

MAY 26 2010

**SIGMA-ALDRICH****Material Safety Data Sheet**Version 3.4  
Revision Date 07/23/2008  
Print Date 05/20/2010**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Dimethyl sulfoxide

Product Number : 276855  
Brand : Sigma-Aldrich

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +18003255832  
Fax : +18003255052  
Emergency Phone # : (314) 776-6555

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : DMSO  
Methyl sulfoxide

Formula : C<sub>2</sub>H<sub>6</sub>OS  
Molecular Weight : 78.13 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Dimethyl sulfoxide			
67-68-5	200-664-3	-	-

**3. HAZARDS IDENTIFICATION****Emergency Overview**

**OSHA Hazards**  
Combustible Liquid, Target Organ Effect

**Target Organs**

Eyes, Skin

**HMIS Classification**

Health Hazard: 1  
Chronic Health Hazard: \*  
Flammability: 2  
Physical hazards: 0

**NFPA Rating**

Health Hazard: 0  
Fire: 2  
Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation** : May be harmful if inhaled. May cause respiratory tract irritation.  
**Skin** : May be harmful if absorbed through skin. May cause skin irritation.  
**Eyes** : May cause eye irritation.  
**Ingestion** : May be harmful if swallowed.

**4. FIRST AID MEASURES****General advice**

Move out of dangerous area.

**If Inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration

**In case of skin contact**

Wash off with soap and plenty of water.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water.

**5. FIRE-FIGHTING MEASURES****Flammable properties**

Flash point 87 °C (189 °F) - closed cup

Ignition temperature 301 °C (574 °F)

**Suitable extinguishing media**

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

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Avoid breathing vapors, mist or gas.

**Environmental precautions**

Do not let product enter drains.

**Methods for cleaning up**

Keep in suitable, closed containers for disposal.

**7. HANDLING AND STORAGE****Handling**

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

**Storage**

Keep container tightly closed in a dry and well-ventilated place.

Store under inert gas. hygroscopic

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

### Personal protective equipment

**Respiratory protection**  
Respiratory protection is not required. Where protection is desired, use multi-purpose combination (US) or Type ABEK (EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or GEN (EU).

**Hand protection**  
For prolonged or repeated contact use protective gloves.

**Eye protection**

Safety glasses

**Hygiene measures**

General industrial hygiene practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form liquid, clear

Colour colourless

### Safety data

pH no data available

Melting point

16 - 19 °C (61 - 66 °F)

Boiling point

189 °C (372 °F)

Flash point

87 °C (189 °F) - closed cup

Ignition temperature

301 °C (574 °F)

Lower explosion limit

3.5 %(V)

Upper explosion limit

42 %(V)

Vapour pressure

0.55 hPa (0.41 mmHg) at 20 °C (68 °F)

Density

1.1 g/mL

Water solubility

completely miscible

Partition coefficient:

log Pow: -2.03

n-octanol/water

Relative vapour

density 2.70

- (Air = 1.0)

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Materials to avoid

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

Hazardous decomposition products

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

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LD50 Oral - rat - 14,500 mg/kg

LC50 Inhalation - rat - 4 h - 40250 ppm

LD50 Dermal - rabbit - > 5,000 mg/kg

### Irritation and corrosion

Skin - rabbit - Mild skin irritation - 24 h

Eyes - rabbit - Mild eye irritation

### Sensitisation

no data available

### Chronic exposure

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.

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

a carcinogen or potential carcinogen by ACGIH.

NTP:

No component of this product present at levels greater than or equal to 0.1% is identified as

a known or anticipated 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.

Genotoxicity in vitro - lymphocyte

Genotoxicity in vitro - lymphocyte

Mutation in mammalian somatic cells.

Genotoxicity in vivo - rat - Intraepithelial

Cytogenetic analysis

Genotoxicity in vivo - mouse - Intraepithelial

DNA damage

Developmental Toxicity - mouse - Intraepithelial

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Reproductive toxicity - rat - Intraepithelial

Effects on Fertility: Abortion.

Reproductive toxicity - rat - Intraepithelial

Effects on Fertility: 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).

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.

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.  
**Skin** May be harmful if absorbed through skin. May cause skin irritation.  
**Eyes** May cause eye irritation.  
**Ingestion** May be harmful if swallowed.  
**Target Organs** Eyes, Skin,

**Additional Information**  
RTECS: PV6210000

**12. ECOLOGICAL INFORMATION**

**Elimination information (persistence and degradability)**

no data available

**Ecotoxicity effects**

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

**Further information on ecology**

no data available

**13. DISPOSAL CONSIDERATIONS**

**Product**

Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION**

**DOT (US)**

UN-Number: 1993 Class: CBL Packing group: III  
Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide)  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

**15. REGULATORY INFORMATION**

Sigma-Aldrich - 276855  
Delivery 0835529014-000020 Purchase Order CO:GOODELL

Sigma-Aldrich Corporation  
www.sigma-aldrich.com

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**OSHA Hazards**

Combustible Liquid, Target Organ Effect

**DSL Status**

All components of this product are on the Canadian DSL list.

**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**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Dimethyl sulfoxide	67-68-5	

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Dimethyl sulfoxide	67-68-5	

**California Prop. 65 Components**

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

**16. OTHER INFORMATION**

**Further information**

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Delivery 0835529014-000020 Purchase Order CO:GOODELL

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