

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Dimethyl sulfoxide > 99 % (DMSO)

Revision date: 20.07.2023

Product code: 23419

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

1.1. Product identifier

Dimethyl sulfoxide > 99 % (DMSO)

REACH Registration Number: 01-2119431362-50-XXXX
CAS No: 67-68-5
EC No: 200-664-3

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

Use of the substance/mixture

Laboratory chemicals
Industrial uses: Uses of substances as such or in preparations at industrial sites
Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit
Telefax: 0203/5194-290
Telephone: 0203/5194-107/117

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This substance is not classified as hazardous in accordance with Regulation (EC) No 1272/2008.

2.2. Label elements

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: (CH₃)₂SO
Molecular weight: 78,13 g/mol

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Hazardous components

| CAS No | Chemical name | | | Quantity |
|---------|---|----------|-----------------------|----------|
| | EC No | Index No | REACH No | |
| | Classification (Regulation (EC) No 1272/2008) | | | |
| 67-68-5 | dimethyl sulfoxide | | | 100 % |
| | 200-664-3 | | 01-2119431362-50-XXXX | |

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

| CAS No | EC No | Chemical name | Quantity |
|---------|--|--------------------|----------|
| | Specific Conc. Limits, M-factors and ATE | | |
| 67-68-5 | 200-664-3 | dimethyl sulfoxide | 100 % |
| | dermal: LD50 = ca. 40000 mg/kg; oral: LD50 = 28300 mg/kg | | |

Further Information

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).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No data available

After inhalation

Provide fresh air.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.

Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.

Water, to which activated charcoal may be added

Call a physician immediately.

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

Headache

Gastrointestinal complaints

Irritant

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

Give sodium sulfate as laxative (1 tablespoon in 1 glass of water).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂)

Foam

Extinguishing powder

Unsuitable extinguishing media

no restriction

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5.2. Special hazards arising from the substance or mixture

Combustible liquids

Hazardous combustion products

In case of fire may be liberated:

Carbon dioxide (CO₂) Carbon monoxide

Sulphur oxides

In case of warming:

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Heating causes rise in pressure with risk of bursting.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

In case of fire and/or explosion do not breathe fumes.

Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Move undamaged containers from immediate hazard area if it can be done safely.

Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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Advice on safe handling

Read label before use. Handle and open container with care.
When using do not eat, drink, smoke, sniff. Keep container tightly closed.
Use personal protection equipment. Use extractor hood (laboratory).
Do not breathe vapour/aerosol. Provide adequate ventilation.

Advice on protection against fire and explosion

Take action to prevent static discharges.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.
Wash hands and face before breaks and after work and take a shower if necessary.
When using do not eat or drink.
Avoid: aerosol or mist formation Do not breathe vapour/aerosol.

Further information on handling

Take off immediately all contaminated clothing and wash it before reuse.
Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. If handled uncovered, arrangements with local exhaust ventilation have to be used.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place.
Store in a cool dry place.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Protect against:
Heat

Hints on joint storage

No data available

Further information on storage conditions

Protect from sunlight.
storage temperature +5°C - +30°C

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL values

| CAS No | Substance | Exposure route | Effect | Value |
|--------------------------|--------------------|----------------|----------|-----------------------|
| 67-68-5 | dimethyl sulfoxide | | | |
| Worker DNEL, long-term | | inhalation | systemic | 484 mg/m ³ |
| Worker DNEL, long-term | | inhalation | local | 265 mg/m ³ |
| Worker DNEL, long-term | | dermal | systemic | 200 mg/kg bw/day |
| Consumer DNEL, long-term | | inhalation | systemic | 120 mg/m ³ |
| Consumer DNEL, long-term | | inhalation | local | 47 mg/m ³ |
| Consumer DNEL, long-term | | dermal | systemic | 100 mg/kg bw/day |
| Consumer DNEL, long-term | | oral | systemic | 60 mg/kg bw/day |

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PNEC values

| CAS No | Substance | |
|--|--------------------|------------|
| Environmental compartment | | Value |
| 67-68-5 | dimethyl sulfoxide | |
| Freshwater | | 17 mg/l |
| Marine water | | 1,7 mg/l |
| Freshwater sediment | | 13,4 mg/kg |
| Secondary poisoning | | 700 mg/kg |
| Micro-organisms in sewage treatment plants (STP) | | 11 mg/l |
| Soil | | 3,02 mg/kg |

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

goggles

Face protection umbrella

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 720 Camapren®

Recommended material: CR (polychloroprene, chloroprene rubber) 0,65 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 730 Camatril® Velours

Recommended material: NBR (Nitrile rubber) 0,4 mm

Wearing time with occasional contact (splashes): > 60 min

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 (>, <)> 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).

Skin protection

Wear full chemical protective clothing.

Take off immediately all contaminated clothing and wash it before reuse.

Wear suitable protective clothing. Take off immediately all contaminated clothing.

Wash hands and face before breaks and after work and take a shower if necessary.

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Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Filtering device with filter or ventilator filtering device of type: A

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|-------------------------|
| Physical state: | Liquid |
| Colour: | colourless |
| Odour: | characteristic |
| Odour threshold: | No data available |
| Melting point/freezing point: | 18,5 °C |
| Boiling point or initial boiling point and boiling range: | 189 °C |
| Flammability: | No data available |
| Lower explosion limits: | 1,8 vol. % |
| Upper explosion limits: | 63 vol. % |
| Flash point: | 87 °C |
| Auto-ignition temperature: | 300-302 °C |
| Decomposition temperature: | >190 °C |
| pH-Value: | No data available |
| Viscosity / kinematic: (at 20 °C) | 2,14 mm ² /s |
| Water solubility: (at 20 °C) | 1000 g/L |
| Solubility in other solvents | No data available |
| Dissolution rate: | No data available |
| Partition coefficient n-octanol/water: | log Pow: -1,35 |
| Dispersion stability: | No data available |
| Vapour pressure: (at 20 °C) | 0,6 hPa |
| Vapour pressure: | No data available |
| Density: | 1,104 g/cm ³ |
| Relative density: | No data available |
| Bulk density: | No data available |
| Relative vapour density: | No data available |
| Particle characteristics: | No data available |

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

In case of warming:

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Sustaining combustion:

Sustaining combustion

Self-ignition temperature

Solid:

No data available

Gas:

No data available

Oxidizing properties

No data available

Other safety characteristics

Evaporation rate:

No data available

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| | |
|------------------------------------|-------------------|
| Solvent separation test: | No data available |
| Solvent content: | No data available |
| Solid content: | No data available |
| Sublimation point: | No data available |
| Softening point: | No data available |
| Pour point: | No data available |
| Viscosity / dynamic: (at 20 °C) | 2,14 mPa·s |
| Flow time: | No data available |

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

In case of warming:
Vapours may form explosive mixtures with air.

10.2. Chemical stability

Protect against:
Humidity

10.3. Possibility of hazardous reactions

Oxidising agent
Strong acid
Acid chlorides, inorganic
Nitric acid
Acid halides
Reducing agent
Acid chlorides, inorganic
permanganates, e.g. potassium permanganate

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5. Incompatible materials

plastic
Metal

10.6. Hazardous decomposition products

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Based on available data, the classification criteria are not met.

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| CAS No | Chemical name | | | | |
|---------|--------------------|---------------|-----------|--------|---|
| | Exposure route | Dose | Species | Source | Method |
| 67-68-5 | dimethyl sulfoxide | | | | |
| | oral | LD50 mg/kg | 28300 | Rat | Toxicol. Appl. Pharmacol. 7: 104-112 (19) |
| | dermal | LD50 mg/kg | ca. 40000 | Rat | J Clin Pharmacol, 8(5), 315-321 (1968) |
| | | | | | OECD Guideline 401 |
| | | | | | Rats were immersed in a DMSO solution |

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

Liver and kidney damage

Further information

Headache

Gastrointestinal complaints

Irritant

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

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| CAS No | Chemical name | | | | | |
|---------|--------------------------|----------------|-----------|---------|---------------------------------|--|
| | Aquatic toxicity | Dose | [h] [d] | Species | Source | Method |
| 67-68-5 | dimethyl sulfoxide | | | | | |
| | Acute fish toxicity | LC50 mg/l | 34000 | 96 h | Pimephales promelas | Center for Lake Superior Environmental S |
| | Acute algae toxicity | ErC50 mg/l | 17000 | 72 h | Pseudokirchneriella subcapitata | Study report (2009) OECD Guideline 201 |
| | Acute crustacea toxicity | EC50 mg/l | 24600 | 48 h | Daphnia magna | Bull Environ Contam Toxicol, 70, 1264-12 OECD Guideline 202 |
| | Acute bacteria toxicity | (EC50 mg/l) | 10 - 100 | 0,5 h | activated sludge, domestic | Study report (1990) ISO 8192 |

12.2. Persistence and degradability

31 %; 28 d; aerob
OECD 301D
Not readily biodegradable (according to OECD criteria)

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

| CAS No | Chemical name | Log Pow |
|---------|--------------------|---------|
| 67-68-5 | dimethyl sulfoxide | -1,35 |

BCF

| CAS No | Chemical name | BCF | Species | Source |
|---------|--------------------|------|---------|----------------------|
| 67-68-5 | dimethyl sulfoxide | 3,16 | | EPI Suite, Version 3 |

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Avoid release to the environment.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Send to a physico-chemical treatment facility under observation of official regulations.
Do not empty into drains.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information

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Land transport (ADR/RID)

| | |
|--|--|
| 14.1. UN number or ID number: | No dangerous good in sense of this transport regulation. |
| 14.2. UN proper shipping name: | No dangerous good in sense of this transport regulation. |
| 14.3. Transport hazard class(es): | No dangerous good in sense of this transport regulation. |
| 14.4. Packing group: | No dangerous good in sense of this transport regulation. |

Inland waterways transport (ADN)

| | |
|--|--|
| 14.1. UN number or ID number: | No dangerous good in sense of this transport regulation. |
| 14.2. UN proper shipping name: | No dangerous good in sense of this transport regulation. |
| 14.3. Transport hazard class(es): | No dangerous good in sense of this transport regulation. |
| 14.4. Packing group: | No dangerous good in sense of this transport regulation. |

Marine transport (IMDG)

| | |
|--|--|
| 14.1. UN number or ID number: | No dangerous good in sense of this transport regulation. |
| 14.2. UN proper shipping name: | No dangerous good in sense of this transport regulation. |
| 14.3. Transport hazard class(es): | No dangerous good in sense of this transport regulation. |
| 14.4. Packing group: | No dangerous good in sense of this transport regulation. |

Air transport (ICAO-TI/IATA-DGR)

| | |
|--|--|
| 14.1. UN number or ID number: | No dangerous good in sense of this transport regulation. |
| 14.2. UN proper shipping name: | No dangerous good in sense of this transport regulation. |
| 14.3. Transport hazard class(es): | No dangerous good in sense of this transport regulation. |
| 14.4. Packing group: | No dangerous good in sense of this transport regulation. |

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

14.7. Maritime transport in bulk according to IMO instruments

No dangerous good in sense of this transport regulation.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 75

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 12.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

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