material 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 minimise 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: Metals Strong oxidising agents Strong acids |
| Storage class | Chemical storage. |
| Packaging materials | 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 NUI = Nuisance dust, TWA 4mg/m³ Respirable Dust, 10mg/m³ Total Dust.

Component Information

| Chemical Name | EU OEL - Third List | Austria | Denmark |
|------------------|---------------------|----------------|---|
| Sodium carbonate | Not determined | Not determined | Not determined |
| Chemical Name | France | Germany | Hungary |
| Sodium carbonate | Not determined | Not determined | Not determined |
| Chemical Name | Italy | Netherlands | Norway |
| Sodium carbonate | Not determined | Not determined | Not determined |
| Chemical Name | Poland | Portugal | Romania |
| Sodium carbonate | Not determined | Not determined | 3mg/m ³ STEL 1mg/m ³ TWA |
| Chemical Name | Spain | Switzerland | UK |
| Sodium carbonate | Not determined | Not determined | Not determined |

Derived No Effect Level (DNEL)

Long term exposure systemic effects

Sodium carbonate

Inhalation 10 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 Controls

Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required. Provide appropriate exhaust ventilation at places where dust is formed. See section 7 for more information.

Personal protective equipment

Eye protection

Use eye protection according to EN 166, designed to protect against powders and dusts. Tightly fitting safety goggles. Safety glasses with side-shields.

Hand protection

Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Nitrile rubber
 Break through time >480 minutes
 Glove thickness 0.11 mm

| | |
|---------------------------------|---|
| Respiratory protection | Frequent change is advisable 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), 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. |



8.2.3 Environmental exposure controls

| | |
|-------------------------------|---|
| Environmental exposure | Use appropriate containment to avoid environmental contamination See section 6 for more information |
|-------------------------------|---|

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

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

| Property | Values | Remarks |
|------------------------------|--------------------------|----------|
| pH | No information available | |
| pH @ dilution | > 12 | @ 10 g/l |
| Melting / freezing point | 851 °C / 1564 °F | |
| Boiling point/range | No information available | |
| Flash point | Non-flammable | |
| Evaporation rate | No information available | |
| Flammability (solid, gas) | Not applicable | |
| Flammability Limit in Air | | |
| Upper flammability limit | Not applicable | |
| Lower flammability limit | Not applicable | |
| Vapour pressure | No information available | |
| Vapour density | No information available | |
| Specific gravity | No information available | |
| Bulk density | No information available | |
| Relative density | 2.53 sg | @ 20 °C. |
| Water solubility | Soluble in water | |
| Solubility in other solvents | No information available | |
| Autoignition temperature | No information available | |
| Decomposition temperature | > 400°C (752°F) | |
| Kinematic viscosity | No information available | |
| Dynamic viscosity | No information available | |

log Pow Not determined

Explosive properties Not applicable
Oxidising properties None known

9.2 Other information

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

Comments

The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Reacts violently with acids.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerisation

Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See 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.

Unknown acute toxicity Not applicable.

Toxicology data for the components

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|------------------|----------------------|-------------------|--------------------------------------|
| Sodium carbonate | = 4090 mg/kg (Rat) | No data available | = 2300 mg/m ³ (Rat) 2 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 This product does not contain any known or suspected reproductive hazards.

Routes of exposure Eye contact. Inhalation.

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 Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

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. 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.

Toxicology data for the components

| Chemical Name | Toxicity to fish | Toxicity to algae | Toxicity to daphnia and other aquatic invertebrates |
|---------------|------------------|-------------------|---|
| | | | |

| | | | |
|------------------|--|---------------------------------|------------------------------------|
| Sodium carbonate | 310 - 1220 mg/L LC50 Pimephales promelas 96 h = 300 mg/L LC50 Lepomis macrochirus 96 h | = 242 mg/L EC50 Nitzschia 120 h | = 265 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

Mobility

Soluble in water.

Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

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 taken to an approved waste handling site for recycling or 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 05 Waste Code: 7091

14. Transport information

14.1. UN number

Not regulated

14.2. UN 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 I/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) 2015/830 of 28 May 2015 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, 2000/21/EC and 453/2010 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 |
| Canada (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 |

Europe - REACH

All products supplied from the European Economic Area (EEA) are compliant with the REACH Regulation EC 1907/2006. For products supplied from the EEA, Schlumberger and/or its suppliers have pre-registered and is registering all of the substances that it and/or its suppliers manufactures in or imports into the EEA that are subject to Title II of the REACH Regulation. All products supplied from outside the EEA are subject to REACH only if imported into the EEA. The importer of the products must comply with REACH for each imported substance. Contact REACH@slb.com for REACH information.

| | |
|-----------------|--------|
| Norway Pr. no. | 46156 |
| Denmark Pr. no. | 336795 |

For use only in North Sea countries (NSG)

15.2 Chemical Safety Report

No information available

16. Other Information

| | |
|------------------|--|
| Prepared by | Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse |
| Supersedes Date: | 06/Jul/2018 |
| Revision date | 03/Oct/2018 |

Version 7

This SDS has been revised in the following section(s) 1, 2, 15, 16 For use only in North Sea countries (NSG)
No changes with regard to classification have been made.

Key literature references and sources for data

www.ChemADVISOR.com

Supplier

National Chemical Inventories

National regulatory information

National occupational exposure limits

Training Advice

Do not handle until all safety precautions have been read and understood

Follow general hygiene considerations recognised as common good workplace practices

HMIS classification

| | |
|-----------------|---|
| Health | 2 |
| Flammability | 0 |
| Physical hazard | 0 |
| PPE | E |

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

H319 - Causes serious eye irritation

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