Material Safety Data Sheet
Ethylene glycol

ACC# 09400

Section 1 - Chemical Product and Company Identification

MSDS Name: Ethylene glycol
Synonyms: 1,2-Dihydroxyethane; 1,2-Ethanediol; Ethylene alcohol; Ethylene dihydrate.

Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-21-1</td>
<td>Ethylene glycol</td>
<td>&gt;95</td>
<td>203-473-3</td>
</tr>
</tbody>
</table>

Hazard Symbols: XN
Risk Phrases: 22

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. May cause kidney damage. May cause central nervous system effects. May cause cardiac disturbances. Hygroscopic (absorbs moisture from the air). Warning! Harmful or fatal if swallowed. May cause eye, skin, and respiratory tract irritation. Target Organs: Kidneys, heart, central nervous system.

Potential Health Effects
Eye: May cause moderate eye irritation.
Skin: May cause skin irritation. Low hazard for usual industrial handling.
Ingestion: May cause nausea and vomiting. Toxicity follows 3-stage progression. (1) involves central nervous sys tem effects including paralysis of eye muscles, convulsions, and coma. Metabolic acidosis and cerebral swelling may also occur. (2) involves cardiopulmonary system with symptoms of hypertension, rapid heart beat, and possible cardiac failure. (3) involves severe kidney abnor malities including possible renal failure.
Inhalation: May cause respiratory tract irritation. Heated or misted substance may cause headache, irregular eye movements, and possible coma.
Chronic: May cause kidney injury.
Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

**Skin:** Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

**Notes to Physician:** Ethanol may inhibit methanol metabolism.

Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Water or foam may cause frothing. Use agent most appropriate to extinguish fire.

**Flash Point:** 111 deg C ( 231.80 deg F)

**Autoignition Temperature:** 410 deg C ( 770.00 deg F)

**Explosion Limits, Lower:** 3.20 vol %

**Upper:** 15.30 vol %

**NFPA Rating:** (estimated) Health: 2; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Provide ventilation.

Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

**Storage:** Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
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<tbody>
<tr>
<td></td>
<td>100 mg/m3 Ceiling (aerosol)</td>
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</table>

OSHA Vacated PELs: Ethylene glycol: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

### Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless

**Odor:** odorless

**pH:** Not available.

**Vapor Pressure:** .05 mm Hg @ 20 deg C

**Vapor Density:** 2.1 (air=1)

**Evaporation Rate:** Not available.

**Viscosity:** 21cP @ 20 deg C

**Boiling Point:** 195 deg C @ 760 mm Hg

**Freezing/Melting Point:** -13 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** 1.1200g/cm3

**Molecular Formula:** C2H6O2

**Molecular Weight:** 62.06

### Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.

**Conditions to Avoid:** Moisture, excess heat.

**Incompatibilities with Other Materials:** Chlorosulfonic acid, dimethyl terephthalate, oleum, phosphorus pentasulfide, silvered-copper wire, sodium hydroxide, sulfuric acid, titanium butoxide. Causes ignition at room temperature with chromium trioxide, potassium permanganate, and sodium peroxide. Causes ignition at 100°C with ammonium dichromate, silver chloride, sodium chloride, and uranyl nitrate.

**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** Has not been reported.

### Section 11 - Toxicological Information

**RTECS#:**

**CAS# 107-21-1:** KW2975000

**LD50/LC50:**

**CAS# 107-21-1:**

Draize test, rabbit, eye: 500 mg/24H Mild;

Draize test, rabbit, eye: 100 mg/1H Mild;

https://fscimage.fishersci.com/msds/09400.htm
Draize test, rabbit, eye: 0.012 ppm/3D;
Draize test, rabbit, eye: 1440 mg/6H Moderate;
Oral, mouse: LD50 = 5500 mg/kg;
Oral, rat: LD50 = 4700 mg/kg;
Skin, rabbit: LD50 = 9530 uL/kg;

**Carcinogenicity:**
CAS# 107-21-1: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

**Epidemiology:** No data available.

**Teratogenicity:** An expert panel convened by the NTP's Center for the Evaluation of Risks to Human Reproduction concluded 2/13/03 that developmental and reproductive risks stemming from exposure to the chemicals propylene glycol and ethylene glycol are negligible.

**Reproductive Effects:** No data available.

**Neurotoxicity:** No data available.

**Mutagenicity:** No data available.

**Other Studies:** Please refer to RTECS KW2975000 for additional information.

### Section 12 - Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: LC50 = 41000 mg/L; 96 Hr.; Unspecified Fish: Bluegill/Sunfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified Fish: Goldfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified Water flea: LC50 = 46300 mg/L; 48 Hr.; Unspecified Bacteria: Phytobacterium phosphoreum: EC50 =620 mg/L; 30 minutes; Microtox test Goldfish LD50= >5000mg/L/24Hr Guppies LC50= 493,000ppm/7D Shrimp (salt water) LC50= >100ppm/48Hr

**Environmental:** On soil, substance may leach to groundwater and biodegrade rapidly. In water, substance readily biodegrades. In air, substance reacts with hydroxyl radicals (T1/2= 1 day). Substance is not expected to bioconcentrate in marine life.

**Physical:** No information available.

**Other:** Please refer to the Handbook of Environmental Fate and Exposure Data for additional information.

### Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

### Section 14 - Transport Information

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<th>IATA</th>
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<td><strong>Packing Group:</strong></td>
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Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 107-21-1 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RQs
CAS# 107-21-1: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

SARA Codes
CAS # 107-21-1: acute, chronic.

Section 313
This material contains Ethylene glycol (CAS# 107-21-1, 95%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:
CAS# 107-21-1 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 107-21-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:
XN

Risk Phrases:
R 22 Harmful if swallowed.

Safety Phrases:

WGK (Water Danger/Protection)
CAS# 107-21-1: 0

Canada - DSL/NDSL
CAS# 107-21-1 is listed on Canada's DSL List.

Canada - WHMIS
This product does not have a WHMIS classification.

Canadian Ingredient Disclosure List

https://fscimage.fishersci.com/msds/09400.htm

11/15/2004
CAS# 107-21-1 is listed on the Canadian Ingredient Disclosure List.

**Exposure Limits**

CAS# 107-21-1: OEL-AUSTRALIA: TWA 60 mg/m3; STEL 120 mg/m3 OEL-BELGIUM: STEL 50 ppm (127 mg/m3) OEL-DENMARK: STEL 50 ppm (130 mg/m3) OEL-DENMARK: STEL 50 ppm (127 mg/m3) OEL-DENMARK: STEL 50 ppm (130 mg/m3) OEL-DENMARK: STEL 50 ppm (127 mg/m3) OEL-DENMARK: STEL 50 ppm (130 mg/m3) OEL-DENMARK: STEL 50 ppm (127 mg/m3) OEL-DENMARK: STEL 50 ppm (130 mg/m3) OEL-HUNGARY: STEL 50 mg/m3; Skin OEL-THE NETHERLANDS: TWA 10 mg/m3 OEL-THE NETHERLANDS: TWA 50 ppm (125 mg/m3) OEL-RUSSIA: STEL 5 mg/m3 OEL-SWEDEN: TWA 50 ppm (130 mg/m3); STEL 75 ppm (19 mg/m3) OEL-SWITZERLAND: TWA 1 mg/m3 OEL-SWITZERLAND: TWA 50 ppm (125 mg/m3) OEL-UNITED KINGDOM: TWA 10 mg/m3 OEL-UNITED KINGDOM: TWA 60 mg/m3; STEL 12 5 mg/m3 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

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**Section 16 - Additional Information**

**MSDS Creation Date:** 5/12/1999  
**Revision #4 Date:** 1/26/2004

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