

(10108)

ASHLAND®

SAFETY DATA SHEET

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Revision Date: 10/23/2012

Print Date: 2/26/2013

MSDS Number: R0000003

Version: 2.8

ETHYLENE GLYCOL
20002

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

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone number	1-800-ASHLAND (1-800-274-5263)

Product name ETHYLENE GLYCOL

Product code 20002

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, viscous, colourless

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

Potential Health Effects

Exposure routes

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

Eye contact

May cause mild eye irritation. Symptoms include stinging, tearing, and redness.

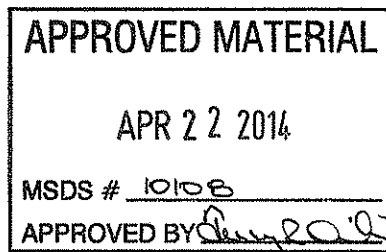
Skin contact

May cause slight skin irritation.

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



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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

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, 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.

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, 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, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: kidney damage, liver 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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

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Hazardous Components	CAS-No. / Trade Secret No.	Concentration
ETHYLENE GLYCOL	107-21-1	<=100%

4. FIRST AID MEASURES

Eyes

If symptoms develop, move individual away from exposure and into fresh air. Flush eyes gently with water while holding eyelids apart. If symptoms persist or there is any visual difficulty, seek 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, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

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 intoxication is severe 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

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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. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Water spray

Hazardous combustion products

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

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.

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).

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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. Do not store near extreme heat, open flame, or sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

ETHYLENE GLYCOL		107-21-1	
CAD BC OEL	time weighted average	10 mg/m3	Particulate.
CAD BC OEL	Ceiling Limit Value:	50 ppm	Vapor.
CAD BC OEL	Ceiling Limit Value:	100 mg/m3	Aerosol.
CAD BC OEL	Short term exposure limit	20 mg/m3	Particulate.
OEL (QUE)	Ceiling Limit Value:	50 ppm	Vapor and mist.
OEL (QUE)	Ceiling Limit Value:	127 mg/m3	Vapor and mist.
CAD AB OEL	Ceiling Limit Value:	100 mg/m3	
CAD MB OEL	Ceiling Limit Value:	100 mg/m3	Aerosol.
CAD ON OEL	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.

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Eye protection

Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.

Skin and body protection

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. Wear resistant gloves (consult your safety equipment supplier).

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	viscous
Colour	colourless
Odour	mild, sweet
Boiling point/boiling range	387.1 °F / 197.3 °C
Melting point/range	9 °F / -13 °C
Flash point	232 °F / 111 °C Closed Cup
Evaporation rate	(<)1.00 n-Butyl Acetate
Lower explosion limit/Upper explosion limit	3.2 %(V) / 15.3 %(V)
Vapour pressure	0.012 kPa @ 77 °F / 25 °C
Relative vapor density	2.14 AIR=1
Density	1.114 g/cm ³ @ 68.00 °F / 20.00 °C 9.28 lb/gal @ 68 °F / 20 °C
Water solubility	completely soluble
log Pow	-1.36
Auto-ignition temperature	748 °F / 398 °C
Viscosity, dynamic	17.3 mPa.s @ 25 °C

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10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

excessive heat, Heat, flames and sparks., Exposure to moisture.

Incompatible products

Aldehydes, Alkali metals, Alkaline earth metals, aluminum, Strong acids, strong alkalis, Strong oxidizing agents, Sulphur compounds

Hazardous decomposition products

Aldehydes, carbon dioxide and carbon monoxide, Organic acids, ketones

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - : LD 50: 6,140 mg/kg Species: Rat
Product

Acute oral toxicity - Components

ETHYLENE GLYCOL : LD 50: 6,140 mg/kg Species: Rat

Acute inhalation toxicity

Acute inhalation toxicity - : no data available
Product

Acute dermal toxicity

Acute dermal toxicity - : LD 50: 9,530 mg/kg Species: Rabbit
Product

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Acute dermal toxicity - Components

ETHYLENE GLYCOL : LD 50: 9,530 mg/kg Species: Rabbit

Acute toxicity (other routes of administration)

Acute toxicity (other routes of administration) : no data available

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product : Result: Readily biodegradable. Remarks: Readily biodegradable

Bioaccumulation

Bioaccumulation - Product : no data available

Bioaccumulation - Components

ETHYLENE GLYCOL : Species: Crayfish (Procambarus) Exposure time: 61 d
Concentration: 1000 mg/l Bioconcentration factor (BCF):
0.27 Method: Flow through

Ecotoxicity effects

Toxicity to fish

Toxicity to fish - Product : no data available

Toxicity to fish - Components

ETHYLENE GLYCOL : LC 50: 27,540 mg/l
Exposure time: 96 h
Species: Bluegill (Lepomis macrochirus)
Method: Static
Remarks: Mortality

LC 50: 8,050 mg/l
Exposure time: 96 h
Species: Fathead minnow (Pimephales promelas)

Toxicity to daphnia and other aquatic invertebrates

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Toxicity to daphnia and other aquatic invertebrates - Product : no data available

Toxicity to daphnia and other aquatic invertebrates - Components

ETHYLENE GLYCOL : LC 50: > 10,000 mg/l
Exposure time: 48 h
Species: Water flea (Daphnia magna)
Test Type: static test

Toxicity to algae

Toxicity to algae - Product : no data available

Toxicity to bacteria

Toxicity to bacteria - Product : no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Destroy by liquid incineration in accordance with applicable regulations. Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

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

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UN	3082	Environmentally hazardous substances, liquid, n.o.s. (ETHYLENE GLYCOL)	9	III
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U.S. DOT - RAIL

UN	3082	Environmentally hazardous substances, liquid, n.o.s. (ETHYLENE GLYCOL)	9	III
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U.S. DOT - INLAND WATERWAYS

UN	3082	Environmentally hazardous substances, liquid, n.o.s. (ETHYLENE GLYCOL)	9	III
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TRANSPORT CANADA - ROAD

Not dangerous goods				
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TRANSPORT CANADA - RAIL

Not dangerous goods				
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TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods				
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INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods				
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods				
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods				
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MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods				
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*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.

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15. REGULATORY INFORMATION

WHMIS Classification

Not Rated

Listed.

WHMIS Ingredient Disclosure List IDL: No component is listed on the WHMIS ingredients disclosure list.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Canadian National Pollutant Release Inventory (NPRI)

ETHYLENE GLYCOL

100.00 %

Listed.

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)
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)

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	HMIS	NFPA
Health	1	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).