



## SAFETY DATA SHEET

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Zerex™ DEX COOL FORMULA ANTIFREEZE  
COOLANT  
ZXEL1

Revision Date: 10/19/2012

Print Date: 5/14/2013

MSDS Number: R0318755

Version: 2.2

### 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 Zerex™ DEX COOL FORMULA ANTIFREEZE COOLANT

Product code ZXEL1

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

Appearance: liquid, orange

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

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. 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.

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**Inhalation**

Breathing of vapor or mist is possible. 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, Central nervous system. 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, 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

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to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
ETHYLENE GLYCOL	107-21-1	>=90-<=100%
DIETHYLENE GLYCOL	111-46-6	>=1.5-<5%
POTASSIUM 2-ETHYLHEXANOATE	3164-85-0	>=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

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

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**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. FIREFIGHTING MEASURES**

### **Suitable extinguishing media**

Dry chemical, Carbon dioxide (CO<sub>2</sub>), Water spray

### **Hazardous combustion products**

Alcohols, Aldehydes, carbon dioxide and carbon monoxide, ethers, toxic fumes, Hydrocarbons, acetaldehyde, formaldehyde, potassium oxide

### **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

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**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**

<b>ETHYLENE GLYCOL</b>		<b>107-21-1</b>	
ACGIH	Ceiling Limit Value:	100 mg/m3	Aerosol.
<b>DIETHYLENE GLYCOL</b>		<b>111-46-6</b>	
WEEL	time weighted average	10 mg/m3	

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**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.

**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).

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**

<b>Physical state</b>	liquid
<b>Colour</b>	orange
<b>Boiling point/boiling range</b>	330 °F / 166 °C @ 760.00 mmHg

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<b>Melting point/range</b>	-34.6 °F / -37.0 °C
<b>pH</b>	(Average) 8.4
<b>Flash point</b>	> 250.0 °F / > 121.1 °C Closed Cup
<b>Lower explosion limit/Upper explosion limit</b>	3.2 %(V) / 15.3 %(V)
<b>Vapour pressure</b>	17.500 mmHg
<b>Density</b>	(Average) 1.1191 g/cm3 @ 60.01 °F / 15.56 °C
	9.315 lb/gal @ 77.00 °F / 25.00 °C

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

Stable.

**Conditions to avoid**

None known.

**Incompatible products**

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

**Hazardous decomposition products**

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

**Hazardous reactions**

Product will not undergo hazardous polymerization.

**11. TOXICOLOGICAL INFORMATION****Acute oral toxicity**

Acute oral toxicity - : no data available  
Product

Acute oral toxicity - Components

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ETHYLENE GLYCOL	: LD 50: 6,140 mg/kg Species: Rat
DIETHYLENE GLYCOL	: LD 50: 12,565 mg/kg Species: Rat

**Acute inhalation toxicity**

Acute inhalation toxicity - Product	: no data available
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**Acute inhalation toxicity - Components**

DIETHYLENE GLYCOL	: LC Lo: 130 mg/m3 Exposure time: 2 h Species: Mouse
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**Acute dermal toxicity**

Acute dermal toxicity - Product	: no data available
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**Acute dermal toxicity - Components**

ETHYLENE GLYCOL	: LD 50: 9,530 mg/kg Species: Rabbit
DIETHYLENE GLYCOL	: LD 50: 11,890 mg/kg Species: Rabbit

**Acute toxicity (other routes of administration)**

Acute toxicity (other routes of administration)	: no data available
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**12. ECOLOGICAL INFORMATION****Biodegradability**

Biodegradability - Product	: no data available
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**Biodegradability - Components**

DIETHYLENE GLYCOL	: 92 %
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**Bioaccumulation**

Bioaccumulation - Product	: no data available
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**Bioaccumulation - Components**



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

Toxicity to fish - Product	: no data available
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## Toxicity to fish - Components

ETHYLENE GLYCOL	: LC 50: 27,540 mg/l Exposure time: 96 h Species: Bluegill (Lepomis macrochirus) Method: Static Remarks: Mortality
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	LC 50: 8,050 mg/l Exposure time: 96 h Species: Fathead minnow (Pimephales promelas)
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DIETHYLENE GLYCOL	: LC 50: > 32,000 mg/l Exposure time: 96 h Species: Western mosquitofish (Gambusia affinis) Method: Static Remarks: Mortality
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**Toxicity to daphnia and other aquatic invertebrates**

Toxicity to daphnia and other aquatic invertebrates - Product	: no data available
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## 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
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DIETHYLENE GLYCOL	: LC 50: > 10,000 mg/l Exposure time: 24 h Species: Water flea (Daphnia magna)
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Method: Static  
Remarks: Mortality

### Toxicity to algae

Toxicity to algae - : no data available  
Product

### Toxicity to bacteria

Toxicity to bacteria - : no data available  
Product

## 13. DISPOSAL CONSIDERATIONS

### Waste disposal methods

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

Not dangerous goods

### U.S. DOT - RAIL

Not dangerous goods

### U.S. DOT - INLAND WATERWAYS

Not dangerous goods

### TRANSPORT CANADA - ROAD



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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.

## 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

### SARA 311/312 Classification

Acute Health Hazard

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**SARA 313 Component(s)**

ETHYLENE GLYCOL	93.55 %
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**New Jersey RTK Label Information**

ETHYLENE GLYCOL	107-21-1
DIETHYLENE GLYCOL	111-46-6
POTASSIUM 2-ETHYLHEXANOATE	3164-85-0
WATER	7732-18-5

**Pennsylvania RTK Label Information**

ETHYLENE GLYCOL	107-21-1
DIETHYLENE GLYCOL	111-46-6
POTASSIUM 2-ETHYLHEXANOATE	3164-85-0

**Notification status**

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

**Reportable quantity - Product**

US. EPA CERCLA Hazardous Substances (40 CFR 302)	5344 lbs
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**Reportable quantity-Components**

ETHYLENE GLYCOL	107-21-1	5000 lbs
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	<b>HMIS</b>	<b>NFPA</b>
Health	2*	1



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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).