1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name
Dimethyl Sulfoxide (DMSO)

Other means of identification

Product Code(s)
0231

Synonyms
No information available

Recommended use of the chemical and restrictions on use

Recommended Use
For Further Manufacturing Use Only.

Uses advised against
Not for Human or Animal Drug Use

Details of the supplier of the safety data sheet

Company Address
VWR International, LLC
Radnor Corporate Center
100 Matsonford Road
Radnor, PA 19087-8660

Manufacturer Address
VWR International, LLC
28600 Fountain Parkway
Solon, Ohio 44139

Distributor
AMRESCO INC.
6681 Cochran Road
SOLON, OHIO 44139

Company Phone Number
1.800.829.2805

E-mail Address
info@amresco-inc.com

Emergency Telephone Number
Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

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

<table>
<thead>
<tr>
<th>Hazard Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/Irritation</td>
</tr>
<tr>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
</tr>
<tr>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td>Category 3</td>
</tr>
<tr>
<td>Flammable liquids</td>
</tr>
<tr>
<td>Category 4</td>
</tr>
</tbody>
</table>

Label elements

Emergency Overview

Warning

Hazard statements
May cause respiratory irritation. May cause drowsiness or dizziness

H315 - Causes skin irritation
H319 - Causes serious eye irritation
H227 - Combustible liquid
Appearance  Clear Colorless  Physical State  Liquid  Odor  No information available

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep cool

Precautionary Statements - Response
Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
If ON SKIN: Wash with plenty of water and soap
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
In case of fire: Use CO2, dry chemical, or foam to extinguish

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazard  not otherwise classified (HNOC)
Not regulated

Other Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>EC No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>67-68-5</td>
<td>200-664-3</td>
<td>95-100</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First Aid Measures

Eye Contact  Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin Contact  Readily permeates skin; substances mixed with DMSO may be quickly absorbed. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation  Move to fresh air in case of accidental inhalation of vapors or decomposition products. Apply artificial respiration if victim is not breathing.

Ingestion  Never give anything by mouth to an unconscious person. Rinse mouth.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms/Effects  No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician  Treat symptomatically.
5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Dry chemical, CO2, water spray or regular foam.

**Unsuitable Extinguishing Media**
No information available.

**Specific Hazards Arising from the Chemical**
No information available.

<table>
<thead>
<tr>
<th>Hazardous Combustion Products</th>
<th>Carbon oxides. Sulfur oxides.</th>
</tr>
</thead>
</table>

**Explosion Data**
| Sensitivity to Mechanical Impact | None. |
| Sensitivity to Static Discharge  | None. |

**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.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal protection**
Ensure adequate ventilation, especially in confined areas.

**Environmental Precautions**
See Section 12 for additional Ecological information.

**Methods and Material for Containment and Cleaning Up**

**Methods for Containment**
Prevent further leakage or spillage if safe to do so.

**Methods for Cleaning Up**
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete. Use non-sparking tools and equipment.

7. HANDLING AND STORAGE

**Precautions for Safe Handling**

**Handling**

**Conditions for Safe Storage, Including Any Incompatibilities**

**Storage**
Keep containers tightly closed in a dry, cool and well-ventilated place. Hygroscopic. Protect from light and moisture.

**Incompatible Products**

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
67-68-5

Appropriate engineering controls

**Engineering Measures**
- Showers
- Eyewash stations
- Ventilation systems.

**Individual protection measures, such as personal protective equipment**

- **Eye/Face Protection**
  - Safety glasses with side-shields.

- **Skin and Body Protection**
  - Wear protective gloves/clothing.

- **Respiratory Protection**
  - If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Hygiene Measures**
- Handle in accordance with good industrial hygiene and safety practice.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear Colorless</td>
<td>Odor threshold</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>18 °C</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>189 °C</td>
<td></td>
</tr>
<tr>
<td>Flash Point (High in °C)</td>
<td>89 °C / 192 °F</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Water Solubility</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>301 °C</td>
<td></td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Softening Point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>VOC Content</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

**Other Information**

### 10. STABILITY AND REACTIVITY

**Reactivity**
Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Hygroscopic. Protect from heat and light.

Incompatible Materials

Hazardous Decomposition Products
Carbon oxides. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation
May cause drowsiness and dizziness based on components. May cause irritation of respiratory tract.

Eye Contact
Irritating to eyes.

Skin Contact
Irritating to skin.

Ingestion
There is no data available for this product.

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization
No information available.

Mutagenic Effects
No information available.

Carcinogenicity
No information available.

Chemical Name | ACGIH | IARC | NTP | OSHA
--- | --- | --- | --- | ---
Dimethyl Sulfoxide 67-68-5 | - | - | - | -

Reproductive Toxicity
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Target Organ Effects
Eyes, Skin.

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document.

12. ECOLOGICAL INFORMATION

Ecotoxicity

100% of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Toxicity to Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>12350 - 25500: 96 h</td>
<td>33 - 37: 96 h</td>
<td>7000: 24 h</td>
</tr>
<tr>
<td></td>
<td>Skeletonema costatum</td>
<td>Oncorhynchus mykiss</td>
<td>Daphnia species</td>
</tr>
<tr>
<td></td>
<td>67-68-5</td>
<td>g/L LC50 static</td>
<td>mg/L EC50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41.7: 96 h</td>
<td>EC50</td>
</tr>
</tbody>
</table>
Persistance and Degradability
No information available.

Bioaccumulation/Accumulation
No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td></td>
</tr>
<tr>
<td>67-68-5</td>
<td>-</td>
</tr>
</tbody>
</table>

Other Adverse Effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Method
Dispose of material in accordance with all federal, state, and local regulations.

Contaminated Packaging
Do not re-use empty containers.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>67-68-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>California Hazardous Waste Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>-</td>
</tr>
<tr>
<td>67-68-5</td>
<td></td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
Not regulated

IATA
Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL/NDSL Complies
EINECS/ELINCS Complies
ENCS Complies
IECSC Complies
KECL Complies
PICCS Complies
AICS Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

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.

<table>
<thead>
<tr>
<th>Component</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>-</td>
</tr>
<tr>
<td>67-68-5 (95-100)</td>
<td></td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: Yes
Sudden Release of Pressure Hazard: No
Reactive Hazard: No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>67-68-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>Extremely Hazardous Substances RQs</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>67-68-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U.S. State Regulations

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>-</td>
</tr>
<tr>
<td>67-68-5</td>
<td></td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>67-68-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U.S. EPA Label Information

EPA Pesticide Registration Number: Not regulated

16. OTHER INFORMATION

Issuing Date: 01-May-2009
Revision Date: 08-Jan-2016
Revision Note: No information available

Disclaimer
The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with
regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and its Affiliates shall not be held liable for any damage resulting from handling.

End of Safety Data Sheet