

Lab.



E-C APPARATUS CORPORATION

3831 Tyrone Boulevard N. • St. Petersburg, Florida 33709 • Telephone 813 - 344-1644

Telex 51-4736 HALA

FAX 813 - 343-5730

MATERIAL SAFETY DATA SHEET

GLYCERIN

Emergency Contact: William W. Gorman, Jr.

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Substance Identification

CAS-Number 56-81-5

Trade Names/Synonyms: Glycerol; Glycerin Anhydrous; Glycerine; Glyceritol; Glycyl Alcohol; 1,2,3-Propanetriol; Synthetic Glycerin; Glycerin, Synthetic; 90 Technical Glycerine; Trihydroxypropane; 1,2,3-Trihydroxypropane; G-31; G-33

Chemical Family: Hydroxyl, Aliphatic

Molecular Formula: $C_3H_8O_3$

Molecular Weight: 92.11

Cercla Ratings (Scale 0-3): Health=1; Fire=1; Reactivity=0; Persistence=0

Components and Contaminants

Percent: 99.9

Component: Glycerin

Exposure Limits: 10 Mg/M3 ACGIH TWA (Vapor)

Physical Data

Description: Colorless or pale yellow, hygroscopic, odorless, syrupy liquid with a warm, sweet taste.

Boiling Point: 290°F (143°C)

Melting Point: 64°F (18°C)

Specific Gravity: 1.3

Vapor Pressure: 0.0025 MMHG @ 50°C

pH: Neutral

Solubility in Water: Soluble

Solvent Solubility: Alcohol, ethyl acetate, ethyl ether

Vapor Density: 3.1

Fire and Explosion Data

Fire and Explosion Hazard: Slight fire/negligible explosion hazard when exposed to heat or flame.

Flash Point: 390°F (199°C)

Lower Explosion Limit: 0.9%

Autoignition Temperature: 698°F (370°C)

Flammability Class (OSHA): IIIA

Firefighting Media: Dry chemical, carbon dioxide, water spray or foam (1984 Emergency Response Guidebook, DOT P 5800.3).

For larger fires, use water spray, fog or alcohol foam (1984 Emergency Response Guidebook, DOT P 5800.3).

Firefighting: Move container from fire area if possible. Cool fire-exposed containers with water from side until well after fire is out. For massive fire in storage area, use unmanned hose holder or monitor nozzles, or else withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire (1984 Emergency Response Guidebook, DOT P 5800.3).

Extinguish only if flow can be stopped; use flooding amounts of water as a fog, solid streams may be ineffective. Cool containers with flooding amounts of water; apply from as far a distance as possible. Avoid breathing vapors, keep upwind (Bureau of Explosives, Emergency Handling of Hazardous Materials in Surface Transportation, 1981).

Water or foam may cause frothing (NFPA Fire Protection Guide on Hazardous Materials, Eighth Edition).

Alcohol foam (NFPA Fire Protection Guide on Hazardous Material, Eighth Edition).

Toxicity

126 Mg eye-rabbit mild irritation; 500 Mg/24 hours skin-rabbit moderate irritation; 12,600 Mg/Kg oral-rat LD50; 26 Gm/Kg oral-mouse LD50; 7750 Mg/Kg oral-guinea pig LD50; 75 Mg/Kg intraperitoneal-rat LD50; 100 Mg/Kg subcutaneous-rat LD50; 5566 Mg/Kg intravenous-rat LD50; 63 Mg/Kg intraperitoneal-mouse LD50; carcinogen status: None. Glycerin is an eye, mucous membrane, and skin irritant.

Health Effects and First Aid

Inhalation: Irritant

Acute Exposure-Inhalation is unlikely due to the low vapor pressure but fumes may cause irritation and dehydration of the mucous membranes.

Chronic Exposure-No effects reported in humans.

First Aid-Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention.

Skin Contact: Irritant

Acute Exposure-May cause irritation and defatting of the skin.

Chronic Exposure-Repeated or prolonged exposure may cause dermatitis.

First Aid-Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.

Eye Contact: Irritant

Acute Exposure-Direct contact may cause a strong stinging and burning sensation, and lacrimation, but no injury.

Chronic Exposure-Repeated or prolonged exposure may cause conjunctivitis.

First Aid-Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.

Ingestion: Irritant

Acute Exposure-May cause headache, restlessness, insomnia, dizziness, vomiting, nausea, diarrhea, and fever. Large doses may cause hemolysis, hemoglobinuria, hyperglycemia, glycosuria, renal failure, convulsions, narcosis, and paralysis.

First Aid-If victim is conscious and not convulsive, immediately give two to four glasses of water, and induce vomiting by touching finger to back of throat. From sitting position, head must be lower than hips to prevent aspiration. Keep patient warm and at rest. Get medical attention immediately.

Reactivity

Reactivity: Stable under normal temperatures and pressures.

Incompatibilities: Glycerine

Nitric Acid: Explosive reaction

Sulfuric Acid: Explosive reaction

Chlorine: Explosive reaction at 70-80°C

Hydrofluoric Acid: Explosive reaction

Calcium Hypochlorite: Explosive reaction

Polypropylene: Explosive reaction

Perchloric Acid: Explosive reaction on impact

Lead Oxide: Explosive reaction on impact

Aniline: Explosive reaction

Sodium Peroxide: Explosive reaction

Potassium Peroxide: Explosive reaction

Chromium Oxide: Explosive reaction

Chromium Trioxide: Explosive reaction

Potassium Chlorate: Explosive reaction

Potassium Permanganate: Explosive reaction

Strong Oxidizers: Explosive reaction

Acetic Anhydride: Violent reaction by phosphorus oxychloride catalyst

Aniline: Violent reaction with nitrobenzene with ferrous sulfate as catalyst

Perchlorate and Lead Oxide: Violent reaction

Chromic Anhydride: Violent reaction

Silver Perchlorate: Violent reaction

Calcium Hypochlorate: Ignition reaction

Lead Oxide and Fluorine: Ignition reaction

Aniline and Sodium or Potassium Peroxide: Ignition reaction

Potassium Triiodide: Ignition reaction

Sodium Hydride: Intense exothermic reaction

Decomposition: Combustion releases corrosive fumes of acrolein.

Polymerization: None known.

Conditions to Avoid

Contact with or storage with incompatible materials. Temperatures in the vicinity of the boiling point, 143°C.

Spill and Leak Procedures

Occupational Spill: Absorb with vermiculite or other suitable material. Place in a suitable container (plastic), for later disposal.

Protective Equipment

Ventilation: Provide exhaust ventilation or general dilution ventilation to meet permissible exposure limits.

Respirator:

1000 Mg/M3 - Chemical cartridge respirator with an organic vapor cartridge with a full face-piece.

Firefighting - Self-contained breathing apparatus with a full face-piece operated in pressure-demand or other positive pressure mode.

Clothing: Employee must wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves: Employee must wear appropriate protective gloves to prevent contact with this substance.

Eye Protection: Employee must wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance.