

ETHYLENE GLYCOL
EG002

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)
Product name	ETHYLENE GLYCOL	
Product code	EG002	
Product Use Description	No data	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, colourless

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY CAUSE EYE IRRITATION. HARMFUL IF SWALLOWED.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

May cause mild skin irritation. Symptoms may include redness and burning of skin. Skin absorption of this material (or a component) may be increased through injured skin.

Ingestion

Swallowing this material may be harmful. Liver, kidney and brain damage in humans has resulted from swallowing lethal or near-lethal amounts of ethylene glycol.

Inhalation

ETHYLENE GLYCOL
EG002

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias., Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, lung (for example, asthma-like conditions), Liver, Kidney, Central nervous system

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, central nervous system excitation (giddiness, liveliness, light-headed feeling) followed by central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, involuntary eye movement, pain in the abdomen and lower back, cyanosis (causes blue coloring of the skin and nails from lack of oxygen), lung edema (fluid buildup in the lung tissue), acute kidney failure (sudden slowing or stopping of urine production), liver damage, Convulsions, coma

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, reproductive effects, kidney damage, liver damage, central nervous system damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, liver damage, kidney damage

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

Ethylene glycol has caused birth defects in animal studies at high oral doses. However, it did not cause harm to the pregnant animal or to the fetus when applied to the skin of the pregnant animal., This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

ETHYLENE GLYCOL
EG002

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No.	Concentration
ETHYLENE GLYCOL	107-21-1	<=100%
DIETHYLENE GLYCOL	111-46-6	>=1.5-<5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Effects of acute ethylene glycol poisoning appear in three fairly distinct stages. The initial stage occurs shortly after exposure, lasts 6-12 hours, and is characterized by central nervous system effects (transient exhilaration, nausea, vomiting, and in severe cases, coma, convulsions, and possible death). The second stage lasts from 12-36 hours after exposure and is initiated by the onset of coma. This phase is characterized by tachypnea, tachycardia, mild hypotension, cyanosis, and in severe cases, pulmonary edema, bronchopneumonia, cardiac enlargement, and congestive failure. The final stage occurs 24-72 post-exposure and is characterized by renal failure, ranging from a mild increase in blood urea nitrogen and creatinine followed by recovery, to complete anuria with acute tubular necrosis that can lead to death. Oxaluria is found in most cases. The most significant laboratory finding in

ETHYLENE GLYCOL
EG002

ethylene glycol intoxication is severe metabolic acidosis. Ingestion or other significant exposure to this material (or a component) may cause metabolic acidosis.

Treatment: This product contains ethylene glycol. Ethanol decreases the metabolism of ethylene glycol to toxic metabolites. Ethanol should be administered as soon as possible in cases of severe poisoning since the elimination half-life of ethylene glycol is 3 hours. If medical care will be delayed several hours, give the patient three to four 1-ounce oral "shots" of 86-proof or higher whiskey before or during transport to the hospital. Fomepizole (4-methylpyrazole) is an effective antagonist of alcohol dehydrogenase, and as such, may be used as an antidote in the treatment of ethylene glycol poisoning. Hemodialysis effectively removes ethylene glycol and its metabolites from the body.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Water spray

Hazardous combustion products

Alcohols, Aldehydes, carbon dioxide and carbon monoxide, ethers, toxic fumes, Hydrocarbons

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

ETHYLENE GLYCOL
EG002

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

ETHYLENE GLYCOL	107-21-1
ACGIH	Ceiling Limit Value: 100 mg/m3 Aerosol.

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

ETHYLENE GLYCOL
EG002

Skin and body protection

Wear resistant gloves such as:

Natural Rubber
Neoprene
Nitrile rubber
polyvinyl chloride
polyvinyl alcohol
Polyethylene

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.

Discard gloves that show tears, pinholes, or signs of wear.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	viscous
Colour	colourless
Odour	mild, sweet
Boiling point/boiling range	387.7 °F / 197.6 °C @ 101.32 kPa
Melting point/range	9 °F / -13 °C
Sublimation point	no data available
pH	no data available
Flash point	232 °F / 111 °C Closed Cup
Ignition temperature	no data available
Evaporation rate	(<)1.00 n-Butyl Acetate
Lower explosion limit/Upper explosion limit	3.2 %(V) / 15.3 %(V)
Particle size	no data available
Vapour pressure	0.012 kPa @ 77 °F / 25 °C

ETHYLENE GLYCOL
EG002

Relative vapour density	2.14 AIR=1
Density	1.114 g/cm ³ @ 68.00 °F / 20.00 °C 9.28 lb/gal @ 68.00 °F / 20.00 °C
Bulk density	No data
Water solubility	completely soluble
Solubility	no data available
Partition coefficient: n-octanol/water	no data available
log Pow	-1.36
Autoignition temperature	748 °F / 398 °C
Viscosity, dynamic	no data available
Viscosity, kinematic	no data available
Solids in Solution	no data available
Decomposition temperature	no data available
Burning number	no data available
Dust explosion constant	no data available
Minimum ignition energy	no data available

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

excessive heat

Incompatible products

Acids, Aldehydes, Alkali metals, Alkaline earth metals, Bases, strong alkalis, Strong oxidizing agents, Sulphur compounds

Hazardous decomposition products

carbon dioxide and carbon monoxide, Aldehydes, ketones, Organic acids, Alcohols, ethers, Hydrocarbons

Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

ETHYLENE GLYCOL
EG002

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: LD 50 Rat : 6,140 mg/kg
Acute inhalation toxicity ETHYLENE GLYCOL	: no data available
DIETHYLENE GLYCOL	: LC Lo Mouse: 130 mg/m ³ ; 2 h
Acute dermal toxicity	: LD 50 Rabbit: 9,530 mg/kg

12. ECOLOGICAL INFORMATION

Biodegradability ETHYLENE GLYCOL	: no data available
DIETHYLENE GLYCOL	: 92 % Exposure time: 28 d
Bioaccumulation ETHYLENE GLYCOL	: Species: Crayfish (Procambarus) Exposure time: 61 d Dose: 1,000 mg/L Bioconcentration factor (BCF): 0.27 Method: Flow through
DIETHYLENE GLYCOL	: no data available
Ecotoxicity effects	
Toxicity to fish ETHYLENE GLYCOL	: 96 h LC 50 Bluegill (Lepomis macrochirus): 27,540.00 mg/L Method: Static; Mortality 96 h LC 50 Fathead minnow (Pimephales promelas): 8,050.00 mg/L ; Mortality
DIETHYLENE GLYCOL	: 96 h LC 50 Western mosquitofish (Gambusia affinis): > 32,000.00 mg/L Method: Static; Mortality

ETHYLENE GLYCOL
EG002

Toxicity to daphnia and other aquatic invertebrates.

ETHYLENE GLYCOL : 48 h LC 50 Water flea (Daphnia magna): > 10,000.00 mg/L Method: Static Mortality

DIETHYLENE GLYCOL : 24 h LC 50 Water flea (Daphnia magna): > 10,000.00 mg/L Method: Static Mortality

Toxicity to algae

ETHYLENE GLYCOL : no data available

DIETHYLENE GLYCOL : no data available

Toxicity to bacteria

ETHYLENE GLYCOL : no data available

DIETHYLENE GLYCOL : no data available

Biochemical Oxygen Demand (BOD)

ETHYLENE GLYCOL : no data available

DIETHYLENE GLYCOL : no data available

Chemical Oxygen Demand (COD)

ETHYLENE GLYCOL : no data available

DIETHYLENE GLYCOL : no data available

Additional ecological information

ETHYLENE GLYCOL : no data available

DIETHYLENE GLYCOL : no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

ETHYLENE GLYCOL
EG002

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

ETHYLENE GLYCOL
EG002

15. REGULATORY INFORMATION

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.

1,4-DIOXANE
ACETALDEHYDE

SARA Hazard Classification

Acute Health Hazard

SARA 313 Component(s)

ETHYLENE GLYCOL

100.00 %

New Jersey RTK Label Information

ETHYLENE GLYCOL

107-21-1

Pennsylvania RTK Label Information

ETHYLENE GLYCOL

107-21-1

Notification status

Australia. Industrial Chemical (Notification and Assessment) Act

y (positive listing)

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)

y (positive listing)

China. Inventory of Existing Chemical Substances

y (positive listing)

Japan. Kashin-Hou Law List

y (positive listing)

New Zealand. Composite List of Single Component Substances to be considered for Transfer

y (positive listing)

US. Toxic Substances Control Act

y (positive listing)

EU. EINECS

y (positive listing)

Korea. Toxic Chemical Control Law (TCCL) List

y (positive listing)

ETHYLENE GLYCOL
EG002

Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act y (positive listing)
Japan. Industrial Safety & Health Law (ISHL) List y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302) 5000 lbs

Reportable quantity-Components

ETHYLENE GLYCOL 107-21-1 5000 lbs

	HMIS	NFPA
Health	2	1
Flammability	1	1
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).