

Zerex® G-05® Formula ANTIFREEZE
COOLANT
ZXG051

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	1-800-ASHLAND (1-800-274-5263)
Product name	Zerex® G-05® Formula ANTIFREEZE COOLANT	
Product code	ZXG051	
Product Use Description	No data	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, light yellow

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

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

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Although rare, skin contact with ethylene glycol may cause allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects). Skin absorption of this material (or a component) may be increased through injured skin.

Ingestion

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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. Ingestion of medications contaminated with diethylene glycol has caused kidney failure and death in humans. Products containing diethylene glycol should be considered toxic by ingestion.

Inhalation

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, Skin

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, effects on male fertility, testis damage, 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).

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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. The relevance of these findings to humans is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No.	Concentration
ETHYLENE GLYCOL	107-21-1	>=90-<=100%
DIETHYLENE GLYCOL	111-46-6	>=1.5-<5%
SODIUM BENZOATE	532-32-1	>=1.5-<5%
SODIUM TETRABORATE	1330-43-4	>=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. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and 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

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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 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

Carbon dioxide (CO₂), Dry chemical

Hazardous combustion products

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

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

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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).

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

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ETHYLENE GLYCOL		107-21-1	
ACGIH	Ceiling Limit Value:	100 mg/m3	Aerosol.
SODIUM TETRABORATE		1330-43-4	
NIOSH	Recommended exposure limit (REL):	1 mg/m3	
OSHA Z1A	time weighted average	10 mg/m3	
US CA OEL	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):	5 mg/m3	
ACGIH	time weighted average	2 mg/m3	Inhalable fraction.
ACGIH	Short term exposure limit	6 mg/m3	Inhalable fraction.

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

General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, 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.

Skin and body protection

Wear resistant gloves such as:

- Neoprene
- Nitrile rubber
- polyvinyl chloride

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.

Respiratory protection

Respiratory protection is not required under normal conditions of use.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	no data available
Colour	light yellow
Odour	mild
Boiling point/boiling range	330 °F / 166 °C @ 760.00 mmHg
Melting point/range	no data available
Sublimation point	no data available
pH	(Average) 6.5
Flash point	(>)121.10 °C Closed Cup
Ignition temperature	no data available
Evaporation rate	(>)1 Ethyl Ether
Lower explosion limit/Upper explosion limit	3.2 %(V) / 15.3 %(V)
Particle size	no data available
Vapour pressure	1.100 mmHg @ 68 °F / 20 °C
Relative vapour density	(>)1 AIR=1
Density	(Average) 1.1362 g/cm ³ @ 60.01 °F / 15.56 °C
Bulk density	9.45 lb/gal @ 77.00 °F / 25.00 °C
Water solubility	no data available
Solubility	no data available
Partition coefficient: n-octanol/water	no data available
log Pow	no data available
Autoignition temperature	no data available
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

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excessive heat

Incompatible products

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

Hazardous decomposition products

carbon dioxide and carbon monoxide, Aldehydes, ketones, Organic acids, Alcohols, ethers, Hydrocarbons, Sodium oxides, toxic fumes

Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

ETHYLENE GLYCOL	: LD 50 Rat: 6,140 mg/kg
DIETHYLENE GLYCOL	: LD 50 Rat: 12,565 mg/kg
SODIUM BENZOATE	: LD 50 Rat: 4,070 mg/kg
SODIUM TETRABORATE	: LD50 rat: 1,200 mg/kg

Acute inhalation toxicity

ETHYLENE GLYCOL	: no data available
DIETHYLENE GLYCOL	: LC Lo Mouse: 130 mg/m ³ ; 2 h
SODIUM BENZOATE	: no data available
SODIUM TETRABORATE	: LC 50 Rat: > 2 mg/m ³ ; 4 h

Acute dermal toxicity

ETHYLENE GLYCOL	: LD 50 Rabbit: 9,530 mg/kg
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DIETHYLENE GLYCOL : LD 50 Rabbit: 11,890 mg/kg
SODIUM BENZOATE : no data available
SODIUM TETRABORATE : LD 50 Rabbit: > 1,055 mg/kg

12. ECOLOGICAL INFORMATION

Biodegradability

ETHYLENE GLYCOL : no data available
DIETHYLENE GLYCOL : 92 %
Exposure time: 28 d
SODIUM BENZOATE : no data available
SODIUM TETRABORATE : no data available

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
SODIUM BENZOATE : no data available
SODIUM TETRABORATE : 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

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DIETHYLENE GLYCOL : 96 h LC 50 Western mosquitofish (*Gambusia affinis*):
> 32,000.00 mg/L Method: Static; Mortality

SODIUM BENZOATE : 96 h static test LC 50 Fathead minnow (*Pimephales
promelas*): > 100.00 mg/L Method: Static; Mortality

SODIUM TETRABORATE : no data available

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

SODIUM BENZOATE : 96 h static test LC 50 Water flea (*Daphnia magna*): >
100.00 mg/L Method: Static Mortality

SODIUM TETRABORATE : no data available

Toxicity to algae

ETHYLENE GLYCOL : no data available

DIETHYLENE GLYCOL : no data available

SODIUM BENZOATE : no data available

SODIUM TETRABORATE : no data available

Toxicity to bacteria

ETHYLENE GLYCOL : no data available

DIETHYLENE GLYCOL : no data available

SODIUM BENZOATE : no data available

SODIUM TETRABORATE : no data available

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Biochemical Oxygen Demand (BOD)

ETHYLENE GLYCOL : no data available
DIETHYLENE GLYCOL : no data available
SODIUM BENZOATE : no data available
SODIUM TETRABORATE : no data available

Chemical Oxygen Demand (COD)

ETHYLENE GLYCOL : no data available
DIETHYLENE GLYCOL : no data available
SODIUM BENZOATE : no data available
SODIUM TETRABORATE : no data available

Additional ecological information

ETHYLENE GLYCOL : no data available
DIETHYLENE GLYCOL : no data available
SODIUM BENZOATE : no data available
SODIUM TETRABORATE : 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

REGULATION

ASHLAND
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MSDS Number: R0296766
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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.

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15. REGULATORY INFORMATION

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.

SARA Hazard Classification

Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

ETHYLENE GLYCOL 94.08 %

New Jersey RTK Label Information

ETHYLENE GLYCOL 107-21-1
DIETHYLENE GLYCOL 111-46-6
SODIUM BENZOATE 532-32-1
SODIUM TETRABORATE 1330-43-4

Pennsylvania RTK Label Information

ETHYLENE GLYCOL 107-21-1
DIETHYLENE GLYCOL 111-46-6
SODIUM TETRABORATE 1330-43-4

Notification status

EU. EINECS y (positive listing)
US. Toxic Substances Control Act y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). y (positive listing)
Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)
Japan. Kashin-Hou Law List n (Negative 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)
China. Inventory of Existing Chemical Substances y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand n (Negative listing)

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Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302) 5314 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).