established in 1981
megaloid laboratories
5515 North Service Rd. #306
Burlington, Ontario L7L 6G4
Phone: 905-337-7411
Fax: 905-337-1686
megaloid.ca

Responsible Care® Our commitment to sustainability.

RDC Responsible Distribution Canada Leaders in Chemicals and Ingredients

1. PRODUCT IDENTIFICATION

Name: ***Triethylene Glycol***

Synonyms: *2,2'-ethylenedioxyethanol; 1,2-bis(2-hydroxyethoxy)ethane; and others*

CAS# *112-27-6*

Product Uses: *heat transfer fluid, humectant, hydraulic fluid, plasticiser, solvent for pesticides, gums, resins dyes, etc.*

Supplier Identifier: *Megaloid Laboratories Limited*
5515 North Service Road, Suite 306, Burlington, ON L7L 6G4
Phone: 905-337-7411 / Fax: 905-337-1686

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

2. HAZARDS

GHS Class *(category)*	***NOT Hazardous***	
Signal Word	***None***	
Hazard Statements	***None***	

GHS Precautionary Statements for Labelling
None

3. COMPOSITION

Chemical Name:	CAS No.	%	Other Identifiers
Triethylene Glycol	*112-27-6*	*100*	*EC # 203-953-2*

4. FIRST AID

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.

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 & FLAMMABILITY

Extinguishing Media

Suitable Extinguishing Media

Alcohol resistant foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water - water jet spreads flames

Combustion Products

Carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments. Cannot accumulate a static charge on agitation or pumping.

Special Protective Equipment and Precautions for Fire-fighters

Firefighters must wear SCBA.

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. Eliminate all ignition sources. Use grounded, explosion-proof equipment. Increase ventilation to area or move leaking container to a well-ventilated and secure area.

Environmental Precautions

If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

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.

Other Information

Report spills to local health, safety and environmental authorities, as required.

7. HANDLING & STORAGE

Precautions for Safe Handling

Store in a cool, well ventilated environment. Do not store in direct sun. Always use non-sparking bronze or aluminum hand tools. All electrical & mechanical equipment (including lighting, switchgear & forklift trucks) used with or around this product must be explosion-proof.

Always ground or electrically bond the source container, receiving container & transfer pump before transferring contents.

Avoid splashing by keeping the product nozzle below the surface in the receiving container. Empty containers may contain a flammable/explosive vapour. Always ensure that containers, whether empty or full, are tightly sealed unless in use.

Avoid breathing product vapour. Use with adequate ventilation. If dealing with a spill & ventilation is impossible or impractical, wear a suitable respirator with an organic vapour canister.

Never cut, drill, weld or grind on or near this container. Avoid contact with skin & wash work clothes frequently. An eye bath must be available near the workplace.

Conditions for Safe Storage

Store in a dry environment, away from sources of ignition, heat and oxidising agents. Ensure that containers, whether empty or full, are tightly sealed unless in use.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV	*not listed*	**Ontario STEV**	*not listed*
ACGIH TLV	*not listed*	**ACGIH STEL**	*not listed*
OSHA PEL	*not listed*	**OSHA STEL**	*not listed*

Ventilation	*no special mechanical ventilation required*
Hands	*no special protective gloves required*
Eyes	*Safety glasses with side shields – always protect the eyes*
Clothing	*No special protective clothing required*

9. PHYSICAL PROPERTIES

Appearance	*clear, colourless, viscous, odourless, hygroscopic liquid*
Odour	*no odour*
Odour threshold	*not known – odourless*
pH	*none – (does not liberate hydrogen ions when dissolved)*
Melting Point/Freezing Point	*-5^{o}C / 23^{o}F*
Initial Boiling Point/Range	*287^{o}C / 549^{o}F*
Flash Point	*177^{o}C / 350^{o}F (closed cup), also 176^{o}C / 349^{o}F (open cup)*
Evaporation Rate	*not known – not volatile*
Flammability (Solid, Gas)	*Not Available*
Upper/Lower Flammability or Explosive Limit	*9.2% (upper); 0.9% (lower)*
Vapour Pressure	*below 1 x 10^{-3}mmHg / 1.3 x 10^{-4}kPa (20^{o}C / 68^{o}F)*
Vapour Density (air = 1)	*5.2*

Relative Density (water = 1)	*Not Available*
Solubility	*Soluble in water. Also soluble in most organic solvents, limited solubility in diethyl ether or aliphatic hydrocarbons*
Partition Coefficient, n-Octanol/Water (Log P/ow)	*-2.08, also -1.98, -1.75 & -1.24*
Auto-ignition Temperature	*347^{o}C / 657^{o}F, also 371^{o}C / 700^{o}F*
Decomposition Temperature	*no decomposition up to Auto ignition Temperature*
Viscosity	*48centipoise (20^{o}C / 68^{o}F)*
Physical State	*Liquid*
Molecular Weight	*150grams per mole*
Molecular Formula	*C6-H14-O4*

10. REACTIVITY

Reactive
Dangerously reactive with strong oxidising agents; undergoes violent decomposition on contact with 70% perchloric acid.

Chemical Stability
Stable; will not polymerize.

Possibility of Hazardous Reactions
None known.

Hazardous Decomposition Products
None apart from Hazardous Combustion Products.

Sensitive to Mechanical Impact
no

11. TOXICITY

Prolonged exposure may cause dermatitis; systemic effects of prolonged inhalation are minor & subtle.

Acute Toxicity	
LD_{50} (oral)	*15,000-22,000mg/kg (rat), 18,500-21,000mg/kg (mouse), 8400mg/kg (rabbit), 7900mg/kg (guinea pig)*
LD50 (skin)	*over 22,500mg/kg (rabbit), over 25,000mg/kg (rabbit)*
LC50 (inhalation)	*>720ppm (>4400mg/m^{3}) & >852ppm (5200mg/m^{3}) (rat), >843ppm (>5140mg/m^{3}) (mouse) – no mortality*

Skin Corrosion/Irritation
Not a skin irritant. Some skin absorption; no toxic effects likely by this route.
Serious Eye Damage/Irritation
May cause discomfort, tears – will not damage; also: not irritating.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation
Little or no effect noted, even in animals subjected to continuous product mist.
Ingestion
May cause abdominal discomfort - not a route of industrial exposure.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Respiratory and/or Skin Sensitization
Not known to be a respiratory sensitizer.
Carcinogenicity
Not a carcinogen. IARC: Not specifically listed. ACGIH®: Not specifically listed. NTP: Not specifically listed. OSHA: Not specifically listed.
Reproductive Toxicity
No known effect in animals or human.
Germ Cell Mutagenicity
Not known to be a mutagen.

12. ECOLOGICAL INFORMATION

Bioaccumulation	*rapidly excreted and/or metabolised by all living creatures; cannot bioaccumulate*
Persistence and Degradability	***Biodegradation -*** *biodegrades readily & rapidly in the presence of oxygen; 76% & 84% in 20 days, >90% in 28 days* ***Abiotic Degradation -*** *reacts slowly with atmospheric hydroxyl radicals; estimated 1⁄2-life in air is ~80 day*
Mobility in soil, water	*Acetone moves readily in soil & water; volatilisation is rapid, mitigating mobility*
Aquatic Toxicity	
LC50 (Fish, 96hr)	*10,000 & 61,000mg/litre (Lepomis macrochirus), 59,900-92,500mg/litre (Pimephelas promelas), 73,500mg/litre (Salvelinus fontinalis), >10,000mg/litre (Menidia beryllina) & others*
EC50 (Crustacea, 48hr)	*>10,000, 35,000, 39,300-52,400mg/litre (Daphnia magna – several tests) & others*
EC_0 (Protozoa)	*no mortality at 10,000mg/litre (Chilomonas paramaecium, Entosyphon sulcatum & Uronema parduzci)*
EC50 (Bacteria)	*33,000mg/litre (Photobacterium phosphoreum), >10,000mg/litre (Uronema parduzci)*
EC10 (Bacteria)	*>1995mg/litre (sewage sludge, industrial).*

13. DISPOSAL

Water 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 CLASSIFICATION

Canada TDG **AND** **U.S.A. 49 CFR**	**PIN** **Shipping Name** **Class & Packing Group**	Not regulated for transport

Marine Pollutant	Not a Marine Pollutant
ERAP Required	NO
Reportable Quantity	NO
E R G No.	None

15. REGULATIONS

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

Canadian Regulations

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

U.S.A. Regulations

Allowable Tolerances: Residues of triethylene glycol are exempted from the requirement of a tolerance when used as a deactivator in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only.
Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non-air quality health and environmental impact and energy requirements. Triethylene glycol is produced, as an intermediate or final product, by process units covered under this subpart.
FIFRA Requirements: Residues of triethylene glycol are exempted from the requirement of a tolerance when used as a deactivator in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. The Agency has determined triethylene glycol is eligible for reregistration. Based on the available data, the Agency has concluded that triethylene glycol exhibits low toxicity and exposures to triethylene glycol used as both an active or inert ingredient do not present risks of concern to the Agency. Therefore, no mitigation measures are necessary at this time. As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide reregistration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for reregistration. In addition, all pesticides must meet the new safety standard of the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA '88 were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern and List D pesticides of less concern. Triethylene glycol is found on List C. Case No: 3146; Pesticide type: insecticide, fungicide, antimicrobial; Case Status: OPP is reviewing data from the pesticide's producers regarding its human health and/or environmental effects, or OPP is determining the pesticide's eligibility for reregistration and developing the RED document.; Active ingredient (AI): triethylene glycol; Data Call-in (DCI) Date(s): 9/30/92; AI Status:

The producers of the pesticide have made commitments to conduct the studies and pay the fees required for reregistration, and are meeting those commitments in a timely manner.
FDA Requirements: Triethylene glycol is an indirect food additive for use only as a component of adhesives.

15. OTHER INFORMATION

NFPA RATING	Health	1	Flammability	1	Instability	0

Prepared for *Megaloid Laboratories Laboratories* **by** *Richard Koscher*
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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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