

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Store under inert gas.	   

Section I. Chemical Product and Company Identification

Chemical Name	Tetraethylene Glycol		
Catalog Number	T0099	Supplier	TCI America 9211 N. Harborsgate St. Portland OR 1-800-423-8616
Synonym	Tetraglycol		
Chemical Formula	C ₈ H ₁₈ O ₅		
CAS Number	112-60-7	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Tetraethylene Glycol	112-60-7	Min. 95.0 (GC)	Not available.	Rat LD ₅₀ (oral) 10000 mg/kg Rabbit LD ₅₀ (dermal) >20 gm/kg Rat LD ₅₀ (intraperitoneal) >5000 mg/kg

Section III. Hazards Identification

Acute Health Effects	No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Skin and eye contact may result in irritation. May be harmful if inhaled or ingested. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Reproductive effects. Rat TDLo Oral 200 mg/kg, male 1 day prior to mating TOXIC EFFECTS : Effects on Fertility - Post-implantation mortality Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	194°C (381.2°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information STORE UNDER INERT GAS. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

Personal Protection Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.



Exposure Limits Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless ~ light yellow.)	Solubility	Miscible with water, methanol, ethanol. Soluble in ether, carbon tetrachloride. Insoluble in benzene, toluene.
Specific Gravity	1.13 (water=1)		
Molecular Weight	194.23	Partition Coefficient	LOG P _{ow} : -2.02
Boiling Point	328°C (622.4°F)	Vapor Pressure	0.6 x 10 ⁻² Pa (@ 26°C)
Melting Point	-6°C (21.2°F)	Vapor Density	6.7 (Air = 1)
Refractive Index	1.4580 - 1.4610	Volatility	Not available.
Critical Temperature	Not available.	Odor	Mild, sweet.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability Avoid excessive heat and light. Store under inert gas.

Incompatibilities Reactive with strong oxidizing agents, strong alkalis (bases).

Section XI. Toxicological Information

RTECS Number XC2100000

Routes of Exposure Eye Contact. Ingestion. Inhalation.

Toxicity Data
Rat LD₅₀ (oral) 10000 mg/kg
Rabbit LD₅₀ (dermal) >20 gm/kg
Rat LD₅₀ (intraperitoneal) >5000 mg/kg

Chronic Toxic Effects
CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Reproductive effects.
Rat TDLo Oral 200 mg/kg, male 1 day prior to mating
TOXIC EFFECTS:
Effects on Fertility - Post-implantation mortality
Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Skin and eye contact may result in irritation. May be harmful if inhaled or ingested. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate Tetraethylene glycol's production and use as a solvent, plasticizer, lubricant, softening agent for paper tissue, a ceramic paste/printing ink binder and a liquid desiccant for natural gas may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 4.65×10^{-5} mm Hg at 26 deg C indicates tetraethylene glycol will exist in both the vapor and particulate phases in the atmosphere. Vapor-phase tetraethylene glycol will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 7.6 hours. Particulate-phase tetraethylene glycol will be removed from the atmosphere by wet or dry deposition. Alcohols and ethers do not absorb light at wavelengths >290 nm and therefore tetraethylene glycol is not expected to be susceptible to direct photolysis by sunlight. If released to soil, tetraethylene glycol is expected to have very high mobility based upon an estimated Koc of 10. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 5.5×10^{-19} atm-cu m/mole. Tetraethylene glycol is expected to biodegrade in soil and water based upon a study where it degraded slowly without an acclimation period giving 23% biodegradation within 20 days, using a wastewater inoculum. Following an acclimation period of 45-60 days, 12, 54, 71 and 88% of the added tetraethylene glycol was biodegraded in 5, 10, 15 and 20 days, respectively, under the same test conditions. If released into water, tetraethylene glycol is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's estimated Henry's Law constant. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. Hydrolysis is not expected to be an important environmental fate process since this compound lacks functional groups that hydrolyze under environmental conditions. Occupational exposure to tetraethylene glycol may occur through inhalation and dermal contact with this compound at workplaces where tetraethylene glycol is produced or used. Use data indicate that the general population may be exposed to tetraethylene glycol via dermal contact with products containing tetraethylene glycol.

Section XIII. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification Not a DOT controlled material (United States).

PIN Number Not applicable.

Proper Shipping Name Not applicable.

Packing Group (PG) Not applicable.

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) On DSL.

EINECS Number (EEC) 203-989-9

EEC Risk Statements Not available.

Japanese Regulatory Data ENCS No. 2-441

Section XVI. Other Information

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Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.