

Safety data sheet number MI11326

Version 8

Revision date 17/Oct/2014

Supercedes date 23/Jun/2011



Safety Data Sheet SAFE-SCAV⁺ NA

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

1.1 Product identifier

Product name SAFE-SCAV⁺ NA
Product code MI11326
Denmark Pr. no. 1244147

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

Recommended use Oxygen Scavenger.

Uses advised against None known.

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency Telephone Number

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

| | |
|-------------|---|
| Denmark | Poison Control Hotline (DK): +45 82 12 12 12 |
| Netherlands | National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals) |

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

| | |
|-----------------------------------|------------|
| 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

EU specific hazard statements

EUH031 - Contact with acids liberates toxic gas

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

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 regulations.

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

Indication of danger

Xi - Irritant

R-code(s)

R36, R31

Contains

Ammonium hydrogensulfite

Sulfur dioxide

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

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

| Component | EC-No. | CAS-No | Weight % - range | Classification (67/548) | Classification (Reg. 1272/2008) | REACH registration number |
|--------------------------|-----------|------------|------------------|-------------------------|---|---------------------------|
| Ammonium hydrogensulfite | 233-469-7 | 10192-30-0 | 30-60% | Xi; R36 R31 | Eye Irrit.2 (H319) EUH031 | 01-2119537321-49-x xxx |
| Sulfur dioxide | 231-195-2 | 7446-09-5 | <1% | T; R23 C; R34 | Acute Tox. 3 (H331) Skin Corr. 1B (H314) Liquefied Gas (H280) | 01-2119485028-34-x xxx |

Comments

The product contains other ingredients which do not contribute to the overall classification.
Sulfur dioxide is not present as a substance. It is formed during decomposition.

4. First aid measures

4.1 Description of first-aid measures

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

4.2 Most important symptoms and effects, both acute and delayed

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

Main symptoms

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

4.3 Indication of any immediate medical attention and special treatment needed

| | |
|---------------------------|------------------------|
| Notes to physician | Treat symptomatically. |
|---------------------------|------------------------|

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Fog, Alcohol Foam, CO₂, Dry Chemical.

Extinguishing media which shall not be used for safety reasons

None known.

5.2 Special hazards arising from the substance or mixture

Precautions against fire and explosion

None known.

Hazardous combustion products

Heating or fire can release toxic gas, Sulphur oxides, Nitrogen oxides (NO_x), Oxides of:, Ammonia, Amines.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

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

Special Fire-Fighting Procedures

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

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

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

Environmental exposure controls

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

6.3 Methods and materials for containment and cleaning up

Methods for Containment

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

Methods for cleaning up

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

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling

This product slowly releases sulphur dioxide in contact with air. Use only in well-ventilated areas. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures

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

7.2 Conditions for safe storage, including any incompatibilities

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

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid contact with:
Strong oxidising agents Acids Alkalis Keep at 5-30°C

Storage class Chemical storage.

Packaging material Use specially constructed containers only

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits Exposure limit noted is for decomposition product Sulfur dioxide.

| Component | EU OEL - Third List | Austria | Australia | Denmark |
|--------------------------|---------------------|----------------|---|--|
| Ammonium hydrogensulfite | Not determined | Not determined | Not determined | Not determined |
| Sulfur dioxide | Not determined | Not determined | 2 ppm TWA; 5.2 mg/m ³ TWA 5 ppm STEL; 13 mg/m ³ STEL | 0.5 ppm TWA 1.3 mg/m ³ TWA |

| Component | Finland | France | Germany | Hungary |
|--------------------------|----------------|------------------------------|--|----------------|
| Ammonium hydrogensulfite | Not determined | Not determined | Not determined | Not determined |
| Sulfur dioxide | Not determined | 2 ppm 5 mg/m ³ | 0.5 ppm MAK 1.3 mg/m ³ MAK | Not determined |

| Component | New Zealand | Italy | Netherlands | Norway |
|--------------------------|----------------|----------------|----------------|----------------|
| Ammonium hydrogensulfite | Not Determined | Not determined | Not determined | Not determined |

| | | | | |
|----------------|---|----------------|----------------|--|
| Sulfur dioxide | 5 ppm STEL 13 mg/m ³ STEL 2 ppm TWA 5.2 mg/m ³ TWA | Not determined | Not determined | 0.8 ppm TWA 2 mg/m ³ TWA |
|----------------|---|----------------|----------------|--|

| Component | Poland | Portugal | Romania | Russia |
|--------------------------|---|-------------------------|----------------|----------------------------------|
| Ammonium hydrogensulfite | Not determined | Not determined | Not determined | Not determined |
| Sulfur dioxide | 2.7 mg/m ³ STEL 1.3 mg/m ³ TWA | 5 ppm STEL 2 ppm TWA | Not determined | 10 mg/m ³ MAC Skin |

| Component | Spain | Switzerland | Turkey | UK |
|--------------------------|---|--|----------------|----------------|
| Ammonium hydrogensulfite | Not determined | Not determined | Not determined | Not determined |
| Sulfur dioxide | 5 ppm VLA-EC 13 mg/m ³ VLA-EC 2 ppm VLA-ED 5.3 mg/m ³ VLA-ED | 0.5 ppm STEL 15 min 1.3 mg/m ³ STEL 15 min 0.5 ppm MAK 1.3 mg/m ³ MAK | Not determined | Not determined |

Derived No Effect Level (DNEL)

Short term exposure local effects

Sulfur dioxide

Inhalation 2.7 mg/m³

Long term exposure local effects

Sulfur dioxide

Inhalation 1.3 mg/m³

Long term exposure systemic effects

Ammonium hydrogensulfite

Inhalation 234 mg/m³

Predicted No Effect Concentration (PNEC)

Ammonium hydrogensulfite

Fresh Water 1.04 mg/l

Sea Water 0.1 mg/l

Impact on Sewage Treatment 78.6 mg/l

8.2 Exposure controls

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

Engineering measures to

reduce exposure

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

Personal protective equipment

| | |
|---------------------------------|--|
| Eye protection | It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles. |
| Hand protection | Use protective gloves made of: Butyl, Neoprene, Nitrile, Be aware that liquid may penetrate the gloves. Frequent change is advisable. |
| Respiratory protection | In case of insufficient ventilation wear suitable respiratory equipment, Chemical respirator with ammonia and amines cartridge (K/P2, green filter). |
| Skin and body protection | Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place. |

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



9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|-----------------------|--------------------------|
| Physical state | Liquid |
| Appearance | No information available |
| Odour | pungent Sulfur |
| Colour | Colourless - Pale yellow |
| Odor threshold | Not applicable |

| <u>Property</u> | <u>Values</u> | <u>Remarks</u> |
|-------------------------------------|--------------------------|----------------|
| pH | 4.5 - 5.5 | @ 20 °C |
| pH @ dilution | | |
| Melting/freezing point | | |
| Boiling point/range | 105 °C | |
| Flash Point | No information available | |
| Evaporation rate | | |
| Flammability (solid, gas) | Not Applicable | |
| Flammability Limits in Air | | |
| Upper flammability Limit | Not applicable | |
| Lower flammability limit | Not applicable | |
| Vapor pressure | 18 mmHg | @ 20 °C |
| Vapor density | <1 | (Air = 1.0) |
| Specific gravity | No information available | |
| Bulk density | No information available | |
| Relative density | 1.27 - 1.39 | @ 20°C. |
| Water solubility | Miscible with water. | |
| Solubility in other solvents | No information available | |
| Autoignition temperature | No information available | |
| Decomposition temperature | No information available | |
| Kinematic viscosity | | |
| Viscosity, dynamic | No information available | |
| Log Pow | Not determined | |
| Explosive properties | Not Applicable | |
| Oxidizing properties | None known. | |

9.2 Other information

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

10. Stability and reactivity

10.1 Reactivity

Reacts violently with oxidizers. Liberates poisonous sulfur dioxide gas on contact with acid.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization

Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. Keep at temperatures between 5-30°C.

10.5 Incompatible materials

Strong oxidising agents. Acids. Alkalis.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information

Bisulfites may cause skin sensitization in sulfite sensitive persons. Bisulfites may also cause respiratory sensitization in asthmatics and sulfite sensitive persons.

Inhalation

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

Eye contact

Causes serious eye irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Acute toxicity

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| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--------------------------|-------------------|-------------------|------------------------|
| Ammonium hydrogensulfite | No data available | No data available | No data available |
| Sulfur dioxide | No data available | No data available | = 2500 ppm (Rat) 1 h |

| | |
|---|---|
| Sensitisation | Repeated or prolonged contact may cause allergic reactions in very susceptible persons. |
| Mutagenic effects | This product does not contain any known or suspected mutagens. |
| Carcinogenicity | This product does not contain any known or suspected carcinogens. |
| Reproductive toxicity | None known. |
| Routes of exposure | Eye contact. Inhalation. |
| Routes of entry | Eye contact. Inhalation. |
| Specific target organ toxicity (single exposure) | Not classified |
| Specific target organ toxicity (repeated exposure) | Not classified. |
| Aspiration hazard | No hazard from product as supplied. |

12. Ecological information

12.1 Toxicity

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

Toxicity to algae

This product is not considered toxic to algae.

Toxicity to fish

This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates

This product is not considered toxic to invertebrates.

| Component | Toxicity to fish | Toxicity to algae | Toxicity to daphnia and other aquatic invertebrates |
|--------------------------|--------------------------|--------------------------|---|
| Ammonium hydrogensulfite | No information available | No information available | No information available |

| | | | |
|----------------|--------------------------|--------------------------|--------------------------|
| Sulfur dioxide | No information available | No information available | No information available |
|----------------|--------------------------|--------------------------|--------------------------|

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility in soil

Mobility

The product is miscible with water. May spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

| | |
|--|---|
| Waste from residues / unused products | Dispose of in accordance with local regulations. |
| Contaminated packaging | Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal. |
| EWC waste disposal No. | According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 06 01 99 Waste Code: 7131 Inorganic Acids |

14. Transport information

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

14.1 UN number

Not regulated

14.2 Proper shipping name

Not regulated

14.3. Hazard class(es)

ADR/RID/ADN Hazard class Not regulated

IMDG Hazard class Not regulated

ICAO Hazard class/division Not regulated

14.4 Packing group

ADR/RID/ADN Packing Group Not regulated

IMDG Packing group Not regulated

ICAO Packing group Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

Not Applicable

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

Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Germany, Water Endangering Water endangering class = 3
Classes (VwVwS)

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

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

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

International inventories

USA, Toxic Substances Control Act inventory (TSCA)

Complies

European Union - EINECS and ELINCS

Complies

Canada, Domestic Substance List (DSL)

Complies

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

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

15.2 Chemical Safety Report

No information available

16. Other information

| | |
|--|--|
| Prepared by | Global Chemical Regulatory Compliance (GCRC) , Anne Karin (Anka) Fosse |
| Supersedes date | 23/Jun/2011 |
| Revision date | 17/Oct/2014 |
| Version | 8 |
| The following sections have been revised | This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made, Updated according to GHS/CLP. |

Text of R phrases mentioned in Section 3

R23 - Toxic by inhalation
R31 - Contact with acids liberates toxic gas
R34 - Causes burns
R36 - Irritating to eyes

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

H319 - Causes serious eye irritation
H280 - Contains gas under pressure; may explode if heated
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled
EUH031 - Contact with acids liberates toxic gas

†A mark of M-I L.L.C.

Disclaimer

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

