Safety Data Sheet

Revision Date: 4/5/2022

Section 1: Chemical Identification

1.1 Chemical Identification

Product Name: DMSO, ACS Grade
Alternative Name: Dimethyl sulfoxide, Methylsulfinylmethane, Methyl sulfoxide
Catalog Number: D-360

1.2 Relevant Uses and Uses Advised Against

Recommended use: This product is not for use in humans. It is for research purposes only.

1.3 Supplier Contact Information

Distributed by: Gold Biotechnology, Inc.
1328 Ashby Rd.
St. Louis, MO 63132
Phone: (314) 890-8778
Fax: (314) 890-0503
Email: **contactgoldbio86@goldbio.com**

1.4 Emergency Contact Information

Emergency Phone: (800)248-7609 (Monday-Friday, 9:00 a.m. – 5:00 p.m. CST)

Section 2: Hazardous Information

2.1 GHS Classification

Flammable Liquid (Category 4)

2.2 GHS Label Elements, Including Precautionary statements

Warning

2.3 Hazard Statements

H227: Combustible liquid

2.4 Precautionary Statements

P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
P280: Wear protective gloves/protective clothing/eye protection/face protection
P370+378: In case of fire: Use dry sand, dry chemical, or alcohol resistant foam for extinction
P403+235: Store in a well ventilated place. Keep cool

P501: Dispose of contents/container to an approved waste disposal plant

2.5 OSHA Hazards

Target Organ Effect, Combustible liquid

2.8 HMIS Classification

Health Hazard:	0
Chronic Health Hazard:	*
Flammability:	2
Physical Hazards:	0

2.9 NFPA Rating

Health Hazard:	0
Fire:	2
Reactivity Hazard:	0

Section 3: Composition/Information on Ingredients

3.1 Composition

Identity:	DMSO, ACS Grade
IUPAC:	methylsulfinylmethane
Synonyms:	Dimethyl sulfoxide, Methylsulfinylmethane, Methyl sulfoxide
CAS Number:	67-68-5
Molecular Formula:	C_2H_6SO
Molecular Weight:	78.13 g/mol

Section 4: First Aid Measures

4.1 Detailed First Aid Measures

Inhalation:	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Skin:	Immediately wash skin copiously with soap and water. Take victim immediately to hospital. Consult a physician.
Eye:	Immediately rinse out with water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Consult a physician.
Ingestion:	Wash out mouth with water. Drink plenty of water. Consult a physician. Never give anything by mouth to an unconscious person.
Notes to Physician:	Treat symptomatically and supportively.

4.2 Most Important Symptoms And Effects, Either Acute Or Delayed

The most important known symptoms and effects are described in the labeling (see section2). And /or in section 11.

4.3 Indication of immediate medical attention and special treatment needed

Not available

Section 5: Fire Fighting Measures

5.1 Conditions of flammability:

Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

5.2 Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.3 Specific hazards arising from the chemical

During a fire, highly toxic gases may be generated by thermal decomposition or combustion – Carbon oxides, Sulfur oxides.

5.4 Specific protective actions for fire-fighters:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up:

Soak up with absorbent material, discard.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

Always wear personal protective equipment (PPE, see section 8).

7.2 Conditions for safe storage, including and incompatibilities:

Keep container tightly closed.

Store desiccated at room temperature.

Section 8: Exposure Controls / Personal Protection

8.1 Control Parameters:

Contains no substances with occupational exposure limit values.

8.2: Appropriate engineering controls:

Contains no substances with occupational exposure limit values.

8.3 Personal Protective Equipment (PPE):

Eye/Face Protection: Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin Protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique - without touching outer surface of glove - 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. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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).

Other Protective Clothing or Equipment: Wear appropriate protective clothing to prevent exposure.

Control Parameters - Workplace

Component:	CAS-No:	Value:	Control Parameters:	Basis:
Dimethyl sulfoxide	67-68-5	TWA	250.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

Section 9: Physical and Chemical Properties

9.1 General chemical and physical properties

Appearance:	Clear colorless liquid
Odor:	Sulfurous
Odor Threshold:	Not Available
pH:	Not Available
Melting Point:	18.4°C
Freezing Point:	18.4°C
Boiling Point/Range:	189°C at 1,013 hPa
Flash Point:	192°C - closed cup - ASTM D 93
Evaporation Rate:	Not Available
Lower Explosion Limit:	3.5% (V)
Upper Explosion Limit:	42% (V)
Vapor Pressure:	0.55 hPa at 20°C / 4 hPa at 50°C
Vapor Density:	2.70 - (Air = 1.0)
Relative Density:	1.104 g/cm^3 at 20°C
Solubility:	Water soluble
Partition Coefficient	

n-octanol/water:	log Pow: -1.349
Auto-Ignition Temperature:	300-302°C
Decomposition Temperature:	>190°C
Viscosity:	Not Available

Section 10: Stability and Reactivity Data

10.1 Reactivity:

Not available

10.2 Chemical Stability:

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions:

Not available.

10.4 Conditions to avoid:

Heat, flames and sparks.

10.5 Incompatible materials:

Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents

10.6 Hazardous decomposition products:

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulfur oxides.

Section 11: Toxicological Information

11.1 Toxicological effects

Acute toxicity:

DMSO, ACS Grade	Oral:	LD_{50} (Rat)- 14,500 mg/kg
DMSO, ACS Grade	Skin:	LD_{50} (Rabbit) -> 5000 mg/kg
DMSO, ACS Grade	Inhalation:	LD_{50} (Rat) - 4h -40250 ppm

Skin corrosion/irritation:

Mild skin irritation.

Respitory or skin sensitization:

Not available.

Germ cell mutagenicity:

Mouse - lymphocyte - Cytogenetic analysis

Mouse - lymphocyte - Mutation in mammalian somatic cells
Rat - Cytogenetic analysis
Mouse - DNA damage

Carcinogenicity:

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

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human 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.

Reproductive toxicity:

Reproductive toxicity - Rat - Intraperitoneal - Effects on Fertility: Abortion. Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Reproductive toxicity - Rat - Subcutaneous - Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Litter size (e.g.; # fetuses per litter; measured before birth).
Reproductive toxicity - Mouse - Oral - Effects on Fertility: Pre-implantation mortality (e. g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.
Developmental Toxicity - Mouse - Intraperitoneal - Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

STOT-single exposure:

Not available.

STOT-repeated exposure:

Not available.

Aspiration hazard:

Not available.

Likely routes of exposure:

Respiratory organs, mouth, skin, and eyes.

Symptoms of exposure:

Effects due to ingestion may include; Nausea, Fatigue, Headache.
Exposure to large amounts can cause; redness of skin, Itching, burning, sedation, Headache, Nausea, Dizziness.
To the best of our knowledge, the chemical, physical, and toxicological properties have

Additional Information:

RTECS: PV6210000
Carcinogenicity (Rat) -Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Carcinogenicity (Mouse) -Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin and Appendages: Other: Tumors.

Eyes - Eye disease - Based on Human Evidence

Section 12: Ecological Information

12.1 Toxicity:

Toxicity to fish:
LC50 (*Pimephales promelas*) = 34000 mg/L - 96h
LC50 (*Oncorhynchus mykiss*) = 35000 mg/L - 96h
Toxicity to daphnia: EC50 (*Daphnia magna*) = 24600 mg/L – 48h (OECD Test Guideline 202)
Toxicity to algae: EC50 (*Pseudokirchneriella subcapitata*) = 17000 mg/L – 72h (OECD Test Guideline 201)

12.2 Persistence and degradability:

Biodegradability
Result: 31%
According to the results of tests of biodegradability this product is not readily biodegradable. (OECD Test Guideline 301D)

12.3 Bioacumulative potential:

Not available.

12.4 Mobility in soil:

Not available.

12.5 Other adverse effects:

Stability in water - 0.12 - 1.2 h at 30°C
Remarks: Hydrolyses readily.

Section 13 Disposal Considerations

Dispose of product in accordance with local rules and regulations.

Section 14: Transport Information

14.1 US Department of Transportation (DOT)

UN Number: 1993
Proper shipping name: Combustible liquid, n.o.s (Dimethyl sulfoxide)
Class: NONE

Packing Group: III
Marine Pollutant: No

14.2 International Maritime Dangerous Goods (IMDG):

This material is considered to be non-hazardous for transport.

14.2 International Air Transportation Association (IATA)

This material is considered to be non-hazardous for transport.

Section 15: Regulatory Information

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:

Fire Hazard, Chronic Health Hazard

Massachusetts Right To Know Components:	CAS - No.
DMSO, ACS Grade	67-68-5
Pennsylvania Right To Know Components:	CAS - No.
DMSO, ACS Grade	67-68-5
New Jersey Right To Know Components:	CAS - No.
DMSO, ACS Grade	67-68-5

California Prop. 65 Components:

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

Section 16: Other Information

While Gold Biotechnology, Inc. believes the information contained herein to be true and accurate, it has relied on information provided by others. Gold Biotechnology, INC. makes no warranties, express or implied, as to the accuracy or adequacy of the information contained herein or with respect to the results to be obtained from the use of the product. Gold Biotechnology, Inc. disclaims all liability with respect to the use of this product, including without limitation, liability for injury to the user or third-party persons.

Preparation Information
Gold Biotechnology
Content/Marketing Department
(800) 248-7609
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