

Material Safety Data Sheet

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Version 1.5

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	DIETHYLENE GLYCOL DIMETHYL ETHER, REAGENTPLUS, 99%
Product Number	M14102
Company	Sigma-Aldrich Pty. Ltd. 12 Anella Avenue Castle Hill NSW 2154 Australia
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
DIETHYLENE GLYCOL DIMETHYL ETHER	111-96-6	203-924-4	603-139-00-0
Formula	C6H14O3		
Molecular Weight	134.18 AMU		
Synonyms	Bis(2-methoxyethyl)ether * Diethylene glycol dimethyl ether * Diethyl glycol dimethyl ether * Diglyme * Ethane, 1,1'-oxybis(2-methoxy- (9CI) * Glyme 2 * Methyldiglyme * 1,1'-Oxybis(2-methoxyethane) * Poly-Solv * 2,5,8-Trioxanonane		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
May impair fertility. May cause harm to the unborn child.
Flammable. May form explosive peroxides.
Repr. Cat.2

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give
artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for
at least 15 minutes. Remove contaminated clothing and shoes.
Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of

water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not breathe mist. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat and open flame. Store in a cool dry place. Store under nitrogen.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	27 mg/m ³
		5 ppm

Remarks: 4

Remarks: H,

EXPOSURE LIMITS - NORWAY

Source	Type	Value
Remarks: R		

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	27 mg/m3 5 ppm

Remarks: HB

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Property	Value	At Temperature or Pressure
Appearance	Physical State: Clear liquid Color: Colorless	
pH	N/A	
BP/BP Range	162 °C	760 mmHg
MP/MP Range	-64 °C	
Flash Point	57 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	188 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 1.5 % Upper: 17.4 %	
Vapor Pressure	3 mmHg	20 °C
SG/Density	0.943 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	4.6 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Unstable.

Materials to Avoid: Strong oxidizing agents, Strong acids, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

ACUTE TOXICITY

LD50

Oral

Rat

5400 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Ataxia. Lungs, Thorax, or Respiration:Respiratory
depression.

LD50

Oral

Mouse

6000 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Ataxia. Lungs, Thorax, or Respiration:Respiratory
depression.

SIGNS AND SYMPTOMS OF EXPOSURE

In laboratory studies with this material, birth defects, fetotoxicity, embryoletality, anemia, bone marrow damage, hemolysis, immunosuppression, and damage to the male reproductive tissues have been observed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

TARGET ORGAN INFORMATION

Female reproductive system. Male reproductive system.

CHRONIC EXPOSURE - MUTAGEN

Rat

1000 PPM

Inhalation

5D

Dominant lethal test

Mouse

1000 PPM

Inhalation

5D

sperm

CHRONIC EXPOSURE - TERATOGEN

Result: Laboratory experiments have shown teratogenic effects.

Species: Rat

Dose: 500 MG/KG

Route of Application: Oral

Exposure Time: (11D PREG)

Result: Effects on Embryo or Fetus: Maternal-fetal exchange.

Species: Mouse
Dose: 537 MG/KG
Route of Application: Oral
Exposure Time: (11D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 2500 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Cardiovascular (circulatory) system. Specific Developmental Abnormalities: Urogenital system.

Species: Mouse
Dose: 1250 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Species: Rat
Dose: 13680 MG/KG
Route of Application: Oral
Exposure Time: (20D MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis, sperm duct. Paternal Effects: Other effects on male.

Species: Rat
Dose: 1100 PPM/6H
Route of Application: Inhalation
Exposure Time: (2W MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis, sperm duct.

Species: Mouse
Dose: 2500 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Species: Mouse
Dose: 5 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Species: Rabbit
Dose: 1400 MG/KG

Route of Application: Oral
Exposure Time: (6-19D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Musculoskeletal system.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 3271
Class: 3
PG: III
Proper Shipping Name: Ethers, n.o.s.

IMDG

UN#: 3271
Class: 3
PG: III
Proper Shipping Name: Ethers, n.o.s.
Marine Pollutant: No
Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 3271
Class: 3
PG: III
Proper Shipping Name: Ethers, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 603-139-00-0
INDICATION OF DANGER: T

Toxic.

R-PHRASES: 60 61 10 19

May impair fertility. May cause harm to the unborn child.

Flammable. May form explosive peroxides.

S-PHRASES: 53 45

Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany
WGK: 1

SWITZERLAND
SWISS POISON CLASS: 3

NORWAY

Declaration Number: 67077

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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