



Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name	Tetraethylene Glycol
Synonyms	ethanol, 2,2'-(oxybis(ethyleneoxy))di-; ethanol, 2,2'-(oxybis(2,1-ethanediylxy))bis-
CAS#	112-60-7
Europe EC#	203-989-9
Product Uses	hydraulic fluids, plasticizer, solvent in coatings, natural gas desiccant

2. HAZARDS

Quick Guide:	<i>not hazardous</i>
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Canada – WHMIS

Key:

not controlled under WHMIS*B 2 – Flash Point <38°C, B 3 – Flash Point >38°C & <93°C**D 1 – Immediately Toxic, D 2 – Chronic Toxicity**C – Oxidising Substance, E – Corrosive, F – Reactive Substance*

U.S.A. – HMIS

Key:

Health – 0, Fire – 1, Reactivity – 0*0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe*

3. COMPOSITION

	%	TWAEV / TLV mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
Tetraethylene Glycol	100%	not listed	10,000	22,570	not known

4. FIRST AID

SKIN:	Wash with plenty of water. Remove contaminated clothing and do not reuse until laundered.
EYES:	Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION:	Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
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.

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

Flash Point	182°C / 360°F (closed cup)
Autoignition Temperature	not known
Flammable Limits	not known
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA
Static Charge Accumulation	readily accumulates a static charge on agitation or pumping

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6. ACCIDENTAL RELEASE MEASURES

Leak Precaution dyke to control spillage and prevent environmental contamination
 Handling Spill ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep,
 shovel & store in closed containers for recycling or disposal

7. HANDLING & STORAGE

Tetraethylene Glycol is hygroscopic. Store in a dry environment, away from oxidising agents and perchloric acid. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use. Avoid breathing product mist.

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 should be available near the workplace.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV	not listed
ACGIH TLV	not listed
OSHA PEL	not listed
STEL	not listed
Ventilation	no special mechanical ventilation required
Hands	no special hand protection required
Eyes	safety glasses with side shields – <i>always protect the eyes</i>
Clothing	no special protective clothing required

9. PHYSICAL PROPERTIES

Odour & Appearance	clear, colourless, viscous, odourless, hygroscopic liquid
Odour Threshold	none – odourless
Vapour Pressure	4.65×10^{-5} mmHg / 6.2×10^{-6} kPa (26°C / 79°F)
Evaporation Rate (<i>Butyl Acetate = 1</i>)	not known – <i>not volatile</i>
Vapour Density (air = 1)	6.5 (theoretical)
Boiling Range	327°C / 621°F
Freezing Point	-6°C / 20°F
Specific Gravity	1.248 (20/20°C)
Water Solubility	complete
Also soluble in	in alcohols, glycols diethyl ether, carbon tetrachloride; insoluble in benzene, toluene or aliphatic hydrocarbons
Viscosity	62 centipoise (20°C / 68°F)
pH	none – (<i>does not liberate hydrogen ions when dissolved</i>)
Molecular Weight	194 grams per mole

10. REACTIVITY

Dangerously Reactive With	strong oxidising agents
Also Reactive With	70% perchloric acid
Stability	stable; will not polymerize
Decomposes in Presence of	not known
Decomposition Products	none apart from Hazardous Combustion Products
Sensitive to Mechanical Impact	no

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11. TOXICITY

Effects, Acute Exposure

Skin Contact	little to no effect
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	little to no effect
Inhalation	little to no effect
Ingestion	little to no effect; <i>administering water with 5% tetraethylene glycol for 5 days had almost no effect on rats (a slight <u>increase</u> in water consumption was noted)</i>

Effects, Chronic Exposure

General	little to no effect
Sensitising	not a sensitiser in humans or animals
Carcinogen/Tumorigen	not considered a tumorigen or a carcinogen in humans or animals
Reproductive Effect	no known effect in humans or animals
Mutagen	no known effect on humans or animals
Synergistic With	not known
LD ₅₀ (oral)	10,000, 18,050, 32,700 & 34,760mg/kg (rat), 18,800mg/kg (guinea pig)
LD ₅₀ (skin)	>18,060, >20,000 & 22,570mg/kg (rabbit)
LC ₅₀ (inhalation)	not known – <i>no mortality observed in several tests</i>

12. ECOLOGICAL INFORMATION

Bioaccumulation	highly water soluble; cannot bioaccumulate
Biodegradation	biodegrades in the presence of oxygen; 23% in 20 days without bacterial “acclimation”, but 88% in 20 days after ~50 days “acclimation”, so readily biodegradeable in “industrial” sewage sludge
Abiotic Degradation	reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 4-8 hours – <i>extremely low vapour pressure suggests that this will be a minor route for degradation</i>
Mobility in soil, water	water soluble; moves readily in soil and water
Aquatic Toxicity	
LC ₅₀ (Fish, 96hr)	>1000mg/litre (Oncorhynchus mykiss)
EC ₅₀ (Crustacea, 48hr)	>1000mg/litre (Daphnia magna)
EC ₅₀ (Algæ)	>1000mg/litre (Selenastrum capricornutum)
EC ₅₀ (Bacteria)	>100mg/litre (Pseudomonas fluorescens)

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. <i>Never cut, drill, weld or grind on or near this container, even if empty</i>

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14. TRANSPORT CLASSIFICATION

Canada TDG	PIN	UN – not regulated for transport
AND	Shipping Name	not regulated for transport
U.S.A. 49 CFR	Class & Packing Group	not regulated for transport
Marine Pollutant		not a marine pollutant
ERAP Required		NO

EMERGENCY INFORMATION

Canada	Call CANUTEC (collect)	(613) 996-6666
U.S.A.	Call CHEMTREC	(800) 424-9300

15. REGULATIONS

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory

NIOSH Recommendations: NIOSH recommends reducing exposure to lowest feasible concn & preventing contact with the skin.

16. OTHER INFORMATION

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Data from RTECS, HSDB (Haz. Substance Data Base), Cheminfo (CCOHS), IUCLID Datasheets (ESIS – European Chem. Substance Info. System), & others.

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