

1. Product and Company Identification

Material name	DIMETHYL SULFOXIDE
Version #	03
Revision date	08-26-2011
CAS #	67-68-5
Product Codes	J.T.Baker: 6346, 9033, 9194, 9224, 9225 Macron: 0042, 11400, 2969, 4948
Synonym(s)	Methyl sulfoxide * DMSO * Sulfinyl bis(methane)
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	CAUTION
	Combustible liquid and vapor. May burn, but does not ignite readily.
	May cause eye irritation. Prolonged or repeated skin contact may cause drying, cracking, or irritation.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	May cause temporary eye irritation.
Skin	May cause skin irritation in susceptible persons. Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.
Inhalation	High mist concentrations may cause irritation of respiratory tract.
Ingestion	Expected to be a low ingestion hazard. May cause irritation of the gastrointestinal tract.
Target organs	Eyes. Skin.
Chronic effects	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Potential environmental effects	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

Non-hazardous components	CAS #	Percent
DIMETHYL SULFOXIDE	67-68-5	99 - 100

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops or persists.
Skin contact	Wash skin with soap and water. Get medical attention if symptoms occur.

Inhalation	Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.
Ingestion	Seek medical advice. If ingestion of a large amount does occur, call a poison control center immediately.
Notes to physician	Treat symptomatically.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	Combustible liquid and vapor. Vapors may ignite. Vapors may travel considerable distance to a source of ignition and flash back.
Extinguishing media	
Suitable extinguishing media	Water spray. Foam. Dry powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	None known.
Protection of firefighters	
Specific hazards arising from the chemical	May burn, but does not ignite readily. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard.
Protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Some of these materials, if spilled, may evaporate leaving a flammable residue. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Specific methods	In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers.
Hazardous combustion products	Carbon monoxide and carbon dioxide. Sulfur oxides.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible.
Methods for cleaning up	<p>Use only non-sparking tools. All equipment used when handling the product must be grounded.</p> <p>Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Dike far ahead of spill for later disposal.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Collect in a non-combustible container for prompt disposal.</p> <p>Never return spills in original containers for re-use. Clean surface thoroughly to remove residual contamination. Clean up in accordance with all applicable regulations.</p>

7. Handling and Storage

Handling

DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Wear appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure Controls / Personal Protection

Occupational exposure limits

U.S. - WEEL

Material	Type	Value
DIMETHYL SULFOXIDE (67-68-5)	TWA	250.0000 ppm

Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Explosion proof exhaust ventilation should be used.

Personal protective equipment

Eye / face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

Respiratory protection

Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General hygiene considerations

Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

General

Wear chemical protective equipment that is specifically recommended by the manufacturer. Launder contaminated clothing before reuse.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless.
Odor	Pungent.
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	Not available.
Melting point	64.4 °F (18.45 °C)
Freezing point	64.4 °F (18.45 °C)
Boiling point	372.2 °F (189 °C)
Flash point	192.2 °F (89 °C) Closed Cup
Evaporation rate	4.3 BuAc
Flammability limits in air, upper, % by volume	42 %
Flammability limits in air, lower, % by volume	2.6 %
Vapor pressure	0.08133 kPa at 25°C
Vapor density	Not available.

Specific gravity	1.1
Relative density	Not available.
Solubility (water)	Miscible.
Partition coefficient (n-octanol/water)	-2.03
Auto-ignition temperature	419 °F (215 °C)
Molecular weight	78.13 g/mol
Molecular formula	C2-H6-O-S

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions. The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Conditions to avoid	Heat, sparks, flames.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong bases. Inorganic halides.
Hazardous decomposition products	Carbon monoxide. Carbon Dioxide. Sulfur oxides.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data	
Product	Test Results
DIMETHYL SULFOXIDE (67-68-5)	Acute Oral LD50 Rat: 14500 g/kg
Sensitization	Not a skin sensitizer.
Acute effects	Low hazard for usual industrial or commercial handling.
Local effects	May cause eye irritation. Prolonged or repeated skin contact may cause drying, cracking, or irritation.
Chronic effects	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Causes mild skin irritation.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Reproductive effects	Contains no ingredient listed as toxic to reproduction
Teratogenicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Symptoms and target organs	Mild eye irritation. Mild skin irritation.

12. Ecological Information

Ecotoxicological data	
Product	Test Results
DIMETHYL SULFOXIDE (67-68-5)	LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 33000 mg/l 96.00 hours
Ecotoxicity	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	The product is not readily biodegradable.

Partition coefficient
(n-octanol/water) -2.03

13. Disposal Considerations

Disposal instructions Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

CERCLA (Superfund) reportable quantity
None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Saf-T-Data

Health: 1 - Slight

Flammability: 2 - Moderate

Reactivity: 1 - Slight

Contact: 2 - Moderate

Lab Protective Equip: BB - GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: R - Red (Flammable)

16. Labeling Info

Label Hazard Warning

CAUTION

Combustible liquid and vapor. May cause eye irritation. Prolonged or repeated skin contact may cause drying, cracking, or irritation.

Label Precautions

Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Keep container closed.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if irritation develops or persists. If ingestion of a large amount does occur, call a poison control center immediately.

17. Other Information

NFPA ratings

Health: 1

Flammability: 2

Instability: 0

Disclaimer

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