

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

NO-SULF®

Revision Date: 01-Oct-2015

Revision Number: 12

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

1.1. Product Identifier

Product Name NO-SULF®
Internal ID Code HM003706

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

Recommended Use Hydrogen Sulfide Scavenger

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

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

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

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

| | |
|--------------------------|-------------------|
| Acute Aquatic Toxicity | Category 1 - H400 |
| Chronic Aquatic Toxicity | Category 1 - H410 |

2.2. Label Elements

Hazard Pictograms

**Signal Word****Warning****Hazard Statements**

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

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

P273 - Avoid release to the environment

P391 - Collect spillage

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains**Substances**

Zinc carbonate

CAS Number

3486-35-9

2.3. Other Hazards

None known

SECTION 3: Composition/information on Ingredients

3.1. Substances**Substance**

| Substances | EINECS | CAS Number | PERCENT (w/w) | EU - CLP Substance Classification | REACH No. |
|----------------|-----------|------------|---------------|--|-------------------|
| Zinc carbonate | 222-477-6 | 3486-35-9 | 60 - 100% | Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) | No data available |

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

SECTION 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.

Eyes

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

Skin

Wash with soap and water. Get medical attention if irritation persists.

Ingestion

If swallowed, induce vomiting immediately by giving two glasses of water and sticking fingers down throat; never give anything to an unconscious person. Get medical attention.

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

No significant hazards expected.

4.3. Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Treat symptomatically

SECTION 5: Firefighting Measures

5.1. Extinguishing media**Suitable Extinguishing Media**

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

5.2. Special hazards arising from the substance or mixture

Special Exposure Hazards

Decomposition in fire may produce harmful gases.

5.3. Advice for firefighters

Special Protective Equipment for Fire-Fighters

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust.

See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling

Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from acids. Store in a cool, dry location. Keep container closed when not in use.

7.3. Specific End Use(s)

Exposure Scenario

No information available

Other Guidelines

No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

| Substances | CAS Number | EU | UK | Netherlands | France |
|----------------|------------|----------------|----------------|----------------|----------------|
| Zinc carbonate | 3486-35-9 | Not applicable | Not applicable | Not applicable | Not applicable |

| Substances | CAS Number | Germany | Spain | Portugal | Finland |
|----------------|------------|--|----------------|----------------|----------------|
| Zinc carbonate | 3486-35-9 | TWA: 0.1 mg/m ³ TWA: 2 mg/m ³ | Not applicable | Not applicable | Not applicable |

| Substances | CAS Number | Austria | Ireland | Switzerland | Norway |
|----------------|------------|----------------|----------------|----------------|----------------|
| Zinc carbonate | 3486-35-9 | Not applicable | Not applicable | Not applicable | Not applicable |

| Substances | CAS Number | Italy | Poland | Hungary | Czech Republic |
|----------------|------------|----------------|----------------|----------------|----------------|
| Zinc carbonate | 3486-35-9 | Not applicable | Not applicable | Not applicable | Not applicable |

| Substances | CAS Number | Denmark | Romania | Croatia | Cyprus |
|----------------|------------|----------------|----------------|----------------|----------------|
| Zinc carbonate | 3486-35-9 | Not applicable | Not applicable | Not applicable | Not applicable |

Derived No Effect Level (DNEL)

No information available.

Worker

General Population

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls**Engineering Controls**

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment

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

Respiratory Protection

Dust/mist respirator. (N95, P2/P3)

Hand Protection

Normal work gloves.

Skin Protection

Normal work coveralls.

Eye Protection

Wear safety glasses or goggles to protect against exposure.

Other Precautions

None known.

Environmental Exposure Controls No information available

SECTION 9: Physical and Chemical Properties
9.1. Information on basic physical and chemical properties**Physical State:** Solid**Color:** White**Odor:** Odorless**Odor Threshold:** No information availablePropertyValuesRemarks/ - Method**pH:**

No data available

Freezing Point/Range

No data available

Melting Point/Range

No data available

Boiling Point/Range

No data available

Flash Point

No data available

Flammability (solid, gas)

No data available

upper flammability limit

No data available

lower flammability limit

No data available

Evaporation rate

No data available

Vapor Pressure

No data available

Vapor Density

No data available

Specific Gravity

3.5

Water Solubility

Partly soluble

Solubility in other solvents

No data available

Partition coefficient: n-octanol/water

No data available

Autoignition Temperature

No data available

Decomposition Temperature

No data available

Viscosity

No data available

Explosive Properties

No information available

Oxidizing Properties

No information available

9.2. Other information**VOC Content (%)**

0

Bulk Density

37 lbs/ft3

SECTION 10: Stability and Reactivity
10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

None anticipated

10.5. Incompatible Materials

Strong acids.

10.6. Hazardous Decomposition Products

Zinc oxide.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects**Acute Toxicity**

| | |
|---------------------|-----------------------------------|
| Inhalation | May cause respiratory irritation. |
| Eye Contact | May cause mild eye irritation. |
| Skin Contact | May cause mild skin irritation. |
| Ingestion | May cause stomach discomfort. |

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

Toxicology data for the components

| Substances | CAS Number | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|----------------|------------|--|--|--|
| Zinc carbonate | 3486-35-9 | > 5000 mg/kg (Rat) (similar substance) | > 2000 mg/kg (Rat) (similar substance) | > 5.7 mg/L air (Rat, dust, 4h) (similar substance) |

| Substances | CAS Number | Skin corrosion/irritation |
|----------------|------------|--|
| Zinc carbonate | 3486-35-9 | Non-irritating to the skin (Rabbit) (similar substances) |

| Substances | CAS Number | Eye damage/irritation |
|----------------|------------|---|
| Zinc carbonate | 3486-35-9 | Non-irritating to the eye (Rabbit) (similar substances) |

| Substances | CAS Number | Skin Sensitization |
|----------------|------------|---|
| Zinc carbonate | 3486-35-9 | Did not cause sensitization on laboratory animals (guinea pig) (similar substances) |

| Substances | CAS Number | Respiratory Sensitization |
|----------------|------------|---------------------------|
| Zinc carbonate | 3486-35-9 | No information available |

| Substances | CAS Number | Mutagenic Effects |
|----------------|------------|--|
| Zinc carbonate | 3486-35-9 | In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects. (similar substances) |

| Substances | CAS Number | Carcinogenic Effects |
|----------------|------------|---------------------------|
| Zinc carbonate | 3486-35-9 | No information available. |

| Substances | CAS Number | Reproductive toxicity |
|----------------|------------|--|
| Zinc carbonate | 3486-35-9 | When tested at maternally toxic doses, no adverse effects on fertility, teratogenicity, or development were observed in rats, or on teratogenicity in rabbits Animal testing did not show any effects on fertility. (similar substances) |

| Substances | CAS Number | STOT - single exposure |
|----------------|------------|--|
| Zinc carbonate | 3486-35-9 | No data of sufficient quality are available. |

| Substances | CAS Number | STOT - repeated exposure |
|----------------|------------|--|
| Zinc carbonate | 3486-35-9 | No data of sufficient quality are available. |

| Substances | CAS Number | Aspiration hazard |
|----------------|------------|-------------------|
| Zinc carbonate | 3486-35-9 | Not applicable |

SECTION 12: Ecological Information**12.1. Toxicity****Ecotoxicity Effects**

| Substances | CAS | Toxicity to Algae | Toxicity to Fish | Toxicity to | Toxicity to |
|------------|-----|-------------------|------------------|-------------|-------------|
|------------|-----|-------------------|------------------|-------------|-------------|

| | Number | | | Microorganisms | Invertebrates |
|----------------|-----------|--|--|--|---|
| Zinc carbonate | 3486-35-9 | IC50(72h): 0.15 mg/L (Pseudokirchnerella subcapitata) (similar substance) | LC50(96h): 0.439 mg/L (Cottus bairdii) (similar substance) NOEC(30d): 0.172 mg/L (Cottus bairdii) (similar substance) | IC50(4h): 0.35 mg/L (activated sludge of a predominantly domestic sewage) (similar substance) | EC50(48h): 0.416 mg/L (Ceriodaphnia dubia) (similar substance) NOEC(7d): 0.025 mg/L (Ceriodaphnia dubia) (similar substance) NOEC(21d): 0.1 mg/L (Daphnia magna) (similar substance) |

12.2. Persistence and degradability

| Substances | CAS Number | Persistence and Degradability |
|----------------|------------|--|
| Zinc carbonate | 3486-35-9 | The methods for determining biodegradability are not applicable to inorganic substances. |

12.3. Bioaccumulative potential

| Substances | CAS Number | Log Pow |
|----------------|------------|--------------------------|
| Zinc carbonate | 3486-35-9 | No information available |

12.4. Mobility in soil

| Substances | CAS Number | Mobility |
|----------------|------------|--------------------------|
| Zinc carbonate | 3486-35-9 | No information available |

12.5. Results of PBT and vPvB assessment

No information available.

| Substances | PBT and vPvB assessment |
|----------------|-------------------------|
| Zinc carbonate | Not PBT/vPvB |

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

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations**13.1. Waste treatment methods****Disposal Method**

Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging

Follow all applicable national or local regulations.

SECTION 14: Transport Information**IMDG/IMO**

UN Number: UN3077
UN Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (zinc Oxide)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: Marine Pollutant

RID

UN Number: UN3077
UN Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (zinc Oxide)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: Marine Pollutant

ADR

UN Number: UN3077
UN Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (zinc Oxide)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: Marine Pollutant

IATA/ICAO

UN Number: UN3077
UN Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (zinc Oxide)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: Not applicable

14.1. UN Number: UN3077

14.2. UN Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (zinc Oxide)

14.3. Transport Hazard Class(es): 9

14.4. Packing Group: III

14.5. Environmental Hazards: Marine Pollutant

14.6. Special Precautions for User: None

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

SECTION 15: Regulatory Information

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

International Inventories

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

Legend

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

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

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

Germany, Water Endangering Classes (WGK) WGK 0: Generally not water endangering.

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information

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

None

Key or legend to abbreviations and acronyms

bw – body weight

CAS – Chemical Abstracts Service

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

EC – European Commission

EC10 – Effective Concentration 10%

EC50 – Effective Concentration 50%

EEC – European Economic Community

ErC50 – Effective Concentration growth rate 50%

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

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL0 – Lethal Loading 0%

LL50 – Lethal Loading 50%

MARPOL – International Convention for the Prevention of Pollution from Ships

mg/kg – milligram/kilogram

mg/L – milligram/liter

NIOSH – National Institute for Occupational Safety and Health

NOEC – No Observed Effect Concentration

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic

PC – Chemical Product category

PEL – Permissible Exposure Limit

ppm – parts per million

PROC – Process category

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

STEL – Short Term Exposure Limit

SU – Sector of Use category

Key literature references and sources for data

www.ChemADVISOR.com/

Revision Date: 01-Oct-2015

Revision Note

SDS sections updated: 2 14

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

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End of Safety Data Sheet