



DIMETHYL SULFOXIDE-D6 (D, 99.9%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Issue date: 8/1/2011 Revision date: 7/19/2023 Supersedes: 5/22/2023 Version: 6.3

SECTION 1: Identification

1.1. Identification

| | |
|----------------|------------------------------------|
| Product form | : Substance |
| Substance name | : DIMETHYL SULFOXIDE-D6 (D, 99.9%) |
| Chemical name | : DIMETHYL SULFOXIDE-D6 (D, 99.9%) |
| IUPAC name | : Dimethyl sulfoxide |
| CAS-No. | : 67-68-5 |
| Product code | : DLM-10 |
| Formula | : C ₂ H ₆ OS |
| Synonyms | : DMSO / Methyl sulfoxide |

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Cambridge Isotope Laboratories, Inc.
50 Frontage Rd
01810
ANDOVER, MA, 01810
USA
T 1-800-322-1174
cilsales@isotope.com - www.isotope.com

1.4. Emergency telephone number

Emergency number : 1-703-741-5970
Chemtrec 1-800-424-9300 24 hours

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 4 H227 Combustible liquid
Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Signal word (GHS US) : Warning
Hazard statements (GHS US) : H227 - Combustible liquid
Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. heat, hot surfaces, open flames, sparks
P280 - Wear protective clothing, protective gloves.
P370+P378 - In case of fire: Use Alcohol resistant foam, Carbon dioxide, Dry chemical to extinguish.
P403+P235 - Store in a well-ventilated place. Keep cool.
P501 - Dispose of contents/container to Comply with applicable regulations.

2.3. Other hazards which do not result in classification

No additional information available

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2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

| Name | Product identifier | % | GHS US classification |
|--|--------------------|-----|-----------------------|
| DIMETHYL SULFOXIDE-D6 (D, 99.9%) (Main constituent) | CAS-No.: 67-68-5 | 100 | Flam. Liq. 4, H227 |

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | : Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. |
| First-aid measures after inhalation | : If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician. |
| First-aid measures after skin contact | : Wash with soap and plenty of water. Consult a physician. |
| First-aid measures after eye contact | : Flush eyes with water as a precaution. |
| First-aid measures after ingestion | : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. |

4.2. Most important symptoms and effects (acute and delayed)

| | |
|-------------------------------------|---|
| Symptoms/effects after inhalation | : May be harmful if inhaled. May cause respiratory tract irritation. |
| Symptoms/effects after skin contact | : May be harmful if absorbed through skin. May cause skin irritation. |
| Symptoms/effects after eye contact | : Contact may cause eye irritation. |
| Symptoms/effects after ingestion | : May be harmful if swallowed. |

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid breathing vapors, mist, or gas.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3. Methods and material for containment and cleaning up

For containment : Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent build up of electrostatic charge.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at room temperature away from light and moisture.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5)

USA - ACGIH - Occupational Exposure Limits

| | |
|-------------------------|--|
| ACGIH chemical category | No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH. |
|-------------------------|--|

8.2. Appropriate engineering controls

No additional information available

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses. Respiratory protection of the dependent type. Protective clothing.

Hand protection:

Wear suitable protective clothing and gloves

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Eye protection:

Wear safety glasses with side shields (or goggles) and a face shield.

Skin and body protection:

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection:

When appropriate, use NIOSH/CEN approved respirator.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|--|
| Physical state | : Liquid |
| Appearance | : Clear. Liquid. |
| Color | : Colorless - Very pale yellow |
| Odor | : sulphurous |
| Odor threshold | : No data available |
| pH | : No data available |
| Melting point | : 18.5 °C Decomposition: 'no' |
| Freezing point | : No data available |
| Boiling point | : 189 °C Atm. press.: 1013 hPa Decomposition: 'yes' |
| Flash point | : 87 °C Atm. press.: 1013 hPa |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapor pressure | : 0.417 mm Hg Temp.: 20 °C |
| Vapor pressure at 50°C | : 4 hPa (3 mmHg) (122 °F) |
| Relative vapor density at 20°C | : 2.7 (Air = 1.0) |
| Relative density | : No data available |
| Density | : 1.1 g/ml |
| Molecular mass | : 84.17 g/mol |
| Solubility | : No data available |
| Partition coefficient n-octanol/water (Log Pow) | : -1.349 |
| Auto-ignition temperature | : 301 °C (574 °F) |
| Decomposition temperature | : > 190 °C (> 374 °F) |
| Viscosity, kinematic | : 1.945 mm²/s |
| Viscosity, dynamic | : 2.14 mPa.s Temp.: '20°C' Parameter: 'dynamic viscosity (in mPa s)' |
| Explosion limits | : 3.5 – 42 % (V) |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents. Strong reducing agents.

10.6. Hazardous decomposition products

Products formed under fire conditions. - Carbon oxides, Sulphur oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

| DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5) | |
|--|--|
| LD50 oral rat | 28300 mg/kg body weight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), Remarks on results: other: |
| LD50 dermal rat | ≈ 40000 mg/kg body weight Animal: rat |
| LD50 dermal rabbit | > 5000 mg/kg |
| LC50 Inhalation - Rat [ppm] | 40250 ppm 4h |
| ATE US (oral) | 14500 mg/kg body weight |

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

| DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5) | |
|--|---|
| LOAEC (inhalation, rat, dust/mist/fume, 90 days) | 2783 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study), Guideline: EPA OPPTS 870.3465 (90-Day Inhalation Toxicity) |
| NOAEL (oral, rat, 90 days) | ≥ 1000 mg/kg body weight Animal: rat, Guideline: other: |

Aspiration hazard : Not classified
Viscosity, kinematic : 1.945 mm²/s

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| | |
|-------------------------------------|---|
| Symptoms/effects after inhalation | : May be harmful if inhaled. May cause respiratory tract irritation. |
| Symptoms/effects after skin contact | : May be harmful if absorbed through skin. May cause skin irritation. |
| Symptoms/effects after eye contact | : Contact may cause eye irritation. |
| Symptoms/effects after ingestion | : May be harmful if swallowed. |

SECTION 12: Ecological information

12.1. Toxicity

| DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5) | |
|--|---|
| LC50 - Fish [1] | > 25 g/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio) |
| EC50 - Crustacea [1] | 6830 mg/l |
| LC50 - Fish [2] | 35000 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h |
| LC50 - Other aquatic organisms [2] | 17000 mg/l Pseudokirchneriella subcapitata (green algae) - 72 h |
| ErC50 algae | 400000 mg/l Lepomis macrochirus (Bluegill) -96h |

12.2. Persistence and degradability

| DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5) | |
|--|----------------|
| Persistence and degradability | Not available. |
| BOD (% of ThOD) | 31 % ThOD |

12.3. Bioaccumulative potential

| DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5) | |
|---|--------|
| Partition coefficient n-octanol/water (Log Pow) | -1.349 |

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects : Not available.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

| | |
|---------------|------------------|
| DOT NA No | : NA1993 |
| UN-No. (TDG) | : Not applicable |
| UN-No. (IMDG) | : Not applicable |
| UN-No. (IATA) | : Not applicable |

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14.2. UN proper shipping name

| | |
|-----------------------------|------------------------------|
| Proper Shipping Name (DOT) | : Combustible liquid, n.o.s. |
| Proper Shipping Name (TDG) | : Not applicable |
| Proper Shipping Name (IMDG) | : Not applicable |
| Proper Shipping Name (IATA) | : Not applicable |

14.3. Transport hazard class(es)

DOT

| | |
|----------------------------------|----------------------|
| Transport hazard class(es) (DOT) | : Combustible liquid |
|----------------------------------|----------------------|

TDG

| | |
|----------------------------------|------------------|
| Transport hazard class(es) (TDG) | : Not applicable |
|----------------------------------|------------------|

IMDG

| | |
|-----------------------------------|------------------|
| Transport hazard class(es) (IMDG) | : Not applicable |
|-----------------------------------|------------------|

IATA

| | |
|-----------------------------------|------------------|
| Transport hazard class(es) (IATA) | : Not applicable |
|-----------------------------------|------------------|

14.4. Packing group

| | |
|----------------------|------------------|
| Packing group (DOT) | : III |
| Packing group (TDG) | : Not applicable |
| Packing group (IMDG) | : Not applicable |
| Packing group (IATA) | : Not applicable |

14.5. Environmental hazards

| | |
|-------------------|---|
| Other information | : No supplementary information available. |
|-------------------|---|

14.6. Special precautions for user

DOT

| | |
|--|---|
| UN-No.(DOT) | : NA1993 |
| DOT Special Provisions (49 CFR 172.102) | : 148 - Except for transportation by aircraft, when transported as a limited quantity or a consumer commodity, the maximum net capacity specified in §173.150(b)(2) of this subchapter for inner packaging may be increased to 5 L (1.3 gallons). IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : 150 |
| DOT Packaging Non Bulk (49 CFR 173.xxx) | : 203 |
| DOT Packaging Bulk (49 CFR 173.xxx) | : 241 |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : 60 L |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | : 220 L |
| DOT Vessel Stowage Location | : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel. |

TDG

No data available

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IMDG

No data available

IATA

No data available

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. US Federal regulations

DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5)

| | |
|-------------------------------------|--|
| SARA Section 311/312 Hazard Classes | Fire hazard Delayed (chronic) health hazard |
|-------------------------------------|--|

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

| Name | CAS-No. | Listing | Commercial status | Flags |
|----------------------------------|---------|---------|-------------------|-------|
| DIMETHYL SULFOXIDE-D6 (D, 99.9%) | 67-68-5 | Present | Active | |

15.2. International regulations

CANADA

DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5)

Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on TECI (Thailand Existing Chemicals Inventory)

15.3. US State regulations

DIMETHYL SULFOXIDE-D6 (D, 99.9%) (67-68-5)

| | |
|----------------------------|--|
| State or local regulations | U.S. - New Jersey - Right to Know Hazardous Substance List |
|----------------------------|--|

SECTION 16: Other information

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Revision date : 07/19/2023

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

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| Full text of H-phrases | |
|------------------------|--------------------|
| H227 | Combustible liquid |

NFPA health hazard

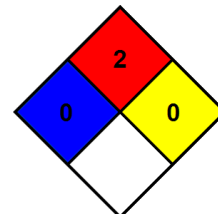
: 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard

: 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability

: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II IIIA)

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.