

ZEREX® G-05® ANTIFREEZE  
COOLANT  
3477

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION 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<br>(1-800-274-5263) |

|                         |                                 |
|-------------------------|---------------------------------|
| Product name            | ZEREX® G-05® ANTIFREEZE COOLANT |
| Product code            | 3477                            |
| 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**

**Routes of exposure**

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**

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, Skin, 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, involuntary eye movement, 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, effects on male fertility, testis 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**

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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**

| <b>Components</b>  | <b>CAS-No.</b> | <b>Concentration</b> |
|--------------------|----------------|----------------------|
| ETHYLENE GLYCOL    | 107-21-1       | >=90-<=100%          |
| DIETHYLENE GLYCOL  | 111-46-6       | >=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.

**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 (CO<sub>2</sub>), Dry chemical

### Hazardous combustion products

Alcohols, Aldehydes, carbon dioxide and carbon monoxide, ethers, toxic fumes, May form:, Sodium oxides, 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

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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 liquid with water used for cooling purposes.

**Flammability Class for Flammable Liquids**  
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**

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**Exposure Guidelines**

**ETHYLENE GLYCOL**

**107-21-1**

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|            |                           |           |                 |
|------------|---------------------------|-----------|-----------------|
| CAD AB OEL | Ceiling Limit Value:      | 100 mg/m3 | Aerosol.        |
| 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.    |
| CAD ON OEL | Ceiling Limit Value:      | 100 mg/m3 |                 |
| OEL (QUE)  | Ceiling Limit Value:      | 50 ppm    | Vapor and mist. |
| OEL (QUE)  | Ceiling Limit Value:      | 127 mg/m3 | Vapor and mist. |

**SODIUM TETRABORATE**

**1330-43-4**

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|            |                           |         |           |
|------------|---------------------------|---------|-----------|
| CAD AB OEL | time weighted average     | 1 mg/m3 |           |
| CAD BC OEL | time weighted average     | 2 mg/m3 | Inhalable |
| CAD BC OEL | Short term exposure limit | 6 mg/m3 | Inhalable |
| CAD ON OEL | time weighted average     | 2 mg/m3 | Inhalable |
| CAD ON OEL | Short term exposure limit | 6 mg/m3 | Inhalable |
| OEL (QUE)  | time weighted average     | 1 mg/m3 |           |

**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

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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.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

|   |   |
|---|---|
| <b>Physical state</b>                         | liquid  |
| <b>Form</b>                                   | No data   |
| <b>Colour</b>                                 | light yellow  |
| <b>Odour</b>                                  | mild  |
| <b>Boiling point/boiling range</b>            | 330.00 °F / 330 °F @ 760.00 mmHg  |
| <b>pH</b>                                     | (Average) 6.5   |
| <b>Flash point</b>                            | (>)250.0 °F / 121.1 °C, Closed Cup  |
| <b>Evaporation rate</b>                       | > 1 (Ethyl Ether)   |
| <b>Explosion limits</b>                       | 3.2 %(V) 15.3 %(V)  |
| <b>Vapour pressure</b>                        | 1.10 mmHg @ 68 °F / 20 °C   |
| <b>Vapour density</b>                         | (>) 1 (AIR=1)   |
| <b>Density</b>                                | (Average) 1.1362 g/cm <sup>3</sup> @ 60.01 °F / 15.56 °C<br>9.45 lb/gal @ 77.00 °F / 25.00 °C |
| <b>Solubility</b>                             | No data   |
| <b>Partition coefficient: n-octanol/water</b> | No data   |
| <b>log Pow</b>                                | no data available   |
| <b>Autoignition temperature</b>               | No data   |

**10. STABILITY AND REACTIVITY****Stability**

Stable.

**Conditions to avoid**

None known.

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**Incompatible products**

Avoid contact with: Alkaline earth metals, Alkali metals, strong acids, strong alkalis, Strong oxidizing agents, Sulphur compounds, iron salts, strong mineral acids

**Hazardous decomposition products**

carbon dioxide and carbon monoxide, Sodium oxides, Hydrocarbons

**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<br>LD 50 Mouse: 14,600 mg/kg |
| DIETHYLENE GLYCOL  | LD 50 Rat: 12,565 mg/kg                             |
| SODIUM TETRABORATE | no data available                                   |

**Acute inhalation toxicity**

|                    |  |
|--------------------|--|
| ETHYLENE GLYCOL    | no data available                        |
| DIETHYLENE GLYCOL  | LC Lo Mouse: 130 mg/m <sup>3</sup> , 2 h |
| SODIUM TETRABORATE | no data available                        |

**Acute dermal toxicity**

|                    |   |
|--------------------|---|
| ETHYLENE GLYCOL    | LD 50 Rabbit: 10,611 mg/kg<br>LD 50 Rabbit: 9,530 mg/kg |
| DIETHYLENE GLYCOL  | LD 50 Rabbit: 11,890 mg/kg                              |
| SODIUM TETRABORATE | no data available                                       |

**12. ECOLOGICAL INFORMATION**

**Aquatic toxicity**

**Acute and Prolonged Toxicity to Fish**

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No data  
**Acute Toxicity to Aquatic Invertebrates**  
No data

**Environmental fate and pathways**

No data

**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**

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.

**15. REGULATORY INFORMATION**

**WHMIS Classification**      D2B    Toxic Material Causing Other Toxic Effects

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.

|             | <b>Health</b> | <b>Flammability</b> | <b>Reactivity</b> | <b>Other</b> |
|-------------|---------------|---------------------|-------------------|--------------|
| <b>HMIS</b> | 2*            | 1                   | 0                 |              |
| <b>NFPA</b> | 1             | 1                   | 0                 |              |

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## **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).