

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

Responsible Name Company2

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

**Product name** Dimethylsulfoxide (DMSO), 27 ml

**Product No.** 1859614

<b>Supplier</b>	<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	<b>Manufacturer</b>	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** 12/6/2004  
**Validation Date** 12/6/2004  
**MSDS#** 7234

**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 number</u>	<u>%</u>	<u>EC number</u>	<u>Classification</u>
Dimethylsulfoxide (DMSO), 27 ml	67-68-5	98 - 100	200-664-3	Xi; R36/37/38

 **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 RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  
CAUSES DAMAGE TO THE FOLLOWING ORGANS: SKIN, EYES, EYE, LENS OR CORNEA.  
COMBUSTIBLE LIQUID AND VAPOR.  
VAPOR MAY CAUSE FIRE.

Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

**Target organs** Causes damage to the following organs: skin, eyes, eye, lens or cornea.

**Routes of Entry** Dermal contact. Eye contact. Inhalation. Ingestion.

**Potential acute health effects**

**Eyes** Irritating to eyes.

**Skin** Irritating to skin.

**Inhalation** Irritating to respiratory system.

**Ingestion** Practically non-toxic if swallowed.

**Potential chronic health effects**

**Carcinogenic Effects Data**

**CARCINOGENIC EFFECTS:** Classified None. by NIOSH.

**MUTAGENIC EFFECTS:** Mutagenic for bacteria and/or yeast.

**TERATOGENIC EFFECTS:** Not available.

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*Medical Conditions Aggravated by Overexposure:* Repeated or prolonged exposure is not known to aggravate medical condition.  
*Overexposure /Signs/Symptoms* Not available.

### Europe

**Classification** Xi; R36/37/38  
*Physical/chemical hazards* Not applicable.  
*Human health hazards* Irritating to eyes, respiratory system and skin.  
*Environmental hazards* Not applicable.

See Toxicological Information (section 11)

## + Section 4. First Aid Measures

### 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* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.  
*Ingestion* Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.  
*Skin Contact* In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.  
*Eye Contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.  
*Notes to Physician* Not available.  
*Protection of first-aiders* Not available.

## Section 5. Fire Fighting Measures

*Flammability of the Product* Combustible.

*Flash Points* Closed cup: 87°C (188.6°F). Open cup: 94.9°C (202.8°F).

*Fire Hazards in Presence of Various Substances* Not available.

*Fire Fighting Media and Instructions* Use an extinguishing agent suitable for surrounding fires.  
Not available.

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

*Hazardous thermal (de)composition products* These products are carbon oxides (CO, CO<sub>2</sub>), sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub>...).

## 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* Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. 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.

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*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.

**Section 7. Handling and Storage**

*Handling* Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. 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.

*Czech Republic - Storage code* III

**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 occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

<b>Exposure Limit Values</b>	
<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
<b>United States</b>	
<b>Sweden</b>	
Dimethylsulfoxide (DMSO), 27 ml	<b>AFS (Sweden, 0/1996). Skin</b> NGV: 50 ppm KTV: 500 ppm TGV: 150 ppm
<b>Denmark</b>	
Dimethylsulfoxide (DMSO), 27 ml	<b>DK-Arbejdstilsynet (Denmark, 0/1996).</b> GV: 100 ppm
<b>Netherlands</b>	
Dimethylsulfoxide (DMSO), 27 ml	<b>Arbeidsinspectie (Netherlands, 0/2000).</b> TGG: 50 ppm
<b>Germany</b>	
Dimethylsulfoxide (DMSO), 27 ml	<b>BAUA (Germany, 0/1999). Skin</b> TWA: 160 mg/m <sup>3</sup>
<b>Switzerland</b>	
Dimethylsulfoxide (DMSO), 27 ml	<b>SUVA (Switzerland, 0/1997). Skin</b> MAK: 50 ppm 8 hour(s).

*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**

<b>Physical State and Appearance</b>	Liquid. (CLEAR, WATERY HYGROSCOPIC LIQUID; SLIGHTLY BITTER TASTE WITH SWEET AFTER-TASTE)	<b>Color</b> Colorless.	<b>Odor</b> Sulfurous. Garlic. (Slight.)
<b>Molecular Weight</b>	78.13 g/mole		<b>Taste</b> BITTER, SWEET (Slight.)
<b>Molecular Formula</b>	C <sub>2</sub> H <sub>6</sub> OS		
<b>Boiling/Condensation Point</b>	188.9°C (372°F)		
<b>Melting/Freezing Point</b>	18.5°C (65.3°F)		
<b>Specific Gravity</b>	1.101 (Water = 1)		
<b>Vapor Pressure</b>	0.049321 kPa (0.4 mm Hg) (at 20°C)		
<b>Vapor Density</b>	2.71 (Air = 1)		
<b>Evaporation Rate</b>	0.026 compared to (n-BUTYL ACETATE=1)		
<b>Viscosity</b>	Dynamic: 1.1 cP		
<b>LogK<sub>ow</sub></b>	The product is more soluble in water; log(octanol/water) <1		
<b>Dispersion Properties</b>	See solubility in water, diethyl ether, acetone.		
<b>Solubility</b>	Soluble in cold water, hot water. Partially soluble in diethyl ether, acetone.		
<b>Flash point</b>	Closed cup: 87°C (188.6°F). Open cup: 94.9°C (202.8°F).		
<b>Explosion limits</b>	Lower: 3.5% Upper: 42%		

**Section 10. Stability and Reactivity**

<b>Stability and Reactivity</b>	The product is stable.
<b>Conditions to avoid</b>	Not available.
<b>Materials to avoid</b>	Reactive with oxidizing agents, reducing agents, acids, moisture.
<b>Hazardous Polymerization</b>	Will not occur.
<b>Hazardous Decomposition Products</b>	Not available.

**Section 11. Toxicological Information**

<b>Toxicity to Animals</b>	<b>Dimethylsulfoxide (DMSO), 27 ml:</b> ORAL (LD50):	Acute: 14500 mg/kg [Rat]. 7920 mg/kg [Mouse].
<b>Chronic Effects on Humans</b>	<b>CARCINOGENIC EFFECTS:</b> Classified None. by NIOSH. <b>MUTAGENIC EFFECTS:</b> Mutagenic for bacteria and/or yeast. Causes damage to the following organs: skin, eyes, eye, lens or cornea.	
<b>Other Toxic Effects on Humans</b>	Hazardous in case of eye contact (irritant). Slightly hazardous in case of ingestion, of inhalation (lung irritant).	
<b>Special Remarks on Toxicity to Animals</b>	Not available.	
<b>Special Remarks on Chronic Effects on Humans</b>	Not available.	
<b>Special Remarks on Other Toxic Effects on Humans</b>	To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.	

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## Dimethylsulfoxide (DMSO), 27 ml

**Carcinogenicity** No known significant effects or critical hazards.

**Mutagenicity** No known significant effects or critical hazards.

**Reproductive toxicity** No known significant effects or critical hazards.

### Over-exposure signs/symptoms

**Inhalation** No known significant effects or critical hazards.

**Ingestion** No known significant effects or critical hazards.

**Skin** No known significant effects or critical hazards.

**Target organs** Causes damage to the following organs: skin, eyes, eye, lens or cornea.



## Section 12. Ecological Information

**Mobility** Not available.

**Persistence/degradability** Not available.

**Bioaccumulative potential** Not available.

**Ecotoxicity** Ecotoxicity in water: 400000 mg/l [EC50], 96 hour(s) [Fish (Bluegill.)]. 35000 mg/l [LC50], 96 hour(s) [Fish (Trout)]. 34000 mg/l [LC50], 96 hour(s) [Fish (Minnows)]. 27500 mg/l [EC50], 96 hour(s) [Daphnia (daphnia)].

**Germany water class** VCI WGK: No products were found.

### Ecotoxicity data

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
Dimethylsulfoxide (DMSO), 27 ml	Bluegill. (EC50)	96 hour(s)	400000 mg/l
	Trout (LC50)	96 hour(s)	35000 mg/l
	Minnows (LC50)	96 hour(s)	34000 mg/l
	daphnia (EC50)	96 hour(s)	27500 mg/l

### Other ecological information

#### Persistence/degradability

##### Ingredient name

##### BOD<sub>5</sub>

##### COD

##### Ingredient name

##### Aquatic half-life

##### Photolysis

### Bioaccumulative potential

##### Ingredient name

##### LogP<sub>ow</sub>

##### BCF

Dimethylsulfoxide (DMSO), 27 ml <1 - low

**Mobility** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.



## Section 13. Disposal Considerations

**Waste Stream** Not available.

**Methods of disposal** The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

**European waste catalogue (EWC)** Not available.

**Hazardous waste** The classification of the product may meet the criteria for a hazardous waste

**Denmark – Carcinogenic waste** Not available.

**Denmark - Waste card number** Not available.

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Denmark - Waste group Not available.

Sweden - thermoset plastic waste Not available.

Sweden - Waste group Not available.

Austria - Waste catalogue Not available.

Norway - Waste number Not available.

Norway - Hazardous waste The classification of the product may meet the criteria for a hazardous waste

Switzerland - Waste code Not available.

## 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)

R36/37/38- Irritating to eyes, respiratory system and skin.  
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.



**Irritant**

### HCS Classification

**Combustible liquid**  
**Irritating material**  
**Target organ effects**

**U.S. Federal Regulations** TSCA 8(b) inventory: Dimethylsulfoxide (DMSO), 27 ml  
TSCA 8(d) H and S data reporting: Dimethylsulfoxide (DMSO), 27 ml  
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 (DMSO), 27 ml  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Dimethylsulfoxide (DMSO), 27 ml: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard  
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.

**State regulations** No products were found.

**WHMIS (Canada)** Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

CEPA DSL: Dimethylsulfoxide (DMSO), 27 ml

### International Regulations

**EINECS** Not available.

**DSCL (EEC)** R36/37/38- Irritating to eyes, respiratory system and skin.

### International Lists

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# Dimethylsulfoxide (DMSO), 27 ml

Australia (NICNAS): Dimethylsulfoxide (DMSO), 27 ml

Germany water class: Dimethylsulfoxide (DMSO), 27 ml

Japan (METI): Dimethylsulfoxide (DMSO), 27 ml

Korea (TCCL): Dimethylsulfoxide (DMSO), 27 ml

Philippines (RA6969): Dimethylsulfoxide (DMSO), 27 ml

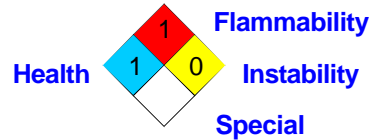
State Regulations No products were found.

## Section 16. Other Information

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

Health	*	1
Fire hazard		1
Reactivity		0
Personal protection		C

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 to in sections 2 and 3 - Europe R36/37/38- Irritating to eyes, respiratory system and skin.

Full text of classifications referred to in sections 2 and 3 - Europe Xi - Irritant

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

Validated by Company2 on 12/6/2004.

Verified by Company2.

Date of Previous Issue No Previous Validation

Printed 12/6/2004.

Version 1.01

### 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.