



5515 North Service Rd. #306
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megaloid.ca



Responsible Care®
Our commitment to sustainability.



RDC
Responsible Distribution Canada
Leaders in Chemicals and Ingredients

1. IDENTIFICATION

Name: Diethylene Glycol

Synonyms: dihydroxydiethyl ether; 2-hydroxyethyl ether; 2,2-oxydiethanol, diethylene glycol; DEG

Product Uses: Mfg of polyester resins, polyols, & other resins; antifreeze, dehydrating agent, ink component

Supplier: Megaloid Laboratories Limited
Identifier: 5515 North Service Road # 306
Burlington, ON L7L 6G4

EMERGENCY INFORMATION: Call CHEMTREC - (800) 424-9300
(CCN# 693764)

2. HAZARD IDENTIFICATION

GHS Class (category)	Acute toxic (3)*	STOT (2)	
Signal Word	DANGER		
Hazard Statements	Toxic if swallowed (H301)	Ingestion may cause damage to kidneys (H371)	<i>*NOTE: Oral LD₅₀ on animals does not warrant classification as Category (3). However, diethylene glycol is far more toxic to humans than it is to laboratory test animals. (see NOTE in Part 7)</i>

Hazardous Pictograms



GHS Precautionary Statements for Labelling	
Prevention:	
P260	Do not breathe fume.
P264	Wash hands and skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
Response:	
P301+P310	IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
Storage:	
P405	Store locked up.
Disposal:	
P501	Dispose of contents and container in accordance with local, regional, national and international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	CAS No.	% (w/w)	Other Identifiers
Diethylene Glycol	111-46-6	100	EC#203-872-2

4. FIRST-AID MEASURES

Inhalation

Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.

Skin Contact

Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.

Eye Contact

Wash eyes with plenty of water, holding eyelids open. Seek medical assistance if there is any irritation.

Ingestion

Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Most important symptoms and effects, both acute and delayed

Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. No specific hazards under normal use conditions. Skin irritation signs and symptoms may include a burning sensation, redness, or swelling. Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.

Notes to physician

Call a doctor or poison control center for guidance.
Treat symptomatically.

First-aid Comments

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

5. FIRE FIGHTING MEASURES**Suitable Extinguishing Media**

Alcohol-resistant foam, dry chemical water spray or fog

Unsuitable Extinguishing Media

Do not use water in a jet

Specific Hazards Arising from the Product

Carbon monoxide may be evolved if incomplete combustion occurs. Containers exposed to intense heat from fires should be cooled with large quantities of water.

Special Protective Equipment and Precautions for Fire-fighters

Firefighters must wear SCBA

Static Charge Accumulation

Cannot accumulate a static charge

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Wear adequate personal protective equipment. Ventilate area. Extinguish or remove all ignition sources. Notify government occupational health and safety and environmental authorities.

Methods and materials for containment and cleaning up

Leak Precaution - dyke to control spillage and prevent environmental contamination

Handling Spill - recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel & store in closed containers for recycling or disposal

Environmental Precautions

It is good practice to prevent releases into the environment. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas. Minimize the use of water to prevent environmental contamination.

7. HANDLING & STORAGE

Conditions for Safe Storage

Store in a dry environment, away from sources of open flame, oxidising agents and substances listed in Part 10.

Precautions for Safe Handling

This product may react with oxygen in the air to form explosive or flammable peroxides. Ensure that containers are full and tightly sealed. If prolonged storage of a part container is anticipated, flush headspace with dry nitrogen gas prior to sealing. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

Avoid breathing product mist. Use with adequate ventilation. Never cut, drill, weld or grind on or near this container. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.

Sweet taste makes glycols attractive to pets and children. Keep away from children and clean spills promptly.

NOTE on Oral Toxicity: Diethylene Glycol is far more toxic in humans than to the laboratory animals used in oral LD₅₀ tests (Part 11). Of course, human LD₅₀ testing is not possible but in 1937, 105 people (34 children, 71 adults) died after ingesting an elixir with 72% diethylene glycol, 8% sulphanilamide, 20% flavours & saccharin, caramel, plus 10% water for 6-13 days. More recently, ½ of a small group of male prisoners who had been ingesting (substance abuse) Diethylene Glycol for 2 years (as a cleaning solution), were identified with neurological abnormalities. Of course, ingestion is not an expected route of entry for this substance in an industrial setting.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV Not listed
AGGIH TLV Not listed
OSHA PEL Not listed

Ontario STEV Not listed
ACGIH STEL Not listed
OSHA STEL Not listed

Ventilation	Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air.
Hands	Nitrile or butyl gloves are resistant to diethylene glycol
Eyes	Safety glasses with side shields – always protect the eyes.

Clothing No special protective clothing required.

9. PHYSICAL & CHEMICAL PROPERTIES

Odour & Appearance	clear, colourless, odourless, viscous, hygroscopic liquid with sweet taste
Odour threshold	not known – odourless
pH	7-8 – prolonged exposure to air causes oxidation; formation of acidic oxides drops pH
Melting point/Freezing point	-10.5oC / 13.1oF – product supercools – freezing point hard to determine
Initial boiling point/boiling range	246oC / 475oF
Flash point	124oC / 255oF (closed cup)
Evaporation rate (butyl acetate=1)	0.001
Flammability (solid; gas)	no data available
Lower flammable/explosive limit	1.6%
Upper flammable/explosive limit	10.8%
Vapour pressure	0.0057mmHg / 0.00076kPa (25oC/ 77oF)
Vapour density (air = 1)	3.7
Relative density	1.12
Water Solubility	complete
Log Pow (Octanol/H ₂ O Partition Coefficient)	-1.47
Auto ignition temperature	224oC / 435oF, also 228oC / 444oF
Decomposition temperature	not known – no decomposition below the Autoignition Temperature
Viscosity	36 centipoise (20oC / 68oF)
Conversion Factor	1ppm = 4.3mg/m ³
Molecular Weight	106 grams per mole
Molecular Formula	C ₄ -H ₁₀ -O ₃

10. STABILITY AND REACTIVITY

Reactivity

Strong oxidising agents, including hypochlorites; reaction with powdered aluminum, powdered zinc, sodium, potassium, lithium, or their hydrides or calcium, magnesium releases hydrogen & creates a strong alkaline solution; vigorous reaction with boron trichloride & aluminum chloride yielding corrosive hydrogen chloride gas

Chemical Stability

Stable; will not polymerize

Possibility of Hazardous Reactions

None known

Conditions to avoid

Extremes of temperature and direct sunlight.

Incompatible materials

Strong oxidising agents. Strong acids

Hazardous decomposition products

None apart from Hazardous Combustion Products

Sensitive to Mechanical Impact

No

11. TOXICOLOGICAL INFORMATION

Acute Toxicity	
Skin Contact	little to no effect – <i>in sensitive people, some redness may occur on prolonged contact</i>
Skin Absorption	slight; toxic effects unlikely by this route
Eye Contact	test little to no effect
Inhalation	mist has little to no effect – <i>this product has very low volatility (low vapour pressure)</i>
Ingestion	intoxication, dizziness, nausea; <u><i>low immediate toxicity but ingestion may cause delayed, fatal renal failure</i></u>
LD50 (oral, mg/kg)	2300, 13,300 & 23,700 (mouse), 3300 (cat), 7800 & 8000 (guinea pig), 9000 & 9900mg/kg (dog), 2690, 4400 & 26,900 (rabbit), 8700, 12,565-32,000, 49,000 (rat, 9 studies)
LD50 (skin)	11,890 & 13,300mg/kg (rabbit)
LC50 (inhalation)	19,780ppm (rat), >1070ppm (rat) – <i>no mortality reported plus rapid resolution of all symptoms</i>

NOTE: Animal Oral LD₅₀ suggests low toxicity. Diethylene Glycol is far more toxic in humans. It rates a skull & crossbones hazard symbol for GHS (&WHMIS). See NOTE following Part 7 for more information.

11. TOXICOLOGICAL INFORMATION, CONTINUED - [Effects, Chronic Exposure](#)

General

Prolonged or repeated absorption (ingestion) may cause kidney failure and/or liver degeneration;

Sensitising

Not a sensitiser

Carcinogen/Tumorigen

Not known to be a tumorigen or a carcinogen in humans or animals

Reproductive Effect

No known effect on humans; in rats fetotoxicity occurred at doses also causing maternal toxicity

Mutagen

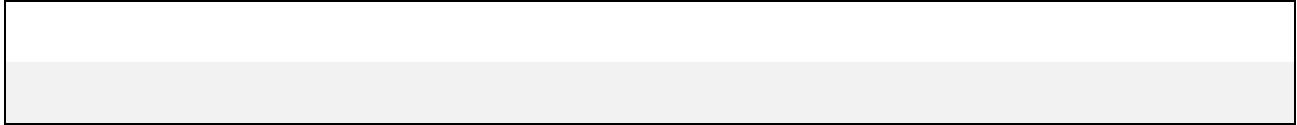
Not known to be a mutagen or teratogen in humans or animals

Synergistic With

Ethanol ingestion decreases toxicity of diethylene glycol

12. ECOLOGICAL INFORMATION

Bioaccumulation	rapidly excreted and/or metabolised and cannot bioaccumulate
Biodegradation	biodegrades readily in the presence of oxygen: 90% – 92% in 28 days, also 95% in 7 days
Abiotic Degradation	reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 6 to 12 hours (results of several studies)
Mobility in soil, water	water soluble; moves readily in soil & water
Aquatic Toxicity	
LC50 (Fish, 96hr)	>32,000mg/kg (Gambusia affinis & Lepomis macrochirus), 75,200mg/litre (Pimephelas promelas) >10,000mg/kg (Leuciscus idus, 48hr), >5000mg/kg (Carassius auratus, 24hr)
LC50 (Crustacea, 48hr)	84,000mg/kg (Daphnia magna), >10,000mg/kg (Daphnia magna & Artemia salina – 24hr)
EC50 (Algae, 8 day)	1700mg/litre (Anacystis aeruginosa); 2700mg/litre (Scenedesmus quadricauda)
NOEC (Algae)	800mg/litre (Anacystis aeruginosa), 100mg/litre (Selenastrum capricornutum)
EC50 (Bacteria)	29,228mg/litre (Photobacterium phosphoreum, 15min), 40,000mg/litre (mixed bacterial culture),
EC20 (Bacteria)	1995mg/litre (sewage sludge)



13. DISPOSAL

Waste Disposal

Do not flush to sewer, recycle solvent if possible, local regulations may permit disposal in sanitary landfill, may be incinerated in approved facility after mixing with a suitable flammable waste

Containers

Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.

Pails must be vented and thoroughly dried prior to crushing and recycling.

IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs).

Steel containers must be inspected, pressure tested & recertified every 5 years.

Never cut, drill, weld or grind on or near this container, even if empty

14. TRANSPORT INFORMATION

Canada TDG AND U.S.A. 49 CFR	PIN Shipping Name Class & Packing Group	Not regulated
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Marine Pollutant ERAP Required (CA only) Reportable Quantity (RQ – US only) Emergency Response Guide No.	Not a Marine Pollutant No n/a n/a
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15. REGULATORY INFORMATION

Canada DSL U.S.A. TSCA Europe EINECS	On Inventory On Inventory On Inventory
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Canada Regulations:

CEPA - National Pollutant Release Inventory (NPRI)
Not specifically listed.

U.S.A. Regulations:

Allowable Tolerances: Residues of diethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: deactivator, adjuvant for formulations used before crop emerges from soil.

Residues of diethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: deactivator for formulations used before crop emerges from soil, stabilizer.

FIFRA Requirements: Residues of diethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: deactivator, adjuvant for formulations used before crop emerges from soil. Residues of diethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: deactivator for formulations used before crop emerges from soil, stabilizer.

FDA Requirements: Diethylene glycol is an indirect food additive for use only as a component of adhesives.

CERCLA Reportable Quantity: This material does not contain any components with a CERCLA RQ.

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 304: Extremely Hazardous Substances Reportable Quantity - This material does not contain any components with a section 304 EHS RQ.

SARA 311/312: Immediate (Acute) Health Hazard: **Yes**
Delayed (Chronic) Health Hazard: **Yes**
Fire Hazard: No
Reactive Hazard: No
Sudden Release of Pressure Hazard: No

SARA 313: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

State Reporting

California Proposition 65

This material is not known to contain a chemical substance known to the State of California to cause cancer, reproductive, or developmental toxicity under California Proposition 65.

New Jersey's Worker and Community Right to Know Act

This product contains no known chemicals regulated by New Jersey's Worker and Community Right to Know Act.

Massachusetts Right to Know Act

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

Pennsylvania's Right to Know Act

This product contains the following chemicals regulated by Pennsylvania's Right to Know Act.

Diethylene Glycol, CAS # 111-46-6

Regulatory

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on KECI (Korea Toxic Chemicals Control Act)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on TCSCA (Taiwan Chemical Substance Control Act)

16. OTHER INFORMATION

NFPA RATING	Health 1	Flammability 1	Instability 0
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Preparation Date: June 2001

Revision Dates: Dec. 2003, Oct. 2006, Oct. 2009, Oct. 2012, July 2015, April 2018

Key to Abbreviations	ACGIH® = American Conference of Governmental Industrial Hygienists AIHA® = AIHA® Guideline Foundation HSDB® = Hazardous Substances Data Bank IARC = International Agency for Research on Cancer NIOSH = National Institute for Occupational Safety and Health NTP = National Toxicology Program OSHA = US Occupational Safety and Health Administration RTECS® = Registry of Toxic Effects of Chemical Substances
References	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).
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