

1. Product and Company Identification

Material name	ETHYLENE GLYCOL
Version #	02
Revision date	08-26-2011
CAS #	107-21-1
Product Codes	J.T.Baker: 5387, 5845, 9298, 9300, 9346, 9356, L715 Macron: 5001, 5037
Synonym(s)	1,2-Ethanediol; glycol; 1,2-Dihydroxyethane; Ethylene Alcohol; Ethylene Dihydrate
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	WARNING Harmful if swallowed. Causes eye irritation. Can cause kidney damage. Causes central nervous system effects. May cause reproductive effects.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Causes eye irritation.
Skin	May cause skin irritation in susceptible persons.
Inhalation	High mist concentrations may cause irritation of respiratory tract.
Ingestion	Harmful if swallowed. Ingestion of ethylene glycol may result in nausea, vomiting, abdominal cramps, blindness, liver damage, irritation, reproductive effects, nerve damage, convulsions, edema of the lung, cardiopulmonary effects (metabolic acidosis), pneumonia and kidney failure which could result in death. The single lethal dose for humans is about 100 ml. Inhalation of high levels of vapors or mists for prolonged periods of time may also result in toxic effects.
Target organs	Eyes. Central nervous system. Kidney. Reproductive organs.
Chronic effects	Can cause kidney damage. Causes central nervous system effects. May cause adverse reproductive effects - such as birth defects, miscarriages, or infertility based on animal data.
Potential environmental effects	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
ETHYLENE GLYCOL	107-21-1	99 - 100

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Skin contact	Wash skin with soap and water. Get medical attention if irritation develops or persists.
Inhalation	Move to fresh air. Treat symptomatically. Get medical attention, if needed.
Ingestion	Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	Keep victim under observation. Treat symptomatically. Symptoms may be delayed.
General advice	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	This product is not flammable. May burn, but does not ignite readily.
Extinguishing media	
Suitable extinguishing media	Water. Carbon dioxide (CO2). Dry chemical powder. Foam.
Unsuitable extinguishing media	None known.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment and precautions for firefighters	Use water spray to cool unopened containers. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
Specific methods	In the event of fire and/or explosion do not breathe fumes.
Hazardous combustion products	Carbon monoxide and carbon dioxide.

6. Accidental Release Measures

Personal precautions	Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	<p>Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. Collect in a non-combustible container for prompt disposal.</p>

7. Handling and Storage

Handling	Wear appropriate personal protective equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.
Storage	Keep container tightly closed.

8. Exposure Controls / Personal Protection

ACGIH

Material	Type	Value	Form
ETHYLENE GLYCOL (107-21-1)	TWA	100.0000 mg/m3	Aerosol.

Engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Eye / face protection Wear safety glasses with side shields (or goggles).

Skin protection Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.

General hygiene considerations Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

General Wear chemical protective equipment that is specifically recommended by the manufacturer. Launder contaminated clothing before reuse.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless.
Odor	Odorless.
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	Not available.
Melting point	8.6 °F (-13 °C)
Freezing point	8.6 °F (-13 °C)
Boiling point	386.6 °F (197.3 °C)
Flash point	231.8 °F (111 °C) Closed Cup
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	15.3
Flammability limits in air, lower, % by volume	3.2
Vapor pressure	0.012265 kPa at 25°C
Vapor density	2.14
Specific gravity	1.1135 @20°C
Relative density	Not available.
Solubility (water)	Miscible
Partition coefficient (n-octanol/water)	-1.36
Auto-ignition temperature	748 °F (397.8 °C)
Decomposition temperature	Not available.
Molecular weight	62.07 g/mol

Molecular formula C2-H6-O2

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Excessive heat.
Incompatible materials	Strong oxidizing agents. Acids.
Hazardous decomposition products	At thermal decomposition temperatures, carbon monoxide and carbon dioxide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product

Test Results

ETHYLENE GLYCOL (107-21-1)

Acute Dermal LD50 Rabbit: 9530 mg/kg

Acute Oral LD50 Rat: 5.89 g/kg

Sensitization	Not a skin sensitizer.
Acute effects	Harmful if swallowed. Can cause kidney damage. Causes central nervous system effects.
Local effects	Causes eye irritation.
Chronic effects	Prolonged exposure may cause chronic effects. Can cause kidney damage. Causes central nervous system effects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
ACGIH Carcinogens	
ETHYLENE GLYCOL (CAS 107-21-1)	A4 Not classifiable as a human carcinogen.
Skin corrosion/irritation	Defatting, drying and cracking of skin.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	Not classified.
Neurological effects	Central and/or peripheral nervous system damage. High vapor/aerosol concentrations (attainable only at elevated temperatures) may cause central nervous system effects such as dizziness, drowsiness or headaches.
Reproductive effects	Suspected of damaging the unborn child.
Teratogenicity	Components in this product have been shown to cause birth defects and reproductive disorders in laboratory animals.
Symptoms and target organs	Irritant effects. Drowsiness and dizziness. Decrease in motor functions. Unconsciousness. Birth defects. Renal injury.
Further information	Ingestion of ethylene glycol may result in nausea, vomiting, abdominal cramps, blindness, liver damage, irritation, reproductive effects, nerve damage, convulsions, edema of the lung, cardiopulmonary effects (metabolic acidosis), pneumonia and kidney failure which could result in death. The single lethal dose for humans is about 100 ml. Inhalation of high levels of vapors or mists for prolonged periods of time may also result in toxic effects.

12. Ecological Information

Ecotoxicological data

Product

Test Results

ETHYLENE GLYCOL (107-21-1)

LC50 Fathead minnow (*Pimephales promelas*): 8050 mg/l
96.00 hours

Ecotoxicity	This product has no known eco-toxicological effects. Not expected to be harmful to aquatic organisms.
Environmental effects	Ecological injuries are not known or expected under normal use. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Aquatic toxicity	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	The product is expected to be biodegradable.
Partition coefficient (n-octanol/water)	-1.36

13. Disposal Considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations. Incinerate the material under controlled conditions in an approved incinerator.
Contaminated packaging	Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.
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US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

ETHYLENE GLYCOL (CAS 107-21-1)	1.0 %
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US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

ETHYLENE GLYCOL (CAS 107-21-1)	Listed.
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CERCLA (Superfund) reportable quantity

ETHYLENE GLYCOL: 5000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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Section 311 hazardous chemical	Yes
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Clean Air Act (CAA)	HAPS list
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Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

ETHYLENE GLYCOL (CAS 107-21-1) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

ETHYLENE GLYCOL (CAS 107-21-1) Listed.

Saf-T-Data
 Health: 2 - Moderate (Life)
 Flammability: 1 - Slight
 Reactivity: 1 - Slight
 Contact: 2 - Moderate
 Lab Protective Equip: B - GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES
 Storage Color Code: G - Green (General Storage)

16. Labeling Info

Label Hazard Warning WARNING
 Harmful if swallowed. Causes eye irritation. Can cause kidney damage. Causes central nervous system effects. May cause reproductive effects.

Label Precautions Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.

Label First Aid Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if irritation develops or persists. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. Do not use mouth-to-mouth method if victim ingested the substance. Never give anything by mouth to a victim who is unconscious or is having convulsions.

17. Other Information

NFPA ratings
 Health: 2
 Flammability: 1
 Instability: 0

Disclaimer

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