

# Material Safety Data Sheet

Dimethylsulphoxide (DMSO)

Cat. No: 01706

## 1 Product and Company Identification

- 1.1 Product Name:** Dimethylsulphoxide (DMSO)  
**1.2 Catalog Number:** 01706  
**1.3 Synonyms:** Methyl sulfoxide  
**1.4 Product Use:** For laboratory research purposes  
**1.5 Manufacturer/Supplier:** STEMCELL Technologies Inc.  
Suite 400, 570 West 7<sup>th</sup> Avenue  
V5Z 1B3  
**1.6 In Case of Emergency Call:** 604-877-0713  
**1.7 Date Effective:** October 24, 2011  
**1.8 Prepared By:** Quality Control

## 2 Composition / Information on Ingredients

2.1 Component	CAS No.	%W/W
Dimethylsulfoxide	67-68-5	100%

## 3 Hazards Identification

- 3.1 Emergency Overview:** Warning. Causes respiratory tract, eye and skin irritation. Causes damage to the following organs: skin, eye, lens or cornea. May be harmful if absorbed through skin or if swallowed. Combustible liquid and vapor. Vapor may cause fire. May be harmful if inhaled.
- 3.2 Routes of Exposure:** Absorbed through skin, eye contact, inhalation, and ingestion.
- 3.3 Potential Health Effects:**
- 3.3.1 Eye:** Irritating to eyes.
  - 3.3.2 Skin:** May cause skin irritation.
  - 3.3.3 Inhalation:** May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
  - 3.3.4 Ingestion:** May be harmful if swallowed.
- 3.4 Chronic Effects/Carcinogenicity:** Not Available
- 3.5 OSHA Regulatory Status:** Not Available

## 4 First Aid Measures

- 4.1 Eyes:** In case of contact with eyes, flush thoroughly with water for at least 15 minutes. Call a physician.
- 4.2 Skin:** In case of contact with skin, wash the affected area with soap and copious amounts of water. Contact a physician.
- 4.3 Ingestion:** Do not induce vomiting. If swallowed, wash out mouth with water provided person is conscious. Call a physician.
- 4.4 Inhalation:** If inhaled, remove person to fresh air. Call a physician.

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- 4.5 Puncture Wounds:** Wash thoroughly with soap and water. Allow to bleed freely. Call a physician.
- 4.6 Note to Physician:** Not Available

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## 5 Fire Fighting Measures

- 5.1 Flash Point/Method:** 87°C (189°F)/closed cup
- 5.2 Explosive Limits:**
- 5.2.1 Upper:** 42% (V)
  - 5.2.2 Lower:** 3.5% (V)
- 5.3 Autoignition Temperature:** Not Available
- 5.4 Hazardous Combustion Products:** Carbon oxides, Sulfur oxides
- 5.5 Conditions of Flammability:** Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface.
- 5.6 Extinguishing Media:** Water spray. Carbon dioxide, dry chemical powder or appropriate foam.
- 5.7 Fire Fighting Procedures:** Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- 5.8 Explosion Data:**
- 5.8.1 Sensitivity to Mechanical Impact:** Not Available
  - 5.8.2 Sensitivity to Static Discharge:** Not Available

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## 6 Accidental Release Measures

- 6.1 Leak and Spill Procedure:** Avoid breathing vapors, mist or gas. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Contain spillage and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Keep in suitable, closed containers for disposal.

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## 7 Handling and Storage

- 7.1 Handling:** Should be handled by trained personnel observing good laboratory practices. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Keep away from sources of ignition. Take measures to prevent the build up of electrostatic charge.
- 7.2 Storage:** Store at 2 - 8°C. Keep container tightly closed.

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## 8 Exposure Controls/Personal Protection

- 8.1 Engineering Controls:** Safety shower and eye bath. Mechanical exhaust or laboratory fumehood required.

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## 8.2 Personal Protective Equipment:

### 8.2.1 Respiratory Protection:

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

### 8.2.2 Eye Protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: splash goggles.

### 8.2.3 Skin Protection:

Impervious clothing; handle with gloves. Recommended: Lab coat, nitrile gloves.

## 8.3 General Hygiene Considerations:

Wash hands after use.

## 8.4 Exposure Limits:

### 8.4.1 ACGIH TLV-TWA:

Not Available

### 8.4.2 OSHA PEL-TWA:

Not Available

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## 9 Physical/Chemical Properties:

### 9.1 Appearance:

Clear colorless fluid

### 9.2 Odor:

Not Available

### 9.3 Physical State:

Liquid

### 9.4 pH:

Not Available

### 9.5 Boiling Point:

189°C (372°F)

### 9.6 Melting Point:

16-19°C (61-66°F)

### 9.7 Freezing Point:

16-19°C (61-66°F)

### 9.8 Vapor Pressure:

0.053 kPa (0.4 mm Hg)

### 9.9 Vapor Density:

2.71 (Air = 1)

### 9.10 Specific Gravity:

Not Available

### 9.11 Evaporation Rate:

0.026 compared with (n-BUTYL ACETATE=1)

### 9.12 Solubility in Water:

Completely miscible

### 9.13 Odor Threshold:

Not Available

### 9.14 Coefficient of Water/Oil Distribution:

log Pow: -2.03 (n-octanol/water)

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## 10 Stability/Reactivity:

### 10.1 Chemical Stability:

Stable

### 10.2 Conditions to Avoid:

Heat, flames and sparks.

### 10.3 Incompatibility (Material to Avoid):

Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents, moisture.

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- 10.4 Hazardous Decomposition/By-Products:** Hazardous decomposition products formed under fire conditions – carbon oxides, sulphur oxides.
- 10.5 Hazardous Polymerization:** Will not occur under normal conditions.

## 11 Toxicological Information

- 11.1 Effects of Short-Term Exposure:** LD50 Oral – rat – 14,500 mg/kg  
LC50 Inhalation – rat – 4 h – 40,250 ppm  
LD50 Dermal – rabbit - > 5,000 mg/kg
- 11.2 Effects of Long-Term Exposure:** Not Available
- 11.3 Irritancy of Product:** Skin irritation – rabbit – no skin irritation at 4 h  
Eye irritation – rabbit – mild eye irritation
- 11.4 Sensitization to Product:** Not Available
- 11.5 Carcinogenicity:**  
Rat – Oral  
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors  
Mouse – Oral  
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukemia Skin and Appendages: Other: Tumors  
IARC: No component of this product present at levels greater  $\geq$  0.1% is identified as probable, possible or confirmed human carcinogen by IARC.  
ACGIH: No component of this product present at levels  $\geq$  0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- 11.6 Reproductive Toxicity:**  
Rat – Intraperitoneal  
Effects on Fertility: Abortion; Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).  
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)  
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.
- 11.7 Teratogenicity and Embryotoxicity:**  
Developmental Toxicity – Mouse – Intraperitoneal  
Effects on embryo or Fetus: Fetotoxicity (except death, e.g. stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.
- 11.8 Mutagenicity (germ cell):**  
Genotoxicity in vitro – mouse – lymphocyte  
Cytogenetic analysis; Mutation in mammalian somatic cells.

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Genotoxicity in vivo – rat – Intraperitoneal  
Cytogenetic analysis

Genotoxicity in vivo – mouse – Intraperitoneal  
DNA damage

<b>11.9 Name of Toxicologically Synergistic Products:</b>	Not Available
<b>11.10 LD50 (specify species and route):</b>	LD50 Oral – rat – 14,500 mg/kg LD50 Dermal – rabbit - > 5,000 mg/kg
<b>11.11 LC50 (specify species):</b>	LC50 Inhalation – rat – 4 h – 40,250 ppm

## 12 Ecological Information

### 12.1 Toxicity

Toxicity to fish	LC50 – Pimephales promelas (fathead minnow) – 34,000 mg/L – 96 h LC50 – Oncorhynchus mykiss (rainbow trout) – 35,000 mg/L – 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 – Daphnia pulex (Water flea) – 27,500 mg/L
Toxicity to algae	EC50 – Lepomis macrochirus (Bluegill) - >400,000 mg/L – 96 h

## 13 Disposal Considerations

<b>13.1 Waste Disposal Method:</b>	Disposal should be in accordance with existing practices at your institution. Observe all Federal, Provincial/State and Local Laws.
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## 14 Transport Information

### 14.1 Transport Canada

<b>14.1.1 PIN No.:</b>	Not Available
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### 14.2 U.S. Department of Transportation:

<b>14.2.1 Proper Shipping Name:</b>	Combustible liquid, n.o.s. (Dimethyl Sulfoxide)
<b>14.2.2 Hazard Class:</b>	CBL
<b>14.2.3 ID. Number:</b>	Not Available
<b>14.2.4 Packing Group:</b>	III
<b>14.2.5 Label Statement:</b>	Not Available

## 15 Regulatory Information

<b>15.1 WHMIS Classification:</b>	B3
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**15.2 Note:** This MSDS was prepared according to the Canadian Controlled Products Regulation and contains all the information required by those regulations.

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## 16 Other Information

**16.1 Preparation Information:** Refer to PIS No. 01700

**16.2 This MSDS has been revised in the following section(s):** Not applicable

**16.3 Original Issue Date:** October 24, 2011

**16.4 Notice:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StemCell Technologies Inc., shall not be held liable for any damage resulting from handling or from contact with the product. The information contained in this Material Safety Data Sheet (MSDS) is current as of the Date Prepared shown in Section 1.7 of this document and may be subject to ammendment by StemCell Technologies Inc.

**16.5 Disclaimer:** **THIS PRODUCT IS FOR RESEARCH USE ONLY. NOT USED FOR DIAGNOSTIC OR THERAPEUTIC APPLICATIONS.**