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

1.1 Product identifiers

Product name : MOPS
Product Number : M5162
Brand : Sigma
CAS-No. : 1132-61-2

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula : C₇H₁₅NO₄S
Molecular weight : 209.26 g/mol
CAS-No. : 1132-61-2
No components need to be disclosed according to the applicable regulations.

**SECTION 4: First aid measures**

### 4.1 Description of first-aid measures

**If inhaled**
After inhalation: fresh air.

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

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

**If swallowed**
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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available

**SECTION 5: Firefighting measures**

### 5.1 Extinguishing media

**Suitable extinguishing media**
- Water
- Foam
- Carbon dioxide (CO2)
- Dry powder

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

### 5.2 Special hazards arising from the substance or mixture

- Carbon oxides
- Nitrogen oxides (NOx)
- Sulfur oxides
- Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

### 5.4 Further information

Suppress (knock down) gases/vapors/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.
For personal protection 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
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Tightly closed. Dry.
Storage class (TRGS 510): 13: Non Combustible Solids

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
Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment
Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, 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).
Full contact
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, 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).

Splash contact  
Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: KCL 741 Dermatril® L

**Respiratory protection**  
required when dusts are generated.  
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure  
Do not let product enter drains.

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**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
</table>
| Appearance     | Form: powder  
|                | Color: white   |
| Odor           | odorless       |
| Odor Threshold | Not applicable |
| pH             | 2.5 - 4 at 209 g/l at 25 °C (77 °F) |
| Melting point/freezing point | Melting point: ca.281.6 °C (ca.538.9 °F) at ca.1,013.25 hPa - OECD Test Guideline 102 |
| Initial boiling point and boiling range | No data available |
| Flash point    | 110 °C (230 °F) - closed cup |
| Evaporation rate | No data available |
| Flammability (solid, gas) | The product is not flammable. - Flammability (solids) |
| Upper/lower flammability or explosive limits | No data available |
| Vapor pressure | No data available |
| Vapor density  | No data available |
| Relative density | ca.1.42 at 20.3 °C (68.5 °F) - OECD Test Guideline 109 |
| Water solubility | ca.580.4 g/l at 10 °C (50 °F) - OECD Test Guideline |
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

**105ca.597.7 g/l at 20 ºC (68 ºF) - OECD Test Guideline 105**

**o) Partition coefficient:**

<table>
<thead>
<tr>
<th>n-octanol/water</th>
</tr>
</thead>
<tbody>
<tr>
<td>log Pow: -2.94 at 20 ºC (68 ºF) - Bioaccumulation is not expected.</td>
</tr>
</tbody>
</table>

**p) Autoignition temperature**

| > 400 ºC (> 752 ºF) - Relative self-ignition temperature for solidsdoes not ignite |

**q) Decomposition temperature**

| No data available |

**r) Viscosity**

| No data available |

**s) Explosive properties**

| No data available |

**t) Oxidizing properties**

| No data available |

**9.2 Other safety information**

| Surface tension |
| ca.66.6 mN/m at 1.01g/l at 20 ºC (68 ºF) - OECD Test Guideline 115 |

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

**10.2 Chemical stability**

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

**10.3 Possibility of hazardous reactions**

Violent reactions possible with:

- Oxidizing agents
- Bases
- bases
- acids

**10.4 Conditions to avoid**

Strong heating.

**10.5 Incompatible materials**

No data 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 toxicity**
Acute toxicity estimate Oral - 2,500 mg/kg  
(Calculation method)  
LD50 Oral - Rat - male and female - > 2,000 mg/kg  
(OECD Test Guideline 423)  
Inhalation: No data available  
Dermal: No data available

**Skin corrosion/irritation**
Skin - Rabbit  
Result: No skin irritation - 4 h  

**Serious eye damage/eye irritation**
Eyes - Chicken eye  
Result: No eye irritation - 10 s  
(OECD Test Guideline 438)

**Respiratory or skin sensitization**
Maximization Test - Guinea pig  
Result: negative  
(OECD Test Guideline 406)

**Germ cell mutagenicity**
Test Type: Micronucleus test  
Test system: Human lymphocytes  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 487  
Result: negative  
Test Type: Ames test  
Test system: S. typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
Test Type: In vitro mammalian cell gene mutation test  
Test system: Chinese hamster lung cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

**Carcinogenicity**
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available
11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 66 Days - NOAEL (No observed adverse effect level) - 1,000 mg/kg

RTECS: QE9104530
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish
static test LC50 - Danio rerio (zebra fish) - > 1,000 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h
(OECD Test Guideline 202)

Toxicity to algae
static test ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h
(OECD Test Guideline 201)

Toxicity to bacteria
static test EC10 - activated sludge - > 1,080 mg/l - 3 h
(OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability
aerobic - Exposure time 28 d
Result: 1 % - Not readily biodegradable.
(OECD Test Guideline 301B)

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data 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
Discharge into the environment must be avoided.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
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.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See