SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006
Revision Date 28.09.2017 Version 2.33

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

1.1 Product identifier
   Catalogue No. 106512
   Product name Sodium thiosulfate anhydrous EMPLURA®
   REACH Registration Number A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
   CAS-No. 7772-98-7

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses Materials for use in technical applications
   For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet
   Company Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
   Responsible Department LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number +44 870 1906777

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture
   This substance is not classified as dangerous according to European Union legislation.
2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

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

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

<table>
<thead>
<tr>
<th>Formula</th>
<th>Na₂O₃S₂ (Hill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-No.</td>
<td>231-867-5</td>
</tr>
<tr>
<td>Molar mass</td>
<td>158.11 g/mol</td>
</tr>
</tbody>
</table>

Remarks
No disclosure requirement according to Regulation (EC) No. 1907/2006.

3.2 Mixture
Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

After eye contact: rinse out with plenty of water. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.
4.2 Most important symptoms and effects, both acute and delayed
We have no description of any toxic symptoms.

4.3 Indication of any immediate medical attention and special treatment needed
No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Not combustible.
Ambient fire may liberate hazardous vapours.
Fire may cause evolution of:
Sulphur oxides

5.3 Advice for firefighters
Special protective equipment for firefighters
In the event of fire, wear self-contained breathing apparatus.

Further information
Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:
Protective equipment see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Recommended storage temperature see product label.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

Hand protection

full contact:

Glove material: Nitrile rubber
Glove thickness: 0.11 mm
Break through time: > 480 min

splash contact:

Glove material: Nitrile rubber
Glove thickness: 0.11 mm
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Respiratory protection

required when dusts are generated.
Recommended Filter type: Filter P 1 (acc. to DIN 3181) for solid particles of inert substances
The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective
devices are carried out according to the instructions of the producer. These measures have to be
properly documented.

Environmental exposure controls
Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form solid

Colour colourless

Odour odourless

Odour Threshold Not applicable

pH 6.0 - 8.5
at 50 g/l
20 °C

Melting point No information available.

Boiling point No information available.

Flash point does not flash

Evaporation rate No information available.

Flammability (solid, gas) No information available.

Lower explosion limit Not applicable
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper explosion limit</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No information available.</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Density</td>
<td>1.67 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Water solubility</td>
<td>701 g/l at 20 °C</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: -4.35 (calculated)</td>
</tr>
<tr>
<td></td>
<td>(Lit.) Bioaccumulation is not expected.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>&gt; 300 °C decomposes</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No information available.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not classified as explosive.</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>none</td>
</tr>
</tbody>
</table>

**9.2 Other data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition temperature</td>
<td>not combustible</td>
</tr>
<tr>
<td>Bulk density</td>
<td>ca.1,350 kg/m³</td>
</tr>
</tbody>
</table>
SECTION 10. Stability and reactivity

10.1 Reactivity
Oxidizing agents

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Risk of explosion with:
nitrates, nitrites, peroxy compounds, Strong oxidizing agents
Violent reactions possible with:
Fluorine, acids

10.4 Conditions to avoid
Strong heating (decomposition).

10.5 Incompatible materials
no information available

10.6 Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity
LD50 Rat: > 5,000 mg/kg

(RTECS)

Acute inhalation toxicity
This information is not available.

Acute dermal toxicity
This information is not available.
Skin irritation
This information is not available.

Eye irritation
This information is not available.

Sensitisation
This information is not available.

Germ cell mutagenicity
Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative

(Lit.)

Carcinogenicity
This information is not available.

Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
This information is not available.

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information
Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.
Further data:
Therapeutically used substance.
Handle in accordance with good industrial hygiene and safety practice.
SECTION 12. Ecological information

12.1 Toxicity
   *Toxicity to fish*
   LC50 Gambusia affinis (Mosquito fish): 24,000 mg/l; 96 h
   (IUCLID)

12.2 Persistence and degradability
   *Chemical Oxygen Demand (COD)*
   405 mg/g
   (IUCLID)

12.3 Bioaccumulative potential
   *Partition coefficient: n-octanol/water*
   log Pow: -4.35
   (calculated)

   (Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil
   No information available.

12.5 Results of PBT and vPvB assessment
   PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects
   *Additional ecological information*
   Discharge into the environment must be avoided.
SECTION 13. Disposal considerations

Waste treatment methods

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

Notice Directive on waste 2008/98/EC.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

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

Not relevant

SECTION 15. Regulatory information

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

Major Accident Hazard: SEVESO III
Legislation: Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: not regulated


Substances of very high concern (SVHC): This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation

Storage class: 10 - 13

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.
SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106512
Product name Sodium thiosulfate anhydrous EMPLURA®

Regional representation
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information@merckchem.co.uk.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.