

# SAFETY DATA SHEET

## Dimethyl Sulfoxide (DMSO)

### 1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

**Product Identifier:** High Purity Chemicals  
**Synonyms:** Methyl sulfoxide; DMSO; Sulfinylbis[Methane]; methylsulfinylmethane  
**Other means of identification:** CAS No. 67-68-5  
EINECS No. 200-664-3

#### Recommended use of the chemical and restrictions on use:

#### Supplier Details:

**Greenfield Global USA, Inc.**  
1101 Isaac Shelby Drive, Shelbyville,  
KY 40065, USA.  
Tel: 502.232.7600  
Fax: 502.633.6100  
CCN17213

**Greenfield Global USA, Inc.**  
58 Vale Road, Brookfield,  
CT 06804, USA.  
Tel: 203.740.3471  
Fax: 203.740.3481  
CCN17213

**Emergency Contact:** CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview:

Use extra caution when handling a DMSO solution containing toxic materials. DMSO is easily absorbed through human skin, and can carry the toxic substances along with it.

#### OSHA Hazards:

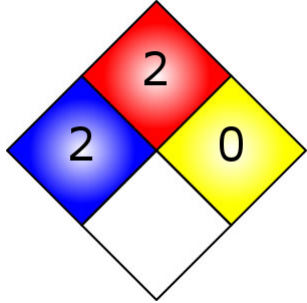
Combustible liquid, Target organ effect

#### Target Organs:

Eyes, Skin



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)  
NFPA +1.703.527.3887 (INT)



GHS label elements, including precautionary statements



**Signal Word:**  
WARNING!

**Hazard statement(s)**

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

**GHS Classification(s)**

Eye irritation (Category 2)  
Skin irritation (Category 2)  
Specific target organ toxicity - single exposure (Category 3)

**Other hazards which do not result in classification:**

**Potential Health Effects:**

Organ	Description
Eyes	May cause eye irritation.
Ingestion	May be harmful if swallowed.
Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.

**3. COMPOSITION AND INFORMATION ON INGREDIENTS**

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)**

<b>Chemical identity:</b>	Dimethyl Sulfoxide	<b>+1.703.527.3887 (INT)</b>
<b>Common name / Synonym:</b>	Methyl sulfoxide; DMSO; Sulfinylbis[Methane]; methylsulfinylmethane	
<b>CAS number:</b>	67-68-5	
<b>EINECS number:</b>	200-664-3	
<b>ICSC number:</b>	0459	
<b>RTECS #:</b>	PV6210000	
<b>EC #:</b>	200-664-3	

% Weight	Material	CAS
100	Dimethyl Sulfoxide	67-68-5

## 4. FIRST AID MEASURES

### General advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### Skin

Wash skin with soap and copious amounts of water. Seek medical attention.

### Inhalation

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

### Eyes

Flush eyes with water as a precaution.

### Ingestion

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

## 5. FIRE FIGHTING MEASURES

### Suitable (and unsuitable) extinguishing media:

SMALL FIRE: Use dry chemicals, CO<sub>2</sub>, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam. Cool all affected containers with flooding quantities of water.

### Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

Carbon oxides, sulfur oxides expected to be the primary hazardous combustion products.

### Special protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.



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**Flammable Properties**

**+1.703.527.3887 (INT)**

**Classification**

OSHA/NFPA Class IIIA Combustible Liquid.

**Flash point**

87 °C (189 °F) - closed cup

**Autoignition temperature**

215 °C (419 °F)

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures:

Do not inhale vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

### Environmental precautions:

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

### Methods and materials for containment and cleaning up:

Contain spill, then collect with an electrically protected vacuum cleaner or by wet-brushing and put the material into a convenient waste disposal container. Keep container closed.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling:

Do not get on skin or in eyes. Do not inhale vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

### Conditions for safe storage, including any incompatibilities:

Container must be sealed tightly and kept in a dry, well-ventilated space. Avoid moisture. Store under inert gas.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters, e.g., occupational exposure limit values or biological limit values:

#### Occupational Exposure Limits

Component	Source	Type	Value	Note
Dimethyl Sulfoxide	US (WEEL)	TWA	250 ppm	

### Appropriate engineering controls:

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

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**Individual protection measures, such as personal protective equipment: +1.703.527.3887 (INT)**

**Respiratory protection:**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection:**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

**Skin and body protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Hygiene measures:**

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance (physical state, color, etc.)</b>	Liquid. Colorless, clear.
<b>Freezing point</b>	18 °C (65 °F)
<b>Initial boiling point and boiling range</b>	189 °C (372 °F)
<b>Flash point</b>	87 °C (189 °F) - closed cup
<b>Flammability (solid, gas)</b>	Combustible liquid
<b>Upper / Lower flammability or explosive limits</b>	2.6% (V) / 42% (V)
<b>Vapor pressure</b>	0.55 hPa (0.41 mmHg) at 20 °C (68 °F)
<b>Vapor Density</b>	2.7
<b>Relative Density</b>	1.1 g/mL at 25 °C (77 °F)
<b>Solubility(ies)</b>	soluble
<b>Auto-ignition temperature</b>	215 °C (419 °F)
<b>Formula (DIMETHYL SULFOXIDE)</b>	C <sub>2</sub> H <sub>6</sub> OS
<b>Molecular Weight (DIMETHYL SULFOXIDE)</b>	78.13 g/mol

## 10. STABILITY AND REACTIVITY



**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)**

<b>Possibility of hazardous reactions</b>	No data available	<b>+1.703.527.3887 (INT)</b>
<b>Conditions to avoid (e.g., static discharge, shock or vibration)</b>	Heat, flames, and sparks.	
<b>Incompatible materials</b>	Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents	
<b>Hazardous decomposition products</b>	Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulfur oxides	

## 11. TOXICOLOGICAL INFORMATION

- Dimethyl Sulfoxide 67-68-5

### Product Summary:

Laboratory tests have shown significant mutagenic, teratogenic, and reproductive effects in animals.

### Acute Toxicity:

LC50 (Inhalation)	Rat	40,250 ppm	
LD50 (Dermal)	Rabbit	> 5,000 mg/kg	
LD50 (Oral)	Rat	14,500 mg/kg	

### Irritation:

No data available

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### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Other Hazards

Organ	Description
Eyes	May be irritating to the eyes.
Ingestion	May be harmful if ingested.
Inhalation	May be harmful if inhaled. May be irritating to the respiratory tract.
Skin	May be harmful if absorbed through skin. May be irritating to the skin.



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## 12. ECOLOGICAL INFORMATION

- Dimethyl Sulfoxide 67-68-5
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**Ecotoxicity (aquatic and terrestrial, where available):**

**Acute Fish Toxicity (DIMETHYL SULFOXIDE)**

LC50 / 96 hours Fathead Minnow - 34,000 mg/L

**Toxicity to Daphnia (DIMETHYL SULFOXIDE)**

EC50 / Water flea - 27,500 mg/L

**Persistence and degradability:**

No data available

**Bioaccumulative potential:**

No data available

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## 13. DISPOSAL CONSIDERATIONS

**Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:**

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.  
Offer surplus and non-recyclable solutions to a licensed disposal company.

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## 14. TRANSPORT INFORMATION

**Description of waste residues and information on their safe handling and methods of disposal:**

<b>UN number</b>	Not a dangerous good.
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**IMDG**

UN-Number: Not a dangerous good.

Marine pollutant: No

**IATA**

UN-Number: Not a dangerous good.

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## 15. REGULATORY INFORMATION

**Safety, health and environmental regulations specific for the product in question:**

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)**  
**OSHA Hazards** **+1.703.527.3887 (INT)**

Combustible liquid, Target organ effect

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Chronic Health Hazard  
 Fire Hazard

**CERCLA**

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA

**Pennsylvania Right To Know Components**

Dimethyl sulfoxide CAS-No. 67-68-5 Revision Date 2007-03-01

**New Jersey Right To Know Components**

Dimethyl sulfoxide CAS-No. 67-68-5 Revision Date 2007-03-01

**California Prop 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.





**PHARMCO**  
by Greenfield Global

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)**

**16. OTHER INFORMATION:**

**+1.703.527.3887 (INT)**

**INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS**

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