

Material Safety Data Sheet Dimethyl Sulfoxide

Section 1 - Product Identification

Synonyms : Methyl sulfoxide; DMSO
Molecular Weight : 78.13 g/mol
Chemical Formula : C_2H_6OS
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Recommended use of the chemical and restrictions on use:

The product is used as a laboratory chemical. Not for food, drug, pesticide or biocidal product use.

Section 2 – Composition/Information on Ingredients

The product contains greater than 95 percent (%) Dimethyl Sulfoxide

Chemical Name	EC/CAS No	Purity, %
Dimethyl Sulfoxide	200-664-3/67-68-5	min. 95.0

Section 3 – Hazards Identification

3.1 Classification of the substance or mixture

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

3.2 Label elements

The product needs to be labelled with a warning sign.

3.3 Other hazards

Potential health effects

Eye

No information available

Skin

DMSO readily penetrates skin and may carry other dissolved chemicals into the body.

Ingestion

No information available

Inhalation

No information available

Chronic

No information available

Section 4 – First-Aid Measures

4.1. Description of first aid measures

Skin contact

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Inhalation

Move to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.

Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately.

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

Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

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

N.A.

Section 5 – Fire Fighting Measures

5.1. Suitable Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray

5.2. Specific hazards arising from the chemical

Combustible material. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Special protective actions for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

5.4. Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂) Sulfur oxides Sulfides Formaldehyde

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Ensure adequate ventilation

6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Section 7 – Handling and Storage

7.1. Precautions for safe Handling

Wear personal protective equipment. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

Section 8 – Exposure Controls/Personal Protection

8.1. Control parameters

8.2. Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location

8.3. Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Eyes and hands protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Wear appropriate protective gloves

Body protection

Long Sleeved Clothing

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance: Colourless Liquid

Odour: Odourless

Odour threshold: N.A.

pH: No information available

Melting point: 18.4°C

Boiling point: 189°C

Flash point: 87°C

Evaporation rate: No information available

Flammability: N.A

Upper/lower flammability or explosive limits:

Upper 42 vol %

Lower 2.6 vol %

Vapour pressure: 0.55 mbar @ 20°C

Vapour density: 2.7 (Air = 1)

Relative density: 1.100

Solubility in water: Soluble

Partition coefficient: n-octanol/water: N.A

Auto-ignition temperature: 301°C

Decomposition temperature: >190°C

Viscosity: 1.98 mPa.s @ 25°C

Explosive properties: No information available

Oxidizing properties: No information available

Section 10 – Stability and Reactivity

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Hygroscopic

10.3. Possibility of hazardous reactions

Thermal decomposition can take place above 189°C / 372°F

10.4. Conditions to avoid:

Incompatible products. Excess heat. Exposure to moist air or water. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents, Strong acids, Strong bases, Alkali metals

10.6. Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Sulfur oxides, Sulfides, Formaldehyde

Section 11 – Toxicological Information

Information on toxicological effects

LD50/LC50:

Oral, rat: LD50 = 28300mg/kg

Acute toxicity

N.A

Skin corrosion / irritation

No information available

Serious eye damage/ irritation

No information available

Respiratory or skin sensitization

No information available

Germcell mutagenicity

N.A

Carcinogenicity

N.A

Reproductive toxicity

N.A

STOT-single exposure

N.A

STOT-repeated exposure

N.A.

Aspiration Hazard

N.A.

Potential health effects

RTECS: N.A

Section 12 – Ecological Information

12.1. Toxicity

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants. Do not empty into drains

12.2. Persistence and degradability

Persistence is unlikely

12.3. Bioaccumulative potential

N.A

12.4. Mobility in soil

Will likely be mobile in the environment due to its volatility

12.5. Other adverse effects

N.A

Section 13 – Disposal Considerations

13.1. Disposal methods

Product

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Contaminated Packaging

N.A

Section 14 – Transport Information

14.1. UN number: N.A

14.2. UN proper shipping name: N.A

14.3. Transport of hazard classes: N.A

14.4. Packing group: N.A

14.5. Environmental hazards: N.A.

14.6. Special precautions for user: N.A

14.7. Incompatible materials: N.A.

Section 15 – Regulatory Information

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

Notification status:

U.S. EPA TSCA Inventory	On the inventory, or in compliance with the inventory
Canadian DSL	On the inventory, or in compliance with the inventory
EINECS	On the inventory, or in compliance with the inventory
South Korea	On the inventory, or in compliance with the inventory
Japanese MITI	On the inventory, or in compliance with the inventory

Ensure all national/local regulations are observed.

Section 16: Additional Information

16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):

N.A.

16.2. List of abbreviation and acronyms used in this MSDS

SDS: Safety Data Sheets

Index N°: atomic number of the element most characteristic of the properties of the substance

CAS No: Chemical Abstracts Service number

EC No: EINECS Number: European Inventory of Existing Commercial Substances

Repr. Cat. 2: Substance presumed human reproductive toxicant

Acute Oral Cat. 5: Substance which is of relatively low acute oral toxicity.

GHS: Globally Harmonised System of Classification and Labelling

LD₅₀: Median Lethal Dose

LC₅₀: Lethal Concentration, 50%

N.A.: Not Applicable

Japanese MITI: Japanese Ministry of International Trade and Industry

EC₅₀: Half maximal effective concentration

UN: United Nations

U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the authority of the Environmental Protection Agency

Canadian DSL: Canadian Domestic Substances List

16.5. Disclaimer of Liability

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