

Conforms to 93/112/EC and ISO 11014-1

Responsible Name Pierce Administration

? **Section 1. Chemical Product and Company Identification**

Product name **Dimethylsulfoxide**

Product No. 0020684 0020688 NC11050

Supplier	<i>In USA:</i> Pierce P.O. Box 117 Rockford, IL 61105 USA 815.968.0747 or 1.800.874.3723	<i>In Europe:</i> Perbio Science Industriezone III Industrielaan 27 9320 Erembodegem-Aalst Belgium Tel:+32 53 83 44 04 Fax:+32 53 83 76 38	Manufacturer	Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 USA 815.968.0747 or 1.800.874.3723
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In Case of Emergency CALL CHEMTREC:
800.424.9300
OUTSIDE US:
202.483.7616

Print Date 11/8/2002
Validation Date **11/4/2002**
MSDS# 1977

Synonyms DMSO; METHYLSULFOXIDE; METHYL SULFINYLMETHANE; SULFINYL BIS[METHANE; METHANE, SULFINYLBIS-

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

 **Section 2. Composition, Information on Ingredients**

Substance/Preparation : Substance

<u>Ingredient Name</u>	<u>CAS No.</u>	<u>%</u>	<u>EC Number</u>	<u>Symbol</u>	<u>R-Phrases</u>
1) Dimethylsulfoxide	67-68-5	98-100	200-664-3	Xi	R36/38

 **Section 3. Hazards Identification**

United States Review the most current and approved institutional guideline, protocol, standard operating procedure(s) and MSDS(s) for the proper handling of institutional materials/equipment associated with the use of this product.

Emergency Overview WARNING!
CAUSES DAMAGE TO THE FOLLOWING ORGANS: SKIN, EYES, EYE, LENS OR CORNEA.
MAY CAUSE EYE AND SKIN IRRITATION.
Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Routes of Entry Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant).

Carcinogenic Effects Data **CARCINOGENIC EFFECTS:** Classified None. by NIOSH.
MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.

Medical Conditions Aggravated by Overexposure: Repeated or prolonged exposure is not known to aggravate medical condition.

Overexposure /Signs/Symptoms Not available.

Europe

Classification R36/38
Physical/chemical hazards Not applicable.
Human health hazards Irritating to eyes and skin.
Environmental hazards Not applicable.

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See Toxicological Information (section 11)

+ Section 4. First Aid Measures

Notice to Reader Get immediate medical attention.

Effects and symptoms

Inhalation Slightly hazardous in case of inhalation (lung irritant).

Ingestion Slightly hazardous in case of ingestion.

Skin Contact Slightly hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Eye Contact Hazardous in case of eye contact (irritant).

Aggravating conditions Repeated or prolonged exposure is not known to aggravate medical condition.

First-Aid Measures

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Ingestion Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Skin Contact In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Eye Contact Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Notes to Physician Not available.

Protection of first-aiders Not available.

🔥 Section 5. Fire Fighting Measures

Flammability of the Product May be combustible at high temperature.

Flash Points OPEN CUP: 94.9°C (202.8°F).

Fire Hazards in Presence of Various Substances UNUSUAL FIRE AND EXPLOSIONS HAZARDS COMBUSTIBLE LIQUID. EMITS TOXIC FUMES UNDER FIRE CONDITIONS. METHYL SULFOXIDE (DMSO) UNDERGOES A VIOLENT EXOTHERMIC REACTION ON MIXING WITH COPPER WOOL AND TRICHLOROACETIC ACID. ON MIXING WITH POTASSIUM PERMANGANATE IT WILL FLASH INSTANTANEOUSLY. IT REACTS VIOLENTLY WITH: ACID HALIDES, CYANURIC CHLORIDE, SILICON TETRACHLORIDE, PHOSPHORUS TRICHLORIDE AND TRIOXIDE, THIONYL CHLORIDE, MAGNESIUM PERCHLORATE, SILVER FLUORIDE, METHYL BROMIDE, IODINE PENTAFLUORIDE, NITROGEN PERIODATE, DIBORANE, SODIUM HYDRIDE, PERCHLORIC AND PERIODIC ACIDS. WHEN HEATED ABOVE ITS BOILING POINT METHYL SULFOXIDE DEGRADES GIVING OFF FORMALDEHYDE, METHYL MERCAPTAN, AND SULFUR DIOXIDE.

Fire Fighting Media and Instructions SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Protective Clothing (Fire) Be sure to use an approved/certified respirator or equivalent.

Hazardous thermal (de)composition products These products are carbon oxides (CO, CO₂), sulfur oxides (SO₂, SO₃...).

Section 6. Accidental Release Measures

Personal precautions Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Environmental Precautions and Clean-up Methods If the product is in its solid form: Use a shovel to put the material into a convenient waste disposal container. If the product is in its liquid form: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Small Spill and Leak Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

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Section 7. Handling and Storage

Handling Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

Storage Keep container tightly closed. Keep container in a cool, well-ventilated area.

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Packaging materials

Suitable / Not suitable Use original container.

Section 8. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Exposure Limit Values

Ingredient Name

Occupational Exposure Limits

United States

1) Dimethylsulfoxide

Not available.

Sweden

1) Dimethylsulfoxide

TWA: 50 STEL: 500 CEIL: 150 (ppm) from AFS [Sweden] [1996] SKIN

Denmark

1) Dimethylsulfoxide

TWA: 100 (ppm) from Arbejdstilsynet [Denmark] [1996]

Norway

1) Dimethylsulfoxide

Not available.

France

1) Dimethylsulfoxide

Not available.

Netherlands

1) Dimethylsulfoxide

TWA: 50 (ppm) from Arbeidsinspectie [Netherlands] [2000] Inhalation

Germany

1) Dimethylsulfoxide

TWA: 160 (mg/m³) from BAuA [Germany] [1999] SKIN

Personal Protection

Eyes Splash goggles.

Body Lab coat.

Hands Gloves.

Respiratory Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

Protective Clothing
(Pictograms)





Section 9. Physical and Chemical Properties

<i>Physical State and Appearance</i>	Liquid. (CLEAR, WATERY HYGROSCOPIC LIQUID; SLIGHTLY BITTER TASTE WITH SWEET AFTER-TASTE)	<i>Odor</i>	Sulfurous. Garlic. (Slight.)
<i>Molecular Weight</i>	78.13 g/mole	<i>Taste</i>	BITTER, SWEET (Slight.)
<i>Molecular Formula</i>	C ₂ H ₆ OS	<i>Color</i>	Colorless.
<i>Boiling/Condensation Point</i>	188.9°C (372°F)		
<i>Melting/Freezing Point</i>	18.5°C (65.3°F)		
<i>Specific Gravity</i>	1.101 (Water = 1)		
<i>Vapor Pressure</i>	0 kPa (@ 20°C)		
<i>Vapor Density</i>	2.71 (Air = 1)		
<i>Evaporation Rate</i>	0.026 compared to (n-BUTYL ACETATE=1)		
<i>Viscosity</i>	Dynamic: 1.1 cP		
<i>Dispersion Properties</i>	See solubility in water, diethyl ether, acetone.		
<i>Solubility</i>	Soluble in cold water, hot water. Partially soluble in diethyl ether, acetone.		



Section 10. Stability and Reactivity

<i>Stability and Reactivity</i>	The product is stable.
<i>Conditions to avoid</i>	Not available.
<i>Materials to avoid</i>	Reactive with oxidizing agents, reducing agents, acids, moisture.
<i>Hazardous Polymerization</i>	Will not occur.
<i>Hazardous Decomposition Products</i>	These products are carbon oxides (CO, CO ₂), sulfur oxides (SO ₂ , SO ₃ ...).



Section 11. Toxicological Information

<i>Toxicity to Animals</i>	Acute oral toxicity (LD ₅₀): 100 mg/kg [wild bird species].
<i>Chronic Effects on Humans</i>	CARCINOGENIC EFFECTS: Classified None. by NIOSH. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. Causes damage to the following organs: skin, eyes, eye, lens or cornea.
<i>Other Toxic Effects on Humans</i>	Hazardous in case of eye contact (irritant). Slightly hazardous in case of ingestion, of inhalation (lung irritant).
<i>Special Remarks on Toxicity to Animals</i>	Not available.
<i>Special Remarks on Chronic Effects on Humans</i>	Not available.
<i>Special Remarks on Other Toxic Effects on Humans</i>	To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.



Section 12. Ecological Information

Mobility	Not available.
Persistence/degradability	Not available.
Bioaccumulative potential	Not available.
Ecotoxicity	Ecotoxicity in water (LC50): 33500 ppm 48 hours [Bluegill].
Germany water class	VCI WGK: No products were found.



Section 13. Disposal Considerations

Waste Information	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste Stream	Not available.

Consult your local or regional authorities.



Section 14. Transport Information

Contact the supplier for all information regarding the proper transportation method for this material.



Section 15. Regulatory Information

Label Requirements (Europe)

R36/38- Irritating to eyes and skin.

S24- Avoid contact with skin.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S27- Take off immediately all contaminated clothing.



Irritant

HCS Classification Irritating substance.
Target organ effects.

U.S. Federal Regulations TSCA 8(b) inventory: Dimethylsulfoxide
TSCA 8(d) H and S data reporting: Dimethylsulfoxide
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Dimethylsulfoxide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Dimethylsulfoxide: immediate health hazard, delayed health hazard
SARA 313 toxic chemical notification and release reporting: No products were found.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

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WHMIS (Canada) CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).

CEPA DSL: Dimethylsulfoxide

International Regulations

EINECS Not available.

DSCL (EEC) R36/38- Irritating to eyes and skin.

International Lists Australia (NICNAS): Dimethylsulfoxide

Germany water class: Dimethylsulfoxide

VCI WGK: No products were found.

Korea (TCCL): Dimethylsulfoxide

Philippines (RA6969): Dimethylsulfoxide

State Regulations No products were found.

California prop. 65: No products were found.

Section 16. Other Information

Hazardous Material Information System (U.S.A.)

Health	*	1
Fire Hazard		1
Reactivity		0
Personal Protection		h

National Fire Protection Association (U.S.A.)



References Not available.

History of Document Changes Any information changes since last document version are marked with a triangle symbol.

Full text of R-Phrases referred under headings 2 and 3: Irritating to eyes and skin.

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Validated by Pierce Administration on 11/4/2002.

Verified by Pierce Administration.

Date of Previous Issue No Previous Validation

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Version 0.01

Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.