

Section 1. Product and Company Identification

Product Name Dimethyl Sulfoxide
CAS Number 67-68-5

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Section 2. Hazards Identification

Classification of the substance or mixture

Combustible Liquid; H227
Skin Irrit. 2; H315 Causes skin irritation.
Eye Irrit. 2; H319 Causes serious eye irritation.

GHS Label Elements

Pictograms:



Signal word: WARNING

Hazard and precautionary statements

Hazard Statements

H227 Combustible liquid.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary Statements

Prevention

P210 Keep away from heat | sparks | open flames | hot surfaces - No smoking.
P264 Wash thoroughly after handling.
P280 Wear protective gloves | eye protection | face protection.

Response

P302+352 IF ON SKIN: Wash with plenty of soap and water.
P305+351 +338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.



P321 Specific treatment (see information on this label).
P337+313 If eye irritation persists: Get medical advice I attention.
P362 Take off contaminated clothing and wash before reuse.

Storage

P403+235 Store in a well ventilated place. Keep cool.

Disposal

P501 Dispose of contents I container in accordance with local I national regulations.

Hazards not otherwise classified (HNOC) or not covered by GHS: None

Most important symptoms and effects, both acute and delayed

Overview - Effects of Overexposure

General: DMSO has shown very few toxic symptoms in humans. The most common are nausea, skin rashes and an unusual garlic-onion-oyster smell on body and breath.

Inhalation: High vapor concentrations may cause headache, dizziness, and sedation.

Eyes: Low hazard for usual industrial/ commercial handling by trained personnel.

Skin: Stinging and burning of the skin as well as rashes and vesicles have been seen. A heat reaction may occur if applied to wet skin. Avoid contact with DMSO solutions containing toxic material or materials whose toxicological properties are not known. DMSO easily penetrates the skin and may enhance the rate of skin absorption of skin-permeable substances. But because of DMSO's low toxicity and its inability to carry less-permeable substances with it through the skin, it can be concluded that DMSO does not pose a significant threat by skin absorption.

Ingestion: A low ingestion hazard. See section 2 for further details.

Eyes Causes serious eye irritation.

Skin: Causes skin irritation.

Section 3. Composition / Information on Ingredients

Common Name Dimethyl Sulfoxide
Synonym(s) DMSO; Sulfinyl bismethane
CAS Number 67-68-5

COMPONENT	CAS NUMBER	CONCENTRATION
Dimethyl Sulfoxide	67-68-5	75 – 100%

Section 4. First Aid Measures

Description of first aid measures

General: In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. In general, DMSO is not dangerous to people, but like any other chemical, it should be treated with care, respect and common sense.

Inhalation: Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.



Eye Contact: Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Contact: Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion: If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Section 5. Firefighting Measures

Extinguishing media: Alcohol resistant foam, CO₂, powder, water spray.

Special hazards arising from the substance or mixture: Hazardous decomposition: Sulfur dioxide, formaldehyde, methyl mercaptan, dimethyl sulfide, dimethyl disulfide, and bis(methylthio)methane.

Keep away from heat/sparks/open flames/hot surfaces - No smoking.

Advice for firefighters: Special Exposure Hazards: Burning dimethyl sulfoxide produces poisonous gases (sulfur oxides). Wear rubber gloves, SCBA, and rubber suit. Wear positive pressure, self-contained breathing apparatus, (SCBA) with a full face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean-up immediately after fire. No smoking.

ERG Guide No. 128

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: In case of mist formation use a respirator or self-contained breathing apparatus (SCBA). Put on appropriate personal protective equipment (see section 8).

Environmental precautions: Do not allow spills to enter drains or waterways. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Methods and material for containment and cleaning up: If a spill or leak occurs, immediately consult your environmental supervisor. Remove ignition sources. Ventilate the area. Do not breathe the vapor or get liquid in eyes or on skin/clothing.

Dilute and flush to wastewater treatment or absorb with inert material. Do not allow the material to enter streams or waterways.

Section 7. Handling and Storage

Precautions for safe handling

Keep away from sources of ignition. No smoking. Do not breathe vapor or mist. Avoid contact with skin, eyes, or clothing. Store in accordance with the National Fire Protection Association's



publication NFPA 30, Flammable and Combustible Liquids Code. 29 CFR 191 0.1 06 applies to the handling, storage, and use of flammable and combustible liquids.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed, in a well-ventilated place. Freezes (solidifies) at 18°C (64°F). Store in a cool dry area, away from heat, sparks and open flame. Keep containers sealed when not in use. Store out of direct sunlight. Prolonged heating above 150°C (302°F) can cause rapid, exothermic decomposition.

Incompatible materials: Organic and inorganic acid chlorides, strong oxidizing agents, alkali metals, hydrobromic acid, acidic solutions of alkali bromides.

Section 8. Exposure Controls / Personal Protection

Control Parameters

Exposure

OSHA: No Established Limit

ACGIH: No Established Limit

NIOSH: No Established Limit

Supplier: No Established Limit

Carcinogen Data

OSHA: N/A

NTP: No known or suspected carcinogens

IARC: No Group 1, Group 2a, Group 2b, Group 3, or Group 4

Exposure Controls

Respiratory: In case of mist formation use a respirator. Respirator type: organic vapor cartridge, SCBA or SAR. If respirators are used, a program should be instituted to assure compliance with OSHA standard 29 CFR 191 0.134

Eyes: Safety glasses with side shield, tight-fitting goggles or face shield.

Skin: Butyl rubber or nitrile (NBR) rubber gloves. Rubber apron and boots if splash hazard.

Engineering Controls: Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

Other Work Practices: Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Section 9. Physical and Chemical Properties

Appearance: Colorless Liquid

Odor: Odorless

Odor Threshold: Not measured

pH: 8.5 (50/50 in water)

Melting point | freezing point: 18°C (64°F)



Initial boiling point and boiling range: 189°C (372°F)
Flash Point (Closed Cup): 89°C (192°F)
Flash Point (Open Cup): 95°C (203°F)
Evaporation rate (Ether = 1): 0.026 (n-Butyl Acetate= 1)
Flammability (solid, gas): Not applicable

Upper/lower flammability or explosive limits

Lower Explosive Limit: 3.0 - 3.5% by volume

Upper Explosive Limit: 42 - 63% by volume

Vapor pressure (20°C/68°F): 0.55 mbar (0.46 mmHg)

Vapor Density: 2.7

Specific Gravity (20°C/68°F): 1.1 (water=1)

Solubility in Water: Miscible

Partition coefficient (n-Octanol/Water): logKow: Not measured

Auto-ignition temperature: 300 - 302°C (572 - 575°F)

Decomposition temperature: Not measured

Viscosity: 2.0 mPa*s or cPs (@ 25°C/77°F)

Partition coefficient (n-Octanol/Water): logPow: -2.03

Other information: No other relevant information.

Section 10. Stability and Reactivity

Reactivity: Hazardous Polymerization will not occur.

Chemical stability: Stable under normal circumstances.

Possibility of hazardous reactions: No data available.

Conditions to avoid: Prolonged heating above 150°C {302°F} can cause rapid, exothermic decomposition.

Incompatible materials: Organic and inorganic acid chlorides, strong oxidizing agents, alkali metals, hydrobromic acid, acidic solutions of alkali bromides.

Hazardous decomposition products: Sulfur dioxide, formaldehyde, methyl mercaptan, dimethyl sulfide, dimethyl disulfide, and bis (methylthio) methane.

Section 11. Toxicological Information

Acute Toxicity

Ingredient: Methane, sulfinylbis- (CAS# 67-68-5)

LD50 - Oral: 14,500.00 mg/kg (Rat)

LD50 - Skin: 5,000.00 mg/kg - Category 5(Rabbit)

LD50 - Inhalation, Vapor (4hr): No data available

LD50 - Inhalation, Dust/Mist (4hr): No data available

LD50 - Inhalation, Gas (4hr): 40,250.00 ppm (Rat)



Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute Toxicity (Oral)	-	Not applicable
Acute Toxicity (Dermal)	-	Not applicable
Acute Toxicity (Inhalation)	-	Not applicable
Skin Corrosion/Irritation	2	Causes skin irritation
Serious eye damage/irritation	2	Causes serious eye irritation
Respiratory Sensitization	-	Not applicable
Skin Sensitization	-	Not applicable
Germ Cell Mutagenicity	-	Not applicable
Carcinogenicity	-	Not applicable
Reproductive Toxicity	-	Not applicable
STOT - single exposure	-	Not applicable
STOT - repeated exposure	-	Not applicable
Aspiration Hazard	-	Not applicable

Section 12. Ecological Information

Toxicity: No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient: Methane, sulfinylbis- (CAS# 67-68-5)

LC50 - Fish (96hr): 34,000.00 mg/L, Pimephales promelas

EC50 - Crustacea (48hr): 25,000.00 mg/L, Daphnia magna

ErC50 - Algae (96hr): 12,350.00 mg/L, Skeletonema costatum

Persistence and degradability: There is no data available on the preparation itself.

Bioaccumulative potential: Not Measured

Mobility in soil: No data available.

Results of PBT and vPvB assessment: This product contains no PBT/vPvB chemicals.

Other Adverse Effects

Biological Oxygen Demand: N/A

Theoretical Oxygen Demand at 10 ppm: 123mg oxygen

Chemical Oxygen Demand at 10 ppm: 107 mg/L

Biological Oxygen Demand-S at 10 ppm: ~ 1.0 mg/L



Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT (Domestic Surface Transportation)

UN Number: NA1993

UN Proper Shipping Name: Combustible liquid, n.o.s., (Dimethyl Sulfoxide)

DOT Hazard Class: 3

DOT Label: Combustible liquid

<119 gallons: Not regulated

> 119 gallons: Combustible PG III

IMO /IMDG (Ocean Transportation): Not regulated

ICAO/IATA: Not regulated

Environmental hazards

IMDG Marine Pollutant: No

Special precautions for user: No further information

Section 15. Regulatory Information

Regulatory Overview: The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA): All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification: B3 D2B

US EPA Tier II Hazards

Fire: Yes

Sudden Release of Pressure: No

Reactive: No

Immediate (Acute): Yes

Delayed (Chronic): No

EPCRA 311/312 Chemicals and RQs: To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous: To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals: To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.



Proposition 65 - Carcinogens (> 0.0%): To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65- Developmental Toxins (> 0.0%): To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65- Female Repro Toxins (> 0.0%): To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65- Male Repro Toxins (> 0.0%): To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

N.J. RTK Substances (> 1%): Methane, sulfinylbis-

Penn RTK Substances (> 1%): To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Section 16. Other Information

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.

REVISION DATE: 8/26/2015

