



Material Safety Data Sheet

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Phone Calls: 301-816-8129
8 a.m. to 5 p.m. EST Mon. - Fri.

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DIETHYLENE GLYCOL

Catalog Number: 1193265

Revision Date:

March 27, 2008

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Common Name: Diethylene Glycol

Manufacturer: U. S. Pharmacopeia

Responsible Party: Reference Standards Technical Services

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Product Use: USP Reference Standards and Authentic Substances are used for chemical tests and assays in analytical, clinical, pharmaceutical, and research laboratories.

SECTION 2 - HAZARD INFORMATION

EMERGENCY OVERVIEW - Irritant.

Adverse Effects: Adverse effects may include nausea, vomiting, abdominal pain, headache, dizziness, confusion, cough, tiredness, and red and/or raised skin. Possible allergic reaction to material if inhaled, ingested or in contact with skin.

Overdose Effects: Overdose may cause unconsciousness, respiratory arrest, and liver or kidney failure. Estimates of the human lethal dose range from 14 mg/kg to 1 mL/kg.

Acute: Eye, skin, gastrointestinal and/or respiratory tract irritation.

Chronic: Possible hypersensitization.

Medical Conditions Aggravated by Exposure: Hypersensitivity to material.

Cross Sensitivity: n/f

Target Organs: Central nervous system, kidneys, liver

For additional information on toxicity, see Section 11.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Common Name: Diethylene Glycol

Formula: C₄H₁₀O₃

Synonym: 2,2'-oxybisethanol

Chemical Name: bis(2-hydroxyethyl)ether**CAS:** 111-46-6**RTECS Number:** ID5950000**Chemical Family:** n/f**Therapeutic Category:** n/f**Composition:** Pure Material**SECTION 4 - FIRST AID MEASURES****Inhalation:** May cause irritation. Remove to fresh air.**Eye:** May cause irritation. Avoid contact. Flush with copious quantities of water for at least 15 minutes.**Skin:** May cause irritation. Avoid contact. Flush with copious quantities of soap and water.**Ingestion:** May cause irritation. Flush out mouth with water.**General First Aid Procedures:** Remove from exposure. Remove contaminated clothing. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention. If person is not breathing give artificial respiration. If breathing is difficult give oxygen. Obtain medical attention.**Note to Physicians****Overdose Treatment:** Treatment of overdose should be symptomatic and supportive and may include:

1. Monitor serum electrolytes, glucose and bicarbonate, hepatic enzymes, and renal function.
2. Monitor blood gases in patients with metabolic acidosis.
3. Fomepizole, a specific antagonist of alcohol dehydrogenase, has been used experimentally in humans.
4. Severe acidosis can be treated with IV sodium bicarbonate.
5. Hemodialysis is indicated in severe acid-base disturbances or renal failure. [Meditext 2008]

SECTION 5 - FIREFIGHTING MEASURES**Extinguisher Media:** Water spray, dry chemical, carbon dioxide or foam as appropriate for surrounding fire and materials.**Fire and Explosion Hazards:** This material is combustible.**Firefighting Procedures:** As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.**SECTION 6 - ACCIDENTAL RELEASE MEASURES****Spill Response:** Wear approved respiratory protection, chemically compatible gloves and protective clothing. Remove all ignition sources. Wipe up spillage or absorb with non-combustible material. Avoid breathing vapor. Place spillage in appropriately-labelled container for disposal. Wash spill site.**SECTION 7 - HANDLING AND STORAGE****Handling:** As a general rule, when handling USP Reference Standards avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Wash thoroughly after handling.**Storage:** Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.**SECTION 8 - EXPOSURE CONTROL / PERSONAL PROTECTION****Engineering Controls:** Engineering controls such as exhaust ventilation are recommended.**Respiratory Protection:** Use a NIOSH approved respirator, if it is determined to be necessary by an industrial hygiene survey involving air monitoring.**Gloves:** Chemically compatible

Eye Protection: Safety glasses or goggles**Protective Clothing:** Protect exposed skin.**Exposure Limits:** AIHA: 10 mg/m³
Germany: 10 ppm

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Properties as indicated on the MSDS are general and not necessarily specific to the USP Reference Standard Lot provided.**Appearance and Odor:** Clear, colorless, viscous liquid; practically odorless.**Odor Threshold:** n/f**pH:** n/f**Melting Range:** -6.5 to -10.5° C**Boiling Point:** 245° C**Flash Point:** 143° C (closed cup); also reported as 124° C (closed cup)**Autoignition Temperature:** 228°C**Evaporation Rate:** n/f**Upper Flammability Limit:** 12.2%**Lower Flammability Limit:** 1.6%**Vapor Pressure:** 0.0057 mm Hg at 25° C**Vapor Density:** 3.66 (air = 1)**Specific Gravity:** 1.115 - 1.18**Solubility in Water:** Miscible**Fat Solubility:** n/f**Other Solubility:** Miscible with alcohol, ether, acetone, and ethylene glycol; insoluble in benzene and in carbon tetrachloride**Partition Coefficient: n-octanol/water:** -1.98**Percent Volatile:** n/f**Reactivity in Water:** n/f**Explosive Properties:** n/f**Oxidizing Properties:** n/f**Formula:** C₄H₁₀O₃**Molecular Weight:** 106.12

SECTION 10 - STABILITY AND REACTIVITY

Conditions to Avoid: Avoid exposure to heat and sources of ignition.

Incompatibilities: Oxidizing agents

Decomposition Products: n/f

Stable? Yes **Hazardous Polymerization?** No

SECTION 11 - TOXICOLOGICAL PROPERTIES

Oral Rat: LD50: 12000 mg/kg; 12565 mg/kg

Oral Mouse: LD50: 2300 mg/kg; 23700 mg/kg

Other Toxicity Data: Dermal Rabbit LD50: 11890 mg/kg

Irritancy Data: Human/skin (112 mg/3 D intermittent): mild
Rabbit/skin (500 mg): mild
Rabbit/eye (50 mg): mild

Corrosivity: n/f

Sensitization Data: n/f

Listed as a Carcinogen by: **NTP:** No **IARC:** No **OSHA:** No

Other Carcinogenicity Data: Negative for carcinogenicity in rats administered up to 2.5% diethylene glycol in water for 108 weeks.

Mutagenicity Data: Negative in Ames test with and without activation.

Reproductive and Developmental Effects: When diethylene glycol was given at a dose of 5% in the diet to rats during pregnancy, there was a slight reduction in weights of the newborns, but no teratogenicity. Diethylene glycol was not fetotoxic or teratogenic, nor was it maternally toxic, when given orally to pregnant rabbits at doses up to 1000 mg/kg from day 7 to 19 after insemination. In mice, there was no maternal or developmental toxicity at 1250 mg/kg/day of diethylene glycol. The mid-dose (5000 mg/kg/day) produced significant maternal toxicity, but no clear evidence of developmental toxicity. The high dose (10,000 mg/kg/day) caused the death of 1 out of 28 pregnant dams, maternal toxicity and developmental toxicity.

SECTION 12 - ECOLOGICAL INFORMATION

Ecological Information: May cause long-term adverse effects in the aquatic environment.

Fathead minnow LC50: >100 mg/L (96 hr; static)

Water flea LC50: 0.3 - 1.0 mg/L (96 hr; static)

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal: Dispose of waste in accordance with all applicable Federal, State and local laws.

SECTION 14 - TRANSPORT INFORMATION

Shipping Name: n/f

Class: n/f

UN Number: n/f

Packing Group: n/f

Additional Transport Information: n/f

SECTION 15 - REGULATORY INFORMATION

DIETHYLENE GLYCOL**Catalog Number:** 1193265**Revision Date:**March 27, 2008

U.S. Regulatory Information: n/f**International Regulatory Information:** EINECS # 203-872-2
Hazard code: Xn
Risk phrases: R22
Safety phrases: S2, S46

SECTION 16 - OTHER INFORMATION

Revision: 27-Mar-08**Previous Revision Date:** 26-Nov-07