

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**Product Identifier**

**Product Description:** Dimethyl sulfoxide  
**Cat No. :** D/4125/PB07, D/4125/99, D/4125/PB17, D/4125/PB08, D/4125/21RSS, D/4125/10RSS, D/4125/25RSS, D/4125/30RSS, D/4125/27RSS  
**Synonyms** Dimethyl sulfoxide; DMSO  
**CAS No** 67-68-5  
**Molecular Formula** C<sub>2</sub> H<sub>6</sub> O S

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

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

**Details of the supplier of the safety data sheet**

<b>Importer</b> Fisher Scientific Korea D5,D6, Incheon Airport Logistics Complex 150, Gonghangdong-Ro Mapo-Gu 296 Beon-Gil Jung-Gu, Incheon 400-340 Tel: +82-2-6196-5500 Fax: +82-2-6196-5501	<b>Supplier</b> Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom
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**E-mail address** Chem.KR@thermofisher.com

**Emergency Telephone Number**

**Emergency telephone:** Medical: +(82) 070-7686-0086 or + 1-703-741-5970  
CHEMTREC: 1-800-424-9300 or + 1-703-527-3887  
Korea: 00-308-13-2549 (24 hours a day, 7 days a week)

**SECTION 2: HAZARDS IDENTIFICATION**

**Classification of the substance or mixture**

**Physical hazards**

Flammable liquids

Category 4

**Health hazards**

Based on available data, the classification criteria are not met

**Environmental hazards**

Based on available data, the classification criteria are not met

**Label Elements**

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## Signal Word

Warning

### Hazard Statements

H227 - Combustible liquid

### Precautionary Statements

#### Prevention

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P280 - Wear protective gloves/protective clothing/eye protection/face protection

#### Response

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

#### Storage

P403 - Store in a well-ventilated place

#### Disposal

P501 - Dispose of contents/container to industrial incineration plant

### Other Hazards

DMSO readily penetrates skin and may carry other dissolved chemicals into the body  
Toxic to terrestrial vertebrates

### NFPA

Health  
2 \*

Flammability  
2

Instability  
1

Physical hazards  
N/A

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	Common Name	CAS No	Index No	Weight %
Dimethyl sulfoxide	Dimethyl sulfoxide; DMSO	67-68-5	KE-32367	99 - 100

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### General Advice

If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

#### Eye Contact

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

#### Skin Contact

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

#### Ingestion

Do NOT induce vomiting. Get medical attention.

#### Inhalation

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

#### Self-Protection of the First Aider

No special precautions required.

### Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness,

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nausea and vomiting.

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

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### Special hazards arising from the substance or mixture

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.

### Advice for fire-fighters

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

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

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 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.

### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe 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.

### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

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## Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Component	CAS No	Korea	ACGIH TLV	OSHA PEL
Dimethyl sulfoxide	67-68-5	Not listed	Not listed	Not listed

Component	CAS No	European Union	The United Kingdom	Germany
Dimethyl sulfoxide	67-68-5	Not listed	Not listed	TWA: 50 ppm (8 Stunden). AGW - exposure factor 2 TWA: 160 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 50 ppm (8 Stunden). MAK TWA: 160 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 100 ppm Höhepunkt: 320 mg/m <sup>3</sup> Haut

### Biological Exposure Indices

Component	CAS No	Biological Exposure Indices
Dimethyl sulfoxide	67-68-5	Not listed

### Exposure Controls

#### 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 Protection**

Wear safety glasses with side shields (or goggles)

##### **Hand Protection**

Protective gloves

##### **Skin and body protection**

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

##### **Personal protective equipment**

Use only those certified by the Korea Occupational Safety and Health Administration.

##### **Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

##### **Recommended Filter type:**

Particle filter

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

### Environmental exposure controls

Prevent product from entering drains

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance (Physical State, Color, etc.) Colorless Liquid

Odor Odorless  
Odor Threshold No data available  
pH No information available

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 **Method** - No information available

Evaporation Rate No information available  
Flammability (solid,gas) Not applicable Liquid  
Explosion Limits **Lower** 2.6 Vol%  
**Upper** 42 Vol%

Vapor Pressure 0.55 mbar @ 20°C  
Vapor Density 2.7 (Air = 1.0)  
Specific Gravity / Density 1.100  
Bulk Density Not applicable Liquid  
Water Solubility Soluble  
Solubility in other solvents No information available

### Partition Coefficient (n-octanol/water)

Component	CAS No	log Pow
Dimethyl sulfoxide	67-68-5	-1.35

Autoignition Temperature 301 °C / 573.8 °F  
Decomposition Temperature > 190°C  
Viscosity 1.98 mPa.s @ 25°C  
Explosive Properties explosive air/vapour mixtures possible  
Oxidizing Properties No information available

Molecular Formula C<sub>2</sub> H<sub>6</sub> O S  
Molecular Weight 78.13

## SECTION 10: STABILITY AND REACTIVITY

Reactivity None known, based on information available

Chemical Stability Hygroscopic.

### Possibility of Hazardous Reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.  
**Hazardous Reactions** Thermal decomposition can take place above 189°C / 372°F.

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## 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.

## SECTION 11: TOXICOLOGICAL INFORMATION

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

#### Product Information

#### Information on expected route of exposure

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

#### Information on Health Hazards

##### (a) acute toxicity;

**Oral** Based on available data, the classification criteria are not met  
**Dermal** Based on available data, the classification criteria are not met  
**Inhalation** Based on available data, the classification criteria are not met

Component	CAS No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dimethyl sulfoxide	67-68-5	LD50 = 28300 mg/kg ( Rat )	LD50 = 40000 mg/kg ( Rat )	LC50 > 5.33 mg/L ( Rat ) 4 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

##### (d) respiratory or skin sensitization;

**Respiratory** No data available  
**Skin** No data available

Component	CAS No	Test method	Test species	Study result
Dimethyl sulfoxide	67-68-5	No data available	No data available	No data available

(e) germ cell mutagenicity; No data available

Component	CAS No	Test method	Test species	Study result
Dimethyl sulfoxide	67-68-5	No data available	No data available	No data available

(f) carcinogenicity; No data available

Component	CAS No	Test method	Test species / Duration	Study result
Dimethyl sulfoxide	67-68-5	No data available	No data available	No data available

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There are no known carcinogenic chemicals in this product

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

**(g) reproductive toxicity;** No data available

Component	CAS No	Test method	Test species / Duration	Study result
Dimethyl sulfoxide	67-68-5	No data available	No data available	No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** None known.

**(j) aspiration hazard;** No data available

**Other Adverse Effects**

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

Component	CAS No	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity effects** 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	CAS No	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Dimethyl sulfoxide	67-68-5	40 g/L LC50 96 h 33-37 g/L LC50 96 h	EC50 24h 7000 mg/L	EC50 96h 12350 - 25500 mg/L	= 16000 mg/L EC50 Pseudomonas putida 16 h = 32 g/L EC50 Tetrahymena pyriformis 24 h = 77 mg/L EC50 Photobacterium phosphoreum 5 min

**Persistence and degradability**

**Persistence** Persistence is unlikely.  
**Degradation in sewage treatment plant** Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative potential** Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Dimethyl sulfoxide	-1.35	No data available

**Mobility in soil** The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

**Ozone Depletion Potential**

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Component	CAS No	Ozone Depletion Potential
Dimethyl sulfoxide	67-68-5	Not listed

**Other adverse effects** No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Waste from Residues/Unused Products** 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** Empty containers should be taken to an approved waste handling site for recycling or disposal.

**Other Information** Do not flush to sewer.

## SECTION 14: TRANSPORT INFORMATION

**Road and Rail Transport** Not Regulated

**IATA** Not regulated

**IMDG/IMO**  
**Marine Pollutant** Not regulated  
No hazards identified

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

**Legend:** X - Listed '-' - Not Listed

**International Inventories**

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

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

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential
Dimethyl sulfoxide	67-68-5	Listed	Not applicable	Not applicable

**Korean National Regulations**

Component	CAS No	Act on Registration and Evaluation of Chemical Substances (K-REACH)	Authorised Chemicals	Existing Substances Subject to Registration
Dimethyl sulfoxide	67-68-5	Annex 1 - KE-32367	Not applicable	Not applicable

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Component	CAS No	Chemical Control Act - Toxic Chemicals	Chemical Control Act - Prohibited Chemicals	Chemical Control Act - Use Restricted Chemicals
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable

Component	CAS No	Chemical Control Act - Accident Precaution Chemicals (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Storage (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Manufacture/Use (% in mixtures)
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable

Component	CAS No	Waste Control Law	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Harmful Agents Subject to Work Environment Monitoring	ISHA - Prohibited substances	ISHA - Substances requiring permission
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Substances subject to control	ISHA - Harmful Agents Requiring Health Examination	ISHA - Permissible Exposure Limits
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Subject to Process Safety Reports (minimum quantity)	ISHA - Threshold Limit Values (TLVs) Chemicals	ISHA - Special management materials
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable

**National Fire Association - Dangerous Substances** Minimum quantity requiring a permit

Component	CAS No	Class 1 - Oxidising solids	Class 2 - Flammable solid	Class 3 - Spontaneously Combustible Substances and Dangerous Substances When Wet	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable	5. Group 3 Petroleum (Soluble) 4000 L	Not applicable	Not applicable

**Control Parameters**

Component	CAS No	Korea	Biological Exposure Indices
Dimethyl sulfoxide	67-68-5	Not listed	Not listed

**US Management Information**

OSHA - Occupational Safety and Health Administration

Not applicable

Component	CAS No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable

**CERCLA** Not applicable

Component	CAS No	CERCLA EHS RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %

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Dimethyl sulfoxide	67-68-5	Not applicable	Not applicable	Not applicable
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## CLP Classification - Regulation (EC) No 1272/2008

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

Combustible liquid.

## SECTION 16: OTHER INFORMATION

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** (volatile organic compound)

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

**Creation Date** 23-Jan-2009

**Revision Date** 01-Apr-2022

**Revision Number** 5

**Revision Summary** SDS sections updated.

## MOEL's Public Notice No. 2020-130 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

### 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

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**End of Safety Data Sheet**