# SAFETY DATA SHEET

## 1 – PRODUCT AND COMPANY IDENTIFICATION

Product Name: **DIMETHYL SULFOXIDE (DMSO)**

Product code: D-5000

Product use: For laboratory or industrial use only

Supplier: Cochimbec Inc.
8561 chemin Dalton
T.M.R., Québec
H4T 1V5 CANADA

Telephone: 514-990-1935
Emergency Telephone: (CANUTEC): 613-996-6666

## 2 – HAZARDS IDENTIFICATION

GHS Classification: Combustible liquid
Skin Irritation (Category 2)
Eye irritation (Category 2)

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|---|---|---|
| **Signal word:** | | **Warning** |
| **Hazard statement:** | H227 | Combustible liquid. |
| | H315 | Causes skin irritation. |
| | H319 | Causes serious eye irritation. |
| **Precautionary statement:** | P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| | P264 | Wash skin thoroughly after handling. |
| | P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| | P301 + P315 | IF SWALLOWED: Get immediate medical advise/attention. |
| | P302 + P352 | IF ON SKIN: Wash with plenty of water and soap. |
| | P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| | P321 | Specific treatment (See other relevant information on this SDS) |

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| | P337 + P313 | If eye irritation persists: Get medical advise/attention. |
| | P362 | Take off contaminated clothing. |
| | P403 + P235 | Store in a well ventilated place. Keep cool. |
| | P501 | Dispose of contents / container in accordance with local / national regulations. |
| **Other hazards:** | Inhalation: | High vapour concentrations may cause headache, dizziness and sedation. |
| | Eyes: | Causes serious eye irritation. |
| | 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. |
| | Ingestion: | A low ingestion hazard. |

## 3 – COMPOSION / INFORMATION ON INGREDIENTS

**Synonyms:** **Enviro S, Dimethyl Sulphoxide, Dimethyl Sulfoxide, Methyl Sulfoxide, Sulfinylbis [methane]**

| INGREDIENT | Concentration | CAS No. | EC No. | Index No. |
|---|---|---|---|---|
| DMSO | 99-100 % | 67-68-5 | 200-664-3 | - |

## 4 – FIRST AID MEASURES

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| **Inhalation:** | Move victim to fresh air, keep victim warm and at rest. If victim is not breathing, give artificial respiration and call for medical assistance. If victim is unconscious, obtain immediate medical attention. |
| **Skin contact:** | Remove contaminated clothing. Wash skin with soap and water. |
| **Eye contact:** | Rinse thoroughly with water for 15 minutes, holding the eyelids apart and seek medical attention. |
| **Ingestion:** | DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Keep at rest. Obtain immediate medical attention. |
| **Most important symptoms / effects** | Symptoms of overexposure or inhalation of high vapour concentration may cause headache, dizziness, sedation. |

## 5 – FIRE-FIGHTING MEASURES

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| **Extinguishing media:** | Water spray, alcohol resistant foam, dry chemical, carbon dioxide. Use water spray to cool unopened containers. |
| **Combustion Exposure Hazards:** | Hazardous decomposition products formed under fire conditions: Sulfur dioxide, formaldehyde, methyl mercaptan, dimethyl sulfide, dimethyl disulfide and bis(methylthio) methane. |
| **Fire-Fighting equipment and precaution:** | Wear positive pressure, self-contained breathing apparatus, (SCBA) with full facemask and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean up immediately after fire. |
| **Sensitivity to mechanical impact:** | Not sensitive. |
| **Sensitivity to static discharge:** | N / D |

| NFPA Risk<br>0=Low 4=High | HEALTH | FLAMMABILITY | REACTIVITY | HAZARDS |
|---|---|---|---|---|
| | 1 | 1 | 0 | |

## 6 – ACCIDENTAL RELEASE MEASURES

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| **Personal Precautions:** | Use personal protective equipment. Avoid contact with skin and eyes. Avoid inhaling vapour or mist. In case of mist formation use a respirator or self contained breathing apparatus (SCBA). |
| **Environmental Precautions:** | Prevent further leakage or spillage using personal protection. Avoid product entering into drains or waterways. |
| **Method & Material for containment and cleaning up:** | Contain spillage while wearing personal protection. Remove all source of ignition. Soak up with inert absorbent material. Keep in suitable closed container for disposal. Product may be wet-brushed and placed in a container for disposal according to local, state and federal regulations. |

## 7 – HANDLING AND STORAGE

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| **Precautions for safe handling:** | Wear personal protective equipment. Keep away from open flame, hot surfaces and sources of ignition. Do not get on skin, eyes and clothing. Do not breath vapours or mist. |
| **Conditions for Safe Storage:** | Store in a cool, dry place away from incompatibles, heat and possible source of ignition. Keep container tightly closed in a well-ventilated area. Store out of direct sunlight. |

## 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

**COMPONENTS WITH WORKPLACE CONTROL PARAMETERS**

| COMPONENT | CAS-No | VALUE | CONTROL PARAMETERS | BASIS |
|---|---|---|---|---|
| DMSO | 67-68-5 | TWA | No established limit | OSHA |
| | | STEL | No established limit | OSHA |
| | | TWA | No established limit | ACGIH |
| | | STEL | No established limit | ACGIH |
| | | TWA | No established limit | NIOSH |
| | | STEL | No established limit | NIOSH |

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| **Eye Protection:** | Safety glasses or chemical safety goggles. |
| **Hand Protection:** | Use butyl rubber or nitrile rubber gloves. |
| **Body Protection:** | Use impervious apron or body suit if there is risk of spillage. |
| **Respiratory Protection:** | Where risk of mist formation exists use a respirator. Respirator type: organic vapour cartridge, SCBA or SAR. Use NIOSH (US) or CEN (EU) approved respirators. |
| **Engineering Controls:** | Ensure adequate ventilation. |

## 9 – PHYSICAL AND CHEMICAL PROPERTIES

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| **Physical state:** | Liquid. | **Auto ignition temperature:** | 300-302 °C |
| **Color:** | Colourless | **Upper Explosion Limit:** | 42-63 % by Volume |
| **Odour:** | Odorless | **Lower Explosion Limit:** | 3.0-3.5 % by Volume |
| **Odour threshold::** | N / D | **Vapour pressure:** | 0.46 mm Hg @ 20 °C |
| **pH:** | 8.5 (50/50 in water) | **Vapour density: (air = 1)** | 2.7 |
| **Melting point:** | 18°C | **Relative density** | 1.1 |
| **Boiling point:** | 189°C @ 760 mm Hg | **Water solubility:** | Completely soluble |
| **Boiling range:** | 189°C @ 760 mm Hg | **Decomposition temperature:** | N / D |
| **Density** | 1.1 g/mL @ 20°C | **Refractive Index:** | 1.479 @ 20 °C |
| **Flash point:** | 89 °C Closed cup | **Viscosity:** | 2.0 mPas @ 25 °C |
| **Evaporation rate: (n-Butyl Acetate = 1)** | 0.026 | **Partition coeficient: n-octanol / water** | Log Pow –2.03 |

## 10 – STABILITY AND REACTIVITY

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| **Chemical stability:** | Stable under recommended storage conditions. |
| **Possibility of hazardous reactions:** | No data available. |
| **Conditions to avoid:** | Prolonged heating above 150°C 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. |

## 11 – TOXICOLOGICAL INFORMATION

| **COMPONENTS** | **$LD_{50}$ ORAL** | **$LD_{50}$ DERMAL** | **$LC_{50}$ INHALATION** |
|---|---|---|---|
| **DMSO** | 14,500 mg/kg (rat) | 5,000 mg/kg (rabbit) | 40,250 ppm, rat |
| **Skin Corrosion / irritation** | Causes skin irritation, category 2 | | |
| **Serious eye damage / eye irritation** | Causes serious eye irritation, category 2. | | |
| **Respiratory or skin sensitisation** | No applicable | | |
| **Germ cell Mutagenicity** | No applicable | | |
| **Carcinogenicity** | No applicable | | |
| **Reproductive toxicity** | No applicable | | |
| **Teratogenicity** | N / D | | |
| **Aspiration hazard** | No applicable | | |
| **Symptoms of Exposure** | Prolonged or repeated exposure may cause headache, dizziness and sedation. | | |
| **Synergistic effects** | No data available | | |

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| **Addition information** | None |

## 12 – ECOLOGICAL INFORMATION

| COMPONENTS | Toxicity to fish | Toxicity to daphnia and other aquatic invertebrates | Toxicity to algea |
|---|---|---|---|
| DMSO | $LC_{50}$ – Pimephales promelas (Fathead minnow) – 34,000 mg/l – 96 h. | $EC_{50}$ – Daphnia Magna (Water flea) – 25,000 mg/l – 48 h. | $EC_{50}$ Algea 12.350 mg/L - 96h, Skeletonema costatum |
| **Persistence and degradability** | No data available | | |
| **Bioaccumulative potential** | Not measured. | | |
| **Mobility in soil** | No data available | | |
| **PBT and vPvB assessment** | This product does not contain any PBT nor vPvB chemicals. | | |
| **Other adverse effects** | Theoretical Oxygen Demand at 10 ppm: 123mg oxygen<br>Chemical Oxygen Demand at 10 ppm: 107 mg/L<br>Biological Oxygen Demand at 10 ppm: <= 1.0mg/L | | |

## 13 – DISPOSAL CONSIDERATIONS

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| **Product** | Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Ensure proper disposal compliance with authorities before disposal. |
| **Contaminated clothing** | Let dry, then wash before reusing clothes. |
| **Contaminated packaging** | Dispose as unused product above. |

## 14 – TRANSPORT INFORMATION


NOTE: TDG applies only if a means of containment is 450 L or larger. Otherwise, it is exempted and is treated as non regulated.

| | TDG | IMDG | IATA |
|---|---|---|---|
| **Shipping Name:** | Combustible liquid, N.O.S. (Dimethyl Sulfoxide) | Not Regulated | Not Regulated |
| **UN-number:** | UN1993 | | |
| **Class & Subclass:** | 3 | | |
| **Packing Group:** | III | | |
| **Marine Pollutant** | No | | |

## 15 – REGULATORY INFORMATION

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| **US Regulations** | SDS complies with OSHA's Hazard Communication Rule 29, CFR 1910.1200<br>Combustible liquid, Irritant. |
| **Canada Classification** | Canada WHMIS: Class B-3: Combustible liquids. Class D-2B: Toxic material causing other toxic effects. |
| **International** | Europe EINECS Numbers: 200-664-3 |

## 16 – OTHER INFORMATION

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| **Information on the preparation of SDS:** | Prepared by Cochimbec Inc. Safety Personnel<br>July 05, 2016<br>Revision 0<br>I.C. 1, 35 |
| **Abbreviations:** | ACGIH = American Conference of Governmental Industrial Hygienists<br>ASTM = American Society for Testing and Materials<br>BCF = Bioconcentration Factor<br>CAS = Chemical Abstract Services<br>CCOHS = Canadian Center for Occupational Health & Safety<br>CEN (EU) = Committée Européen de Normalisation<br>CERCLA = Comprehensive Environmental Response Compensation & Liability Act<br>CFR = Code of Federal Regulations<br>CMR = Carcinogenic-mutagenic-toxic for reproduction<br>CPR = Controlled Products Regulations<br>DIN = German Institute for Standardisation<br>DOT = Department of Transport<br>$EC_{50}$ = Half maximal effect concentration<br>EINECS = European Inventory of Existing Commercial Chemical Substances<br>GHS = Global Harmonization System<br>GLP = Good Laboratory practice<br>GMO = Genetic Modified Organism<br>IARC = International Agency for research on Cancer<br>IATA = International Air Transport Association<br>ISO = International Organisation for Standardisation<br>IDLH = Immediate danger to life and health<br>IMDG = International Maritime Dangerous Goods<br>$LC_{50}$ = Lethal concentration causing 50% death<br>$LD_{50}$ = Lethal dose causing 50% death<br>LOAEL = Lowest Observed Adverse Effect Level<br>LOEL = Lowest Observed Effect Level<br>N/A = Not Applicable<br>N/D = No Data<br>N/E = Not Established<br>NFPA = National Fire Protection Association<br>NIOSH = National Institute for Occupational Safety & Health |

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|---|---|
| | NTP = National Toxicology Program<br>OECD = Organisation for Economic Co-operation & Development<br>OEL = Occupational exposure limit<br>OHSC = Occupational health & safety council (committee)<br>OSHA = Occupational Safety & Health Administration<br>PBT = Persistent, Bioaccumulation, Toxic<br>PEL = Permissible Exposure Limit<br>RCRA = Resource Conservation & Recovery Act<br>RTECS = Registry of Toxic Effects of Chemical Substances<br>SARA = Species at Risk Act<br>STEL = Short term exposure limit<br>STEV = Short term exposure value<br>STOT = Specific Target Organ Toxicity<br>TDG = Transport of Dangerous Goods<br>TLV = Threshold limit value<br>TMD = Transport de Matières Dangereuses<br>TSCA = Toxic Substance Control Act<br>TWA = Time weighted Average<br>TWAEV = Time weighted average exposure value<br>UN = United Nations<br>VOC = Volatile Organic Compounds<br>vPvB = very Persistent and very Bioaccumulative<br>WEEL = Workplace Environment Exposure Limit<br>WHO = World Health Organisation<br>WHMIS = Workplace Hazardous Material Information System<br>W/V = Weight / Volume<br>W/W = Weight / Weight |
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## End of Safety Data Sheet