Revision 3

1. IDENTIFICATION

Product Name	**Dimethyl sulfoxide**
Other Names	Methyl Sulfoxide; Sulfinylbismethane
Uses	No Data Available
Chemical Family	No Data Available
Chemical Formula	$(CH_3)_2SO$
Chemical Name	No Data Available
Product Description	No Data Available
Company	**Arman sina.co**
Contact Information	info@armansina.com **www.armansina.com**

2. HAZARD IDENTIFICATION

Hazard Categories

Flammable liquids	Category 4
Eye irritation	Category 2
Skin irritation	Category 2

Signal Word Warning

Hazard Statements

Combustible liquid.
Causes serious eye irritation
Causes skin irritation.

Precautionary Statements

Prevention

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Take precautionary measures against static discharge.

Response

In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction.
IF ON SKIN: Wash with plenty of water/…
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses , if present and easy to do. Continue rinsing.

Storage

IF exposed or concerned: Call a POISON CENTER/doctor/…
Store in a well-ventilated place. Keep cool.

Symbol

if present and easy to do. Continue rinsing.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Dimethyl sulfoxide	$(CH_3)_2SO$	67-68-5	>=99.0 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed Rinse mouth thoroughly. Call a POISON CENTER/doctor if you feel unwell

Eye Flush thoroughly with water. If irritation occurs, get medical assistance.

agents or any other additives.

Skin Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.

Inhaled Move to fresh air. Get medical attention if symptoms persist.

5. FIRE FIGHTING MEASURES

General Measures Combustible liquid and vapor.

Advice to Doctor Treat symptomatically. Symptoms may be delayed.

Flammability Conditions No Data Available

Extinguishing Media Water spray, foam, dry powder or carbon dioxide.

Fire and Explosion Hazard Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations.
Heat may cause the containers to explode.

Hazardous Products of Combustion No Data Available

Special Fire Fighting Instructions Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk..

Personal Protective Equipment Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Flash Point No Data Available

Lower Explosion Limit No Data Available

Upper Explosion Limit No Data Available

Auto Ignition Temperature No Data Available

Hazchem Code No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure

Clean Up Procedures	In case of leakage, eliminate all ignition sources. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spills for later disposal.
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours; Water spray may be used to knock down or divert vapour clouds.
Decontamination	Neutralise residues with lime or soda ash. Wash area and prevent runoff into drains.
Environmental Precautionary Measures	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Evacuation Criteria	Inform authorities if large amounts are involved. Prevent runoff from entering drains, sewers, or streams.

Personal Precautionary Measures

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Ventilate closed spaces before entering them. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment.

7. HANDLING AND STORAGE

Handling	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Ground and bond container and receiving equipment. Use explosion-proof ventilation equipment
Storage	Keep container tightly closed. Store in a cool, dry place with adequate ventilation. Keep away from incompatible materials, open flames, and high temperatures. Store above freezing.
Container	Keep only in the original container or packaging as supplied and/or recommended by the manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	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.
Exposure Limits	No Data Available
Biological Limits	No Data Available
Engineering Measures	Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.
Personal Protection Equipment	Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn. Eye/face protection Eye glasses with side protection Skin protection Wear suitable gloves. When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

Special Hazards Precaustions	No Data Available
Work Hygienic Practices	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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear liquid
Odour	Slightly sulfurous odor
Colour	Colourless
pH	No Data Available
Vapour Pressure	0.556 hPa (20 °C)
Relative Vapour Density	2.71 (Air=1)
Boiling Point	189 ° C
Melting Point	18 - 18.45 °C
Freezing Point	18 - 18.45 °C
Solubility	Solubility in water: Miscible ; solubility (other): ethanol: Soluble acetone: Soluble ether: Soluble benzene: Soluble chloroform: Soluble
Specific Gravity	No Data Available
Flash Point	87 - 89 °C (Closed Cup)
Auto Ignition Temp	215 °C
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.10 g/ml (20 ° C)
Specific Heat	No Data Available
Molecular Weight	78.13 g/mol (C2H6OS)
Net Propellant Weight	No Data Available
Octanol Water Coefficient	-2.03
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	2.25 mm2/s
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No Data Available
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

General Information No dangerous reaction known under conditions of normal use.

Chemical Stability Material is stable under normal conditions.

Conditions to Avoid Heat, sparks, flames. Contact with incompatible materials.

Materials to Avoid Strong oxidizing agents. Strong acids. Strong bases. Inorganic halides.

Hazardous Decomposition Products Thermal decomposition may produce oxides of carbon and sulfur.

Hazardous Polymerisation Will not occur.

11. TOXICOLOGICAL INFORMATION

General Information

Information on likely routes of exposure
Ingestion: **May cause irritation of the gastrointestinal tract.**
Inhalation: **Spray mists may cause respiratory tract irritation..**
Skin contact: **Prolonged skin contact may cause temporary irritation.**
Eye contact: **Causes serious eye damage.**

Acute

Acute toxicity (list all possible routes of exposure)
Oral
Product:
LD 50 (Rat): 14,500 - 28,300 mg/kg
Dermal
Product:
LD 50 (Rat) 40,000 mg/kg
Inhalation
Product:
LC 0 (Rat, 4 h) > 5.33 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute hazards to the aquatic environment:
Fish
Product: No data available.
Specified substance(s):
Dimethyl sulfoxide LC 50 (Rainbow Trout, 96 h): 33,000 - 38,000 mg/l
LC 50 (Fathead Minnow, 96 h): 34,000 mg/l
LC 50 (Danio rerio, 96 h): > 25,000 mg/l
LC 50 (Bluegill Sunfish, 96 h): > 40,000 mg/l

Persistence/Degradability No Data Available

Mobility The product is water soluble and may spread in water systems.

Environmental Fate

Specified substance(s):
Dimethyl sulfoxide
EC 50 (Green algae (Chlorella kessleri), 96 h): 27,500 mg/l
EC 50 (Alga, 72 h): 17,000 mg/l

Bioaccumulation Potential There are no data on the degradability of this product.

Environmental Impact 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.

13. DISPOSAL CONSIDERATIONS

General Information	Since emptied containers retain product residue, follow label warnings even after container is emptied.
Special Precautions for Land Fill	Discharge, treatment, or disposal may be subject to national, state, or local laws.

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	Dimethyl sulfoxide
Class	No Data Available
Subsidiary Risk(s)	No Data Available
EPG	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Sea Transport

Proper Shipping Name	Dimethyl sulfoxide
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No

Air Transport

Proper Shipping Name	Dimethyl sulfoxide
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

15. OTHER INFORMATION

Revision	3
Key/Legend	**< Less Than** **> Greater Than** **AICS Australian Inventory of Chemical Substances** **atm Atmosphere** **CAS Chemical Abstracts Service (Registry Number)** **cm² Square Centimetres** **CO2 Carbon Dioxide** **COD Chemical Oxygen Demand** **deg C (° C) Degrees Celcius** **deg F (° F) Degrees Farenheit** **g Grams** **g/cm³ Grams per Cubic Centimetre** **g/l Grams per Litre** **HSNO Hazardous Substance and New Organism** **IDLH Immediately Dangerous to Life and Health** **immiscible Liquids are insoluable in each other.** **inHg Inch of Mercury** **inH2O Inch of Water** **K Kelvin** **kg Kilogram** **kg/m³ Kilograms per Cubic Metre** **lb Pound** **LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50%** (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. **LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one** half) of a group of test animals. **ltr or L Litre** **m³ Cubic Metre** **mbar Millibar** **mg Milligram** **mg/24H Milligrams per 24 Hours** **mg/kg Milligrams per Kilogram** **mg/m³ Milligrams per Cubic Metre** **Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present.** **mm Millimetre** **mmH2O Millimetres of Water** **mPa.s Millipascals per Second** **N/A Not Applicable** **NIOSH National Institute for Occupational Safety and Health** **NOHSC National Occupational Heath and Safety Commission** **OECD Organisation for Economic Co-operation and Development** **Oz Ounce** **PEL Permissible Exposure Limit** **Pa Pascal** **ppb Parts per Billion** **ppm Parts per Million** **ppm/2h Parts per Million per 2 Hours** **ppm/6h Parts per Million per 6 Hours** **psi Pounds per Square Inch** **R Rankine** **RCP Reciprocal Calculation Procedure** **STEL Short Term Exposure Limit** **TLV Threshold Limit Value** **tne Tonne** **TWA Time Weighted Average** **ug/24H Micrograms per 24 Hours** **UN United Nations** **wt Weight**