Material Safety Data Sheet
Dimethyl Sulfoxide

ACC# 07770

Section 1 - Chemical Product and Company Identification

**MSDS Name:** Dimethyl Sulfoxide  
**Catalog Numbers:** S79994REAG, BP231-1, BP231-100, BP231-4, BP D128-500, D128FB200, D128POP19, D128POP200, D128POP50, D128RB200, D128RS50, D128SS200, D128SS50, D136-1, D137POP19, D137POP200, D137POP50, D137SS19, D137SS200, D137SS50, NC9007088, NC9529973, NC9530475, NC9531964, NC9750632, NC9934033, NC9969922, NC9981334, NC9994436, S67496, XXBP231208LI, XXBP23120BLI, XXBP23120BLI/, XXD128POPB200, XXEP231ET4LI  
**Synonyms:** Methyl sulfoxide; DMSO; Sulfinylbis(methane); Dimethyl sulfoxide.  
**Company Identification:**  
Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410  
For information, call: 201-796-7100  
Emergency Number: 201-796-7100  
For CHEMTREC assistance, call: 800-424-9300  
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-68-5</td>
<td>Dimethyl sulfoxide</td>
<td>100</td>
<td>200-664-3</td>
</tr>
</tbody>
</table>

**Hazard Symbols:** XI  
**Risk Phrases:** 36/37/38

Section 3 - Hazards Identification

**EMERGENCY OVERVIEW**

Appearance: clear liquid. May be absorbed through intact skin. Hygroscopic (absorbs moisture from the air). May cause liver and kidney damage. **Caution!** Causes eye and skin irritation. Causes respiratory tract irritation.  
**Target Organs:** Kidneys, liver, eyes, skin, mucous membranes.

**Potential Health Effects**  
**Eye:** Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause chemical conjunctivitis.
**Skin:** May cause irritation with burning pain, itching and redness. Substance is rapidly absorbed through the skin.

**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May cause garlic smell on the breath and body.

**Inhalation:** May cause respiratory tract irritation. Can produce delayed pulmonary edema.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis. May cause liver and kidney damage. Effects may be delayed.

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### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Ingestion:** Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

**Notes to Physician:** Treat symptomatically and supportively.

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### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.

**Extinguishing Media:** Cool containers with flooding quantities of water until well after fire is out. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Flash Point:** 95 deg C ( 203.00 deg F)

**Autoignition Temperature:** 215 deg C ( 419.00 deg F)

**Explosion Limits, Lower:** 2.6 vol %

**Upper:** 42 vol %

**NFPA Rating:** (estimated) Health: 1; Flammability: 1; Instability: 0

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### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Do not flush into a sewer. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.
Section 7 - Handling and Storage

Handling: Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use with adequate ventilation. Wash clothing before reuse.  
Storage: Keep away from heat, sparks, and flame. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.  
Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
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<tbody>
<tr>
<td>Dimethyl sulfoxide</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
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</tbody>
</table>

OSHA Vacated PELs: Dimethyl sulfoxide: No OSHA Vacated PELs are listed for this chemical.  
Personal Protective Equipment  
Eyes: Wear chemical goggles.  
Skin: Wear appropriate protective gloves to prevent skin exposure.  
Clothing: Wear appropriate protective clothing to prevent skin exposure.  
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid  
Appearance: clear  
Odor: slight odor - sulfurous odor - garlic-like odor  
PpH: Not available.  
Vapor Pressure: 0.4 mm Hg at 20  
Vapor Density: 2.7 (air=1)  
Evaporation Rate: Not available.  
Viscosity: 1.1cp @ 27 deg C  
Boiling Point: 189 deg C  
Freezing/Melting Point: 18.4 deg C  
Decomposition Temperature: > 200 deg C  
Solubility: Soluble.  
Specific Gravity/Density: 1.1010g/cm3  
Molecular Formula: C2H6OS  
Molecular Weight: 78.13
Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.
**Conditions to Avoid:** Excess heat.
**Incompatibilities with Other Materials:** Strong oxidizing agents, strong acids, strong bases.
**Hazardous Decomposition Products:** Carbon monoxide, oxides of sulfur, carbon dioxide.
**Hazardous Polymerization:** Has not been reported.

Section 11 - Toxicological Information

**RTECS#:**
**CAS# 67-68-5: PV6210000**
**LD50/LC50:**
**CAS# 67-68-5:**
Draize test, rabbit, eye: 100 mg;  
Draize test, rabbit, eye: 500 mg/24H Mild;  
Draize test, rabbit, skin: 500 mg/24H Mild;  
Oral, mouse: LD50 = 7920 mg/kg;  
Oral, rat: LD50 = 14500 mg/kg;  
Skin, rat: LD50 = 40 gm/kg; <BR.

**Carcinogenicity:**
CAS# 67-68-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
**Epidemiology:** No information available.
**Teratogenicity:** No information available.
**Reproductive Effects:** No information available.
**Neurotoxicity:** No information available.
**Mutagenicity:** No information available.
**Other Studies:** See actual entry in RTECS for complete information.

Section 12 - Ecological Information

**Ecotoxicity:** No data available. No information available.
**Environmental:** Terrestrial: Expected to be mobile in soil, due to its high water solubility. Some volatilization from dry soil and surfaces may be expected. Aquatic: Dimethyl sulfoxide disproportionates in water to dimethyl sulfide and dimethyl sulfone, a reaction catalyzed by light. Atmospheric: Exists primarily in the vapor phase and be removed by both wet and dry deposition. It will react with photochemically-produced hydroxyl radicals with a half-life of about 7 hr. DMSO is very difficult to biodegrade.
**Physical:** No information available.
**Other:** For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."
Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.
**RCRA U-Series:** None listed.

Section 14 - Transport Information

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<th>US DOT</th>
<th>IATA</th>
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<td><strong>Packing Group:</strong></td>
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Section 15 - Regulatory Information

**US FEDERAL**

**TSCA**
CAS# 67-68-5 is listed on the TSCA inventory.

**Health & Safety Reporting List**
None of the chemicals are on the Health & Safety Reporting List.

**Chemical Test Rules**
None of the chemicals in this product are under a Chemical Test Rule.

**Section 12b**
None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**
None of the chemicals in this material have a SNUR under TSCA.

**SARA**

**CERCLA Hazardous Substances and corresponding RQs**
None of the chemicals in this material have an RQ.

**SARA Section 302 Extremely Hazardous Substances**
None of the chemicals in this product have a TPQ.

**SARA Codes**
CAS # 67-68-5: acute, flammable.

**Section 313**
No chemicals are reportable under Section 313.

**Clean Air Act:**
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**
None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
CAS# 67-68-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**
XI

**Risk Phrases:**
R 36/37/38 Irritating to eyes, respiratory system and skin.

**Safety Phrases:**
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 37/39 Wear suitable gloves and eye/face protection.

**WGK (Water Danger/Protection)**
CAS# 67-68-5: 1

**Canada - DSL/NDSL**
CAS# 67-68-5 is listed on Canada's DSL List.

**Canada - WHMIS**
This product has a WHMIS classification of D2B.

**Canadian Ingredient Disclosure List**
CAS# 67-68-5 is listed on the Canadian Ingredient Disclosure List.

**Exposure Limits**
CAS# 67-68-5: OEL-RUSSIA: STEL 20 mg/m3 OEL-SWITZERLAND: TWA 50 ppm (160 mg/m3); Skin

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**Section 16 - Additional Information**

**MSDS Creation Date:** 12/12/1997  
**Revision #6 Date:** 2/05/2002

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.