

MATERIAL SAFETY DATA SHEET

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ETHYLENE GLYCOL

REVISION B

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SECTION I. MATERIAL IDENTIFICATION				
<p>MATERIAL NAME: ETHYLENE GLYCOL OTHER DESIGNATIONS: Glycol, 1,2-Ethanediol, HOCH₂CH₂OH, ASTM D2693, GE Material D5B38 CAS #000 107 211 MANUFACTURER: Available from many suppliers.</p>				
SECTION II. INGREDIENTS AND HAZARDS		x	HAZARD DATA	
Ethylene glycol		ca 100	<p>Vapor* TLV 100 ppm or 250 mg/m³</p> <hr/> <p>Particulate TLV 10 mg/m³</p> <hr/> <p>Human, oral LDLo 710 mg/kg Human, inhalation TCLo 10 g/m³ Toxic irritant effects</p>	
<p>*Current ACGIH (1980) TLV; Intended Changes List has a ceiling value for vapors at 50 ppm or 125 mg/m³.</p>				
SECTION III. PHYSICAL DATA				
Boiling point, 1 atm, deg F (C)	387 (197)	Specific gravity (H ₂ O=1)	----- 1.12	
Vapor pressure @ 20 C, mm Hg	-- 0.06	Evaporation rate (CCl ₄ =1)	----- 1	
Vapor density (Air=1)	----- 2.1	Refractive index at 25 C	----- 1.430	
Viscosity @ 35 C (95 F), cp	---- 12.3	Freezing point, deg C	----- -12.7	
Solubility in water @ 20 C	---- Complete	Molecular weight	----- 62.08	
<p>Appearance & Odor: Colorless, sweet-tasting (Poisonous!) hygroscopic liquid. Practically odorless.</p>				
SECTION IV. FIRE AND EXPLOSION DATA			LOWER	UPPER
Flash Point and Method	Autoignition Temp.	Flammability Limits In Air		
232 F (TCC) 245 F (OC)	752 F	% by Vol.	3.2	15.3
<p>Extinguishing Media: CO₂, water, dry chemical or alcohol foam (especially for large fires). Cool fire-exposed containers with water. Spills may be flushed and diluted with water to reduce flammability. Water or foam may cause frothing. Ethylene glycol, when heated or misted into the air, becomes a moderate fire and explosion hazard. Firefighters should use self-contained breathing equipment and proper protective clothing.</p>				
SECTION V. REACTIVITY DATA				
<p>Ethylene glycol is a noncorrosive, stable material. It is hygroscopic. Ignition in air will generate oxides of carbon and nitrogen. Lowers the freezing point of water; f.p. at eutectic composition, 60% ethylene glycol, is -49 C. Is miscible with water, ether, low aliphatic alcohols, aldehydes and ketones; partially soluble in hydrocarbons. Mixing with chlorosulfonic acid, or oleum, or 96% sulfuric acid in a sealed container causes the temperature and pressure to increase. It is incompatible with strong oxidizing agents.</p>				

SECTION VI. HEALTH HAZARD INFORMATION

TLV particulate: 10 mg/m³
vapor: 100 ppm or 250 mg/m³

Inhalation of high ethylene glycol concentrations produces symptoms similar to ethyl alcohol intoxication; pulmonary edema may also develop. The single lethal oral dose for humans is about 3-4 ounces or about 1.4 ml/kg. Sub-lethal ingestion can produce intoxication and coma. Symptoms may include: lack of appetite, spasmodic motion of the eyeball, dizziness, abdominal pain, CNS stimulation followed by depression, respiratory arrest or cardiovascular collapse, acute renal failure with uremia. Eye contact may cause irritation and iridocyclitis. Skin absorption may also contribute to intoxication.

FIRST AID:

Eye Contact: Wash with plenty of running water for 15 minutes.

Skin Contact: Rinse off with water; then wash area with soap and water.

Inhalation: Remove victim to fresh air. Restore or support breathing as required.

Ingestion: Give 3 glasses milk or water and induce vomiting at once! Gastric lavage

recommended. Support respiration.

In all cases of excessive exposure get prompt medical help for further treatment, support, and observation.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel. Provide adequate ventilation. (Normal ventilation may be satisfactory if liquid is at room temperature and not misted into the air). Those handling spill emergencies should use proper protective equipment. Recover as much spilled material as feasible for disposal. Wash residue or small spills to the sewer with copious water.

DISPOSAL: Large quantities of liquids may be disposed of by mixing with more flammable solvents and atomizing into an incinerator. Follow Federal, State, and Local regulations.

Aquatic toxicity rating TLm 96:1000-100 ppm.

SECTION VIII. SPECIAL PROTECTION INFORMATION

When ethylene glycol is heated, or agitated, or sprayed, proper exhaust hoods with 100 lfm face velocities should be used. Rubber gloves should be worn to prevent skin contact. Respirators should be available for nonroutine or emergency use above the TLV.

Safety glasses or goggles should be worn in areas of use where splashing is possible. Eyewash stations should be available.

Preemployment and annual medical exam to include kidney and liver function tests.

Preclude from exposure individuals with diseases of liver, kidneys, lungs and central nervous system.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store material in mild steel, except where color requirements are most critical. Then store in resin-coated steel, glass, aluminum or stainless steel containers. Close containers tightly to avoid moisture. Separate from oxidizing materials.

Do not take internally! Poisonous! Toxic concentration of ethylene glycol are unlikely to occur at room temperature due to its unique vapor pressure. Poisoning resulting from vapor usually occurs only if ethylene glycol liquid is heated. Heated and agitated solutions should have proper exhaust ventilation of area to prevent inhalation liquid particles and vapors.

Do not eat or drink in work areas.

DATA SOURCE(S) CODE: 2-11,23-25,26,34,37,39

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Industrial Hygiene
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