

# SAFETY DATA SHEET

Creation Date 23-Jan-2009

Revision Date 21-Dec-2025

Revision Number 5

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

## 1. Identification

**Product Name** Dimethyl sulfoxide

**Cat No. :** J66650

**CAS No** 67-68-5  
**Synonyms** Dimethyl sulfoxide; DMSO

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

### Details of the supplier of the safety data sheet

#### Company

Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757

#### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

## 2. Hazard(s) identification

### Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Flammable liquids

Category 4

### Label Elements

#### **Signal Word**

Warning

#### **Hazard Statements**

Combustible liquid

#### **Precautionary Statements**

Prevention

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

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam to extinguish

**Storage**

Store in a well-ventilated place. Keep cool

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200****Hazards associated with a change in physical form**

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

### 3. Composition/information on Ingredients

Component	CAS No	Weight %
Dimethyl sulfoxide	67-68-5	<=100

### 4. First-aid measures

<b>General Advice</b>	If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
<b>Inhalation</b>	Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.
<b>Ingestion</b>	Do NOT induce vomiting. Get medical attention.
<b>Most important symptoms and effects</b>	Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Water spray, carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	87 °C / 188.6 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	301 °C / 573.8 °F
<b>Explosion Limits</b>	
<b>Upper</b>	42 vol %
<b>Lower</b>	2.6 vol %

**Sensitivity to Mechanical Impact** No information available  
**Sensitivity to Static Discharge** No information available

#### Specific Hazards Arising from the Chemical

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

#### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Sulfur oxides. Sulfides. Formaldehyde.

#### Protective Equipment and Precautions for Firefighters

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

#### NFPA

**Health**  
2 \*

**Flammability**  
2

**Instability**  
1

**Physical hazards**  
N/A

### 6. Accidental release measures

#### Personal Precautions

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

#### Environmental Precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

#### Methods for Containment and Clean Up

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

### 7. Handling and Storage

#### Handling

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

#### Storage.

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong acids. Strong bases. Alkali metals.

### 8. Exposure controls / personal protection

#### Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

#### Engineering Measures

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

#### Personal Protective Equipment

##### Eye/face 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.

##### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

##### 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.

##### Recommended Filter type:

Particle filter.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties****Appearance****Physical State**

Liquid

**Color**

Colorless

**Odor**

Odorless

**Odor Threshold**

No information available

**Property****Values****Remarks****• Method****Melting Point/Range**

18.4 °C / 65.1 °F

**Softening Point**

No data available

**Boiling Point/Range**

189 °C / 372.2 °F

**Flash Point**

87 °C / 188.6 °F

**Flammability (liquid)**

Combustible liquid

**Method** - No information available**Flammability (solid,gas)**

Not applicable

On basis of test data

**Explosion Limits****Lower** 2.6 Vol%**Upper** 42 Vol%

Liquid

**Autoignition Temperature**

301 °C / 573.8 °F

**Decomposition Temperature**

&gt; 190°C

**pH**

No information available

**Viscosity**

1.98 mPa.s @ 25°C

**Water Solubility**

Soluble

**Solubility in other solvents**

No information available

**Partition Coefficient (n-octanol/water)****Component****log Pow**

Dimethyl sulfoxide

-1.35

**Vapor Pressure**

0.55 mbar @ 20°C

**Density / Specific Gravity**

1.100

**Bulk Density**

Not applicable

Liquid

**Vapor Density**

2.7

(Air = 1.0)

**Particle characteristics**

Not applicable (liquid)

**Other Information****Molecular Formula**C<sub>2</sub> H<sub>6</sub> O S**Molecular Weight**

78.13

**Explosive Properties**

explosive air/vapour mixtures possible

**Evaporation Rate**

No information available

**10. Stability and reactivity****Reactive Hazard**

None known, based on information available

**Stability**

Hygroscopic.

**Conditions to Avoid**

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

**Incompatible Materials**

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

**Hazardous Decomposition Products**Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Sulfur oxides, Sulfides, Formaldehyde**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Hazardous Reactions**

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

## 11. Toxicological information

### Information on expected route of exposure

<b>Inhalation</b>	May cause irritation of respiratory tract. May be harmful if inhaled.
<b>Ingestion</b>	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be harmful if swallowed. May cause central nervous system effects.
<b>Eyes</b>	May cause irritation.
<b>Skin</b>	May cause irritation. RAPIDLY ABSORBED THROUGH SKIN.

### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dimethyl sulfoxide	LD50 = 28300 mg/kg ( Rat )	LD50 = 40000 mg/kg ( Rat )	LC50 > 5.33 mg/L ( Rat ) 4 h

**Toxicologically Synergistic Products** No information available

**(b) skin corrosion/irritation;** Based on available data, the classification criteria are not met

**(c) serious eye damage/irritation;** Based on available data, the classification criteria are not met

**(d) respiratory or skin sensitization;**  
**Respiratory** Based on available data, the classification criteria are not met  
**Skin** Based on available data, the classification criteria are not met

**(e) germ cell mutagenicity;** Based on available data, the classification criteria are not met

**(f) carcinogenicity;** Based on available data, the classification criteria are not met

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Dimethyl sulfoxide	67-68-5	Not listed	Not listed	Not listed	Not listed	Not listed

**(g) reproductive toxicity;** Based on available data, the classification criteria are not met

**(h) STOT-single exposure;** Based on available data, the classification criteria are not met

**(i) STOT-repeated exposure;** Based on available data, the classification criteria are not met

**Target Organs** None known.

**(j) aspiration hazard;** Based on available data, the classification criteria are not met

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Other Adverse Effects** The toxicological properties have not been fully investigated.

**Endocrine Disrupting Properties** This product does not contain any known or suspected endocrine disruptors.

## 12. Ecological information

### Ecotoxicity

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. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Dimethyl sulfoxide	EC50 96h 12350 - 25500 mg/L	40 g/L LC50 96 h 33-37 g/L LC50 96 h	= 16000 mg/L EC50 Pseudomonas putida 16 h = 32 g/L EC50 Tetrahymena pyriformis 24 h = 77 mg/L EC50 Photobacterium phosphoreum 5 min	EC50 24h 7000 mg/L

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Dimethyl sulfoxide	-1.35

## 13. Disposal considerations

**Waste Disposal Methods** 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.

## 14. Transport information

**DOT** COMBUSTIBLE LIQUID, NOT REGULATED FOR TRANSPORT IN THIS QUANTITY  
According to 49 CFR §173.150(f)(1), this material should be reclassified as NA1993, Combustible Liquid, NOS if it is shipped in bulk

**UN-No** NA1993  
**Proper Shipping Name** Combustible liquid, n.o.s.  
**Packing Group** III  
**TDG** Not regulated  
**IATA** Not regulated  
**IMDG/IMO** Not regulated

## 15. Regulatory Information

### United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Dimethyl sulfoxide	67-68-5	X	ACTIVE	-

#### Legend:

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)** Not applicable

**TSCA 12(b) - Notices of Export** Not applicable

### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea

(KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Dimethyl sulfoxide	67-68-5	X	-	200-664-3	X	X	X	X	X	KE-32367

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)**U.S. Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA - Occupational Safety and Health Administration** Not applicable

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dimethyl sulfoxide	-	X	-	-	-

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** Slight risk, Grade 1

**Authorisation/Restrictions according to EU REACH**

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Dimethyl sulfoxide	67-68-5	-	Use restricted. See entry	-

			75. (see link for restriction details)	
--	--	--	---	--

**REACH links**

<https://echa.europa.eu/substances-restricted-under-reach>

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

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Dimethyl sulfoxide	67-68-5	Listed	Not applicable	Not applicable	Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**

Not applicable

**Other International Regulations**

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable	Not applicable

## 16. Other Information

**Prepared By**

Health, Safety and Environmental Department  
 Email: chem.techinfo@thermofisher.com  
 www.thermofisher.com

**Creation Date**

23-Jan-2009

**Revision Date**

21-Dec-2025

**Print Date**

21-Dec-2025

**Revision Summary**

Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**