

School Material Safety Data Sheet

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No. 89

GLYCEROL

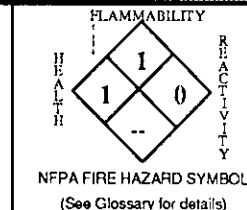
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SECTION 1. INTRODUCTORY INFORMATION

MATERIAL NAME AND FORMULA: GLYCEROL; $C_3H_5(OH)_3$
SYNONYMS: Glycerin, Glycyl Alcohol, 1,2,3-Propanetriol, Trihydroxypropane
CAS NUMBER: 0056-81-5
INGREDIENTS: Glycerol, >99%

DOT CLASSIFICATION: Not Found

MANUFACTURERS: Always request Material Safety Data Sheets from your chemical supplier. These should indicate the manufacturer of the substance and include an emergency phone number to call. The Manufacturers section of this book contains a listing of some of the larger manufacturers and available emergency numbers.



DESCRIPTION: Glycerol is a clear, colorless, and odorless liquid with a sweet taste (DO NOT TASTE IT!).

PRELIMINARY INFORMATION: Glycerol has a number of commercial uses from inks to hydraulic fluid to antifreeze mixtures. It has a number of possible uses in a chemistry lab. Other than some important incompatibles (see sect. 2), glycerol presents few hazards if used with care, and reasonable precautions are taken.

SECTION 2. USE AND STORAGE INFORMATION

-- PRELIMINARY PLANNING CONSIDERATIONS --

- Safety glasses or goggles and protective clothing (rubberized apron, etc.) should be worn for all experiments.
- Be sure eyewash station and safety shower are in good working order and readily available.
- Always provide for safe disposal of all chemical waste generated in the lab. Check applicable regulations prior to use.
- Rubber gloves are recommended when working with this material to minimize contact with the skin.
- Provide adequate ventilation, especially where heating or misting of glycerol may take place.

-- USAGE PRECAUTIONS AND PROCEDURES --

- READ THE LABEL and follow all precautions.
- Maintain good housekeeping practices to avoid unintentional mixing with incompatible materials. Clean up spilled material promptly.
- For safety, contact lenses should not be worn in the laboratory; soft lenses may absorb irritants and all lenses may concentrate them.
- After working with this material, always wash hands and face before eating, drinking, or smoking.
- No smoking in storage or use area.
- Keep away from strong oxidizing agents and sources of heat or ignition.
- Remove contaminated clothing and launder before reuse.
- Avoid contact of glycerol with skin, eyes, or clothes. Do not inhale mists or vapors; do not ingest this material.

-- ADDITIONAL INFORMATION --

- Glycerol does not polymerize. This material is stable at room temperature under normal conditions.
- Incompatible with strong oxidizing agents such as chromium trioxide, potassium chlorate, and potassium permanganate (may result in an explosion). Reacts violently with acetic anhydride, calcium oxychloride, chromium oxides, and alkali metal hydrides.

-- PREFERRED STORAGE LOCATION AND METHODS --

- Storage area should be cool and well ventilated. Containers should be tightly closed. Glycerol is hygroscopic.
- Do not store chemicals alphabetically by name; store by chemical family instead to keep compatibles together.
- All chemical containers should be protected from physical damage and kept out of direct sunlight.
- Smoking should not be permitted in areas where chemicals are stored.
- Store with compatible materials on sturdy shelving away from oxidizing agents and sources of heat or ignition.

SECTION 3. SPILLS AND DISPOSAL PROCEDURES

IF MATERIAL IS SPILLED:

- Cleanup personnel should wear personal protective equipment as necessary to prevent skin or eye contact with liquid and inhalation of glycerol mist.
- Cover material with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop into an appropriate container (with secure lid) for disposal in accordance with existing regulations. Dike with inert absorbent material, as needed, to contain and limit spill area.
- Flush residue with large excess of water.

DISPOSAL OF SMALL QUANTITIES:

- Bury scrap material in an approved landfill, regulations permitting.
- It may be permissible to flush small quantities of glycerol to drains, using a large excess of water to dilute.
- If the above methods are not practical, feasible, or in accord with existing regulations, contact your supplier or a licensed disposal contractor for specific treatment/disposal procedures.

DISPOSAL OF LARGER AMOUNTS: Contact a licensed disposal company.

FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL.

SECTION 4: HEALTH HAZARDS

Glycerol has not been identified as a known or suspected carcinogen by the NTP, IARC, or OSHA.

- No TLV established; ACGIH TLV for glycerin mist (a "nuisance particulate") is 10 mg/m³.
- Rat, Oral, LD₅₀: 12,600 mg/kg
- Mouse, Oral, LD₅₀: 26,000 mg/kg
- Glycerol is generally considered nontoxic.
- Inhalation of vapors at room temperature is unlikely due to glycerol's low vapor pressure. Inhalation of mist or vapors (from heated glycerol) may cause respiratory tract irritation.
- Eye contact or skin contact may produce irritation. Some individuals may be more sensitive to glycerol contact.
- Ingestion may result in nausea, diarrhea, insomnia, vomiting, fever, hemoglobinuria, convulsions, and paralysis.
- Chronic effects: may cause kidney injury (Campanacci, L. Panminerva Med. 7 (1965):490.

SECTION 5: FIRST AID PROCEDURES**Eye contact:**

- Flush eyes promptly with plenty of running water for at least 15 minutes, including under the eyelids.
- Get prompt medical attention.*

Skin contact:

- Remove contaminated clothing promptly.
- Flush affected area with large amounts of water. Wash exposed areas of skin with soap and water.
- Contact medical personnel.*

Inhalation:

- Remove victim to fresh air; restore and/or support breathing as necessary.
- Get medical help for coughing or breathing difficulty.*

Ingestion:

- Get prompt medical attention.*
- Give several glasses of milk or water to drink to dilute. Induce vomiting -- but ONLY if victim is conscious and alert.
- Never give anything by mouth to a person who is unconscious or convulsing.

* Get medical help (in school, paramedic, or community) for further treatment, observation, and support after first aid.

SECTION 6: FIRE PROCEDURES AND DATA

- Extinguishing media: Use media appropriate to surrounding fire conditions. Water or foam may cause frothing of hot material.
- A water spray may be used to cool fire-exposed containers and to disperse vapors.
- For major fires, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus is recommended.

HAZARDOUS DECOMPOSITION PRODUCTS: may include oxides of carbon (CO & CO₂), and a corrosive gas (acrolein).

FLASH POINT AND METHOD(S) ... 320°F (160°C) (CC)

AUTOIGNITION TEMPERATURE ... 752°F (400°C)

FLAMMABILITY LIMITS IN AIR (vol. %): Lower ... 0.9 Upper ... Not Found

SECTION 7: PHYSICAL DATA

BOILING POINT (@ 1 atm) ... 544°F (290°C)

VAPOR PRESSURE (@ 50°C, mm Hg) ... 0.0025

VAPOR DENSITY (air = 1) ... 3.2

SOLUBILITY IN WATER (@ 20°C) ... Soluble

SPECIFIC GRAVITY (H₂O = 1) ... 1.26

MELTING POINT ... 64.4°F (18°C)

MOLECULAR WEIGHT ... 92.09

EVAPORATION RATE (diethyl ether = 1) ... Not Found

% VOLATILE ... Not Found

DATA SOURCES: Genium's Industrial MSDS #617 (10/86) and references 1, 2, 4-10, 25, 34, 47, 59, 75, 82, 501, 506, 509-11.
(see glossary for codes)

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Approvals:

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Indust. Hygiene/Safety

Medical Review

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