

# SAFETY DATA SHEET

**ETHYLENE GLYCOL**  
**Product ID: OR0503**  
**Revised: 08-23-2016**  
**Replaces: 06-21-2016**

## 1. IDENTIFICATION

**Product Identifier:** ETHYLENE GLYCOL  
**Other Identifiers:** R07747  
**CAS Number:** MIXTURE  
**Recommended Use:** No data available.  
**Restrictions on Use:** No data available.

**Hydrite Chemical Co.**  
**300 N. Patrick Blvd.**  
**Brookfield, WI 53008-0948**  
**(262) 792-1450**

**EMERGENCY RESPONSE NUMBERS:**  
**24 Hour Emergency #: (414) 277-1311**  
**CHEMTREC Emergency #: (800) 424-9300**

## 2. HAZARD(S) IDENTIFICATION

**GHS Classification(s):** Skin Corrosion/Irritation Category 2  
Serious Eye Damage/Eye Irritation Category 2B  
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 2  
Specific Target Organ Systemic Toxicity (STOT) - Repeated Exposure Category 2  
Acute Toxicity - Oral Category 4

**GHS Label Elements:**

**GHS Hazard Symbols:**



**Signal Word:** Warning

**Hazard Statements:** Harmful if swallowed.  
Causes skin and eye irritation  
May cause damage to organs (kidney, liver, central nervous system by ingestion).  
May cause damage to organs (kidney, central nervous system) through prolonged or repeated exposure (by ingestion).

**Precautionary Statements:**

**Prevention:** Do not breathe dust/fume/gas/mist/vapours/spray.  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves/protective clothing/eye protection/face protection.

**Response:** IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.  
IF ON SKIN: Wash with plenty of water  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
IF exposed or if you feel unwell: Call a POISON CENTER or doctor.  
Get medical advice or attention if you feel unwell.  
Specific treatment (see on this label).  
Rinse mouth.  
If skin irritation occurs: Get medical advice or attention.  
If eye irritation persists: Get medical advice or attention.  
Take off contaminated clothing and wash before reuse.

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**Storage:** Store in a secure manner.  
**Disposal:** Dispose of in accordance with local, regional and international regulations.  
**Hazards Not Otherwise Classified:** May be harmful or fatal if swallowed and enters airways.

**Percentage of Components with Unknown Acute Toxicity:**

**Dermal:** 100 %  
**Inhalation Vapor:** 100 %  
**Inhalation Dust/Mist:** 100 %

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substances/Mixtures:**

<b>Chemical or Common Name/Synonyms</b>	<b>CAS Number</b>	<b>% by Wt.</b>
Ethylene Glycol	107-21-1	> 99 %

Note: Any chemical identity and/or exact percentage not expressly stated is being withheld as a trade secret or is due to batch variation.

**4. FIRST-AID MEASURES**

**Description of Necessary Measures:**

**Eye Contact:** If in eyes: Immediately flush eyes thoroughly with plenty of water. Tilt head to avoid contaminating unaffected eye. If irritation occurs, get medical attention. Continue flushing eye for at least 15 minutes. Do not permit victim to rub eyes.

**Skin Contact:** If on skin: Flush skin with plenty of water while removing contaminated clothing and shoes. Do not reuse clothing or shoes until cleaned. If irritation develops or persists, get medical attention. Wash with soap and water. Discard contaminated leather articles such as shoes and belt.

**Inhalation:** If inhaled: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY.

**Ingestion:** If swallowed: Call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. If person is fully conscious give 1 cup or 8 ounces (240 ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounces (1 1/2 tsp) (8 ml) liquor for each 10 pounds of body weight, or 2 ml per kg body weight {e.g., 1.2 ounce (2 1/3 Tbsp) for a 40 pound child or 36 ml for an 18 kg child.}

**Most Important Symptoms/Effects, Acute and Delayed:**

**Eye Contact:** Causes mild to severe irritation. Vapors may cause: irritation. Symptoms may include: pain. tearing. redness. swelling. impaired vision.

**Skin Contact:** May cause mild irritation.

**Skin Absorption:** May be absorbed through skin.

**Inhalation:** May cause moderate to severe irritation. Vapors or mists may irritate: nose. throat. lungs. Symptoms may include: coughing. difficulty breathing. headache. nausea. Inhalation of high concentrations may cause: central nervous system effects. dizziness. vomiting. weakness. incoordination. blurred vision. drowsiness. confusion. disorientation. Extreme exposures may cause: respiratory depression. tremors. convulsions. loss of consciousness. coma. death.

**Ingestion:** Causes severe irritation. Toxic by ingestion. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. May cause: vomiting. Aspiration of vomit into lungs must be avoided as even small quantities may result in aspiration pneumonitis. Large amounts may cause: central nervous system depression. cardiopulmonary effects. kidney damage. liver damage. irritability. mental sluggishness. dizziness. malaise. abdominal pain. back pain. Changes

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in urine output and appearance, fluid retention, jaundice (yellowish skin color), kidney and liver damage, respiratory failure, and unconsciousness is evidence of severe poisoning. Death may occur in extreme cases.

**Indication of Immediate Medical Attention and Special Treatment Needed:** The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. Ethanol is antidotal, and early administration may block the formation of toxic metabolites of ethylene glycol in the liver. Ethanol should be given intravenously, as a 5% solution in sodium bicarbonate, at a rate of about 10 ml/hr. A desired therapeutic level of ethanol in blood is 100 mg/dl. Hemodialysis may be required. Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. The mechanism has not been elucidated, but it appears to be noncardiogenic in origin in ventilation and positive end expiratory pressure may be applied. Correction of acidosis is essential.

## **5. FIRE-FIGHTING MEASURES**

**Extinguishing Media:** Water fog or fine spray. Dry chemical. Carbon dioxide. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective. **DO NOT USE:** Direct water stream.

### **Specific Hazards Arising from the Chemical:**

**Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Container may rupture from gas generation in a fire situation. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure buildup which could result in container rupture. Container areas exposed to direct flame should be cooled with large quantities of water as needed to prevent weakening of container structure. Material will not burn unless preheated.

**Hazardous Combustion Products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition, which may be toxic and/or irritating. Carbon dioxide. Carbon monoxide.

**Special Protective Equipment and Precautions for Fire-Fighters:** Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move containers from fire area if possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Hand held carbon dioxide or dry chemical extinguishers may be used for small fires.

## **6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, Protective Equipment, Emergency Procedures:** Eliminate all sources of ignition. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit.

**Methods and Materials for Containment and Clean Up:** Contain spill, place into drums for proper disposal. Soak up residue with inert absorbent material. Place in non-leaking containers for immediate disposal. Flush remaining area with water to remove trace residue and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

## **7. HANDLING AND STORAGE**

**Precautions for Safe Handling:** Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Use appropriate grounding and bonding practices.

**Conditions for Safe Storage, Including any Incompatibilities:** Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Keep away from all sources of ignition. Store below 140 Deg. F. Protect containers against physical damage. Do not reuse container.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### OSHA Exposure Guidelines:

<u>Component</u>	<u>Limits</u>
No components found.	

### ACGIH Exposure Guidelines:

<u>Component</u>	<u>Limits</u>
Ethylene Glycol	100 mg/m <sup>3</sup> Ceiling (aerosol only)

**Engineering Controls:** General room ventilation is required. To keep exposure below established limits, local exhaust may be necessary. Use explosion-proof ventilation equipment. Maintain adequate ventilation. Do not use in closed or confined spaces. Avoid creating dust or mist. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

### Individual Protection Measures:

**Eye/Face Protection:** Wear chemical safety goggles while handling this product. Wear additional eye protection such as a face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses.

**Skin Protection:** Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Impervious.

**Respiratory Protection:** Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH-Approved respirator for dusts and mists. NIOSH-Approved Supplied Air Respirator (SAR). NIOSH-Approved self-contained breathing apparatus. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

**Other Protective Equipment:** Eye-wash station. Safety shower. Impervious clothing. Protective clothing. Chemical safety shoes.

**General Hygiene Conditions:** Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Slightly viscous liquid.

**Color:** Colorless.

**Odor:** Sweet odor.

**Odor Threshold:** N.D.

**pH:** N.D.

**Freezing Point (deg. F):** 9

**Melting Point (deg. F):** N.A.

**Initial Boiling Point or Boiling Range:** 385 - 392 °F

**Flash Point:** 241 °F

**Flash Point Method:** TCC. PMCC.

**Evaporation Rate (nBuAc = 1):** 0.01

**Flammability (solid, gas):** N.D.

**Lower Explosion Limit:** 3.2% (V)

**Upper Explosion Limit:** 28 % (V)

**Vapor Pressure (mm Hg):** N.D.

**Vapor Density (air=1):** 2.2

**Specific Gravity or Relative Density:** 1.115 @ 20 C

**Solubility in Water:** 100%

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**Partition Coefficient (n-octanol/water):** N.D.  
**Autoignition Temperature:** ~ 748 F  
**Decomposition Temperature:** N.D.  
**Viscosity:** N.D.  
**% Volatile (wt%):** 100  
**VOC (wt%):** 100  
**VOC (lbs/gal):** 9.29  
**Fire Point:** N.D.

**10. STABILITY AND REACTIVITY**

**Reactivity:** No data available.

**Chemical Stability:** Stable under normal conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur under normal conditions.

**Conditions to Avoid:** Avoid heat, sparks or open flames. Avoid other ignition sources.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizing agents. Polymerization catalysts. Contact of aqueous ethylene glycol solution with DC-energized silvered copper wires causes ignition of the latter. A mixture of phosphorus (V) sulfide, ethylene glycol, and hexane in a mantle-heated flask spontaneously overheated and exploded at an internal temperature of about 180 C. Mixing of equal weights of ethylene glycol and potassium dichromate at 100 C caused heat to evolve.

**Hazardous Decomposition Products:** Carbon dioxide. Carbon monoxide. Acrid smoke. Irritating vapors.

**11. TOXICOLOGICAL INFORMATION**

**Routes of Exposure:** Absorption. Eyes. Ingestion. Inhalation. Skin.

**Symptoms/Effects: Acute, Delayed and Chronic:**

**Eye Contact:** Causes mild to severe irritation. Vapors may cause: irritation. Symptoms may include: pain. tearing. redness. swelling. impaired vision.

**Skin Contact:** May cause mild irritation.

**Skin Absorption:** May be absorbed through skin.

**Inhalation:** May cause moderate to severe irritation. Vapors or mists may irritate: nose. throat. lungs. Symptoms may include: coughing. difficulty breathing. headache. nausea. Inhalation of high concentrations may cause: central nervous system effects. dizziness. vomiting. weakness. incoordination. blurred vision. drowsiness. confusion. disorientation. Extreme exposures may cause: respiratory depression. tremors. convulsions. loss of consciousness. coma. death.

**Ingestion:** Causes severe irritation. Toxic by ingestion. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. May cause: vomiting. Aspiration of vomit into lungs must be avoided as even small quantities may result in aspiration pneumonitis. Large amounts may cause: central nervous system depression. cardiopulmonary effects. kidney damage. liver damage. irritability. mental sluggishness. dizziness. malaise. abdominal pain. back pain. Changes in urine output and appearance, fluid retention, jaundice (yellowish skin color), kidney and liver damage, respiratory failure, and unconsciousness is evidence of severe poisoning. Death may occur in extreme cases.

**Numerical Measures of Toxicity:**

<b>Component</b>	<b>Oral LD50</b>	<b>Dermal LD50</b>	<b>Inhalation LC50</b>
Ethylene Glycol	No Data	No Data	No Data

**Cancer Information:**

This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP, IARC, or OSHA.

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**Medical Conditions Aggravated by Exposure to Product:** Skin disorders. Respiratory system disorders.

**Other:** Possible birth defect and reproductive hazard based on animal test data. At the time of this review, no studies were found on the possible reproductive/developmental activity of this material in humans. Significant Data With Possible Relevance To Humans: For Ethylene Glycol: Repeated excessive exposure may cause irritation of the upper respiratory tract. In humans, effects have been reported on the following organs: central nervous system. Observations in humans include: nystagmus (involuntary eye movement). In animals, effects have been reported on the following organs: kidney, liver. The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty breathing and decreased urine output. When EG is heated above the boiling point of water, vapors are formed which reportedly caused unconsciousness, increased lymphocyte count and a rapid, jerky movement of the eyes in persons chronically exposed. Chronic Toxicity And Carcinogenicity: Ethylene glycol did not cause cancer in long-term animal studies. Diethylene glycol has been tested for carcinogenicity in animal studies and is not believed to pose a carcinogenic risk to man.

**Genetic Toxicity: In Vitro:** For ethylene glycol and diethylene glycol: In vitro mutagenicity studies were negative.

**In Vivo:** For ethylene glycol and diethylene glycol: Animal mutagenicity studies were negative. **Developmental Toxicity:** Based on animal studies, ingestion of very large amounts of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects. Diethylene glycol has caused toxicity to the fetus and some birth defects at maternally toxic, high doses in animals. Other animal studies have not reproduced birth defects even at much higher doses that caused severe maternal toxicity. For ethylene glycol: Exposures by inhalation or skin contact, the primary routes of occupational exposure, had minimal effect on the fetus, in animal studies.

**Reproductive Toxicity:** Ingestion of large amounts of ethylene glycol and diethylene glycol has been shown to interfere with reproduction in animals.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicological Information:** Toxicity to Microorganisms: EC50 Bacteria (16 hours): > 10,000 mg/l  
Toxicity to Aquatic Invertebrates: LC50 Water Flea, Ceriodaphnia dubia: 10,000 - 25,800 mg/l  
Toxicity to Aquatic Plants: EC50 Green Alga, Selenastrum capricornutum (Growth inhibition): 9,500 - 13,000 mg/l  
Toxicity to Aquatic Fish: LC50 Rainbow Trout, Oncorhynchus mykiss: 18,000 - 46,000 mg/l; LC50 Bluegill, Lepomis macrochirus: 27,540 mg/l; LC50 Fathead Minnow, Pimephales promelas: 51,000 mg/l

**Chemical Fate Information:** Biodegradation reached in Modified OECD Screening Test (OECD Test No. 301 E) after 28 days: > 90%. Biodegradation reached in Manometric Respiratory Test (OECD Test No. 301 F) after 28 days: > 94%.

## 13. DISPOSAL CONSIDERATIONS

**Hazardous Waste Number:** N.A.

**Disposal Method:** Dispose of in accordance with all local, state and federal regulations. Since emptied containers retain product residue, follow label warnings even after container is emptied. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

## 14. TRANSPORT INFORMATION

**DOT (Department of Transportation):**

**Identification Number:** UN3082  
**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS

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ETHYLENE GLYCOL)  
**Hazard Class:** 9  
**Packing Group:** III  
**Label Required:** Class 9  
**Reportable Quantity (RQ):** 5000# (Ethylene Glycol)  
**Note:** This material is not DOT regulated in shipments of less than 5000#.

**15. REGULATORY INFORMATION**

**TSCA Inventory Status:** All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

**SARA Title III Section 311/312 Category Hazards:**

<u>Immediate (Acute)</u>	<u>Delayed (Chronic)</u>	<u>Fire Hazard</u>	<u>Pressure Release</u>	<u>Reactive</u>
Yes	Yes	No	No	No

<u>Regulated Components:</u>	<u>CAS</u>	<u>CERCLA</u>	<u>SARA</u>	<u>SARA</u>	<u>U.S.</u>	<u>WI</u>	<u>Prop</u>
<u>Component</u>	<u>Number</u>	<u>RQ</u>	<u>EHS</u>	<u>313</u>	<u>HAP</u>	<u>HAP</u>	<u>65</u>
Ethylene Glycol	107-21-1	Yes	No	Yes	Yes	Yes	Yes

**16. OTHER INFORMATION**

**Hazard Rating System**

**Health:** 2\*  
**Flammability:** 1  
**Reactivity:** 0

\* = Chronic Health Hazard

**NFPA Rating System**

**Health:** 2  
**Flammability:** 1  
**Reactivity:** 0  
**Special Hazard:** None

**SDS Abbreviations**

**N.A. = Not Applicable**  
**N.D. = Not Determined**  
**HAP = Hazardous Air Pollutant**  
**VOC = Volatile Organic Compound**  
**C = Ceiling Limit**  
**N.E./Not Estab. = Not Established**

**SDS Prepared by:** csh

**Reason for Revision:** New format.

**Revised:** 08-23-2016

**Replaces:** 06-21-2016

The data in this Safety Data Sheet relates to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as warranty or representation for which HYDRITE CHEMICAL CO. assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.