

SAFETY DATA SHEET

Revision Date: 03/19/2012

Print Date: 5/2/2012

MSDS Number: R0382102

Version: 1.12

Zerex® Dex Cool™ ANTIFREEZE COOLANT
575284

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™ ANTIFREEZE COOLANT

Product code 575284

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.

SAFETY DATA SHEET

Revision Date: 03/19/2012

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Zerex® Dex Cool™ ANTIFREEZE COOLANT
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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, 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, 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

SAFETY DATA SHEET

Revision Date: 03/19/2012

Print Date: 5/2/2012

MSDS Number: R0382102

Version: 1.12

Zerex® Dex Cool™ ANTIFREEZE COOLANT
575284

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	>=40-<50%
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

SAFETY DATA SHEET

Revision Date: 03/19/2012

Print Date: 5/2/2012

MSDS Number: R0382102

Version: 1.12

Zerex® Dex Cool™ ANTIFREEZE COOLANT
575284

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. 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, diethylene glycol and methanol poisoning.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Water spray

Hazardous combustion products

May form: carbon dioxide and carbon monoxide acetaldehyde, Alcohols, Aldehydes, carbon dioxide and carbon monoxide, ethers, formaldehyde-like, Hydrocarbons, potassium oxide, 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.

SAFETY DATA SHEET

Zerex® Dex Cool™ ANTIFREEZE COOLANT
575284

Revision Date: 03/19/2012

Print Date: 5/2/2012

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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

ETHYLENE GLYCOL

ACGIH

107-21-1

Ceiling Limit Value:

100 mg/m³

Aerosol.

SAFETY DATA SHEET

Revision Date: 03/19/2012

Print Date: 5/2/2012

MSDS Number: R0382102

Version: 1.12

Zerex® Dex Cool™ ANTIFREEZE COOLANT
575284

DIETHYLENE GLYCOL	111-46-6
WEEL	time weighted average 10 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

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

SAFETY DATA SHEET

Revision Date: 03/19/2012

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MSDS Number: R0382102

Version: 1.12

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575284

Physical state	liquid
Colour	orange
Boiling point/boiling range	226 °F / 108 °C @ 760.00 mmHg
Melting point/range	-34 °F / -37 °C
pH	(Average) 10.5
Flash point	> 250.00 °F / > 121.11 °C
Lower explosion limit/Upper explosion limit	1.2 %(V) / 15.3 %(V)
Vapour pressure	23.333 hPa @ 68 °F / 20 °C Calculated Vapor Pressure
Density	(Average) 1.0755 g/cm ³ @ 60.00 °F / 15.56 °C 8.91 lb/gal @ 60.00 °F / 15.56 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

None known.

Incompatible products

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

Hazardous decomposition products

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

Hazardous reactions

Product will not undergo hazardous polymerization.

SAFETY DATA SHEET

Revision Date: 03/19/2012

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Zerex® Dex Cool™ ANTIFREEZE COOLANT
575284

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - Product : no data available

Acute oral toxicity - Components

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

Acute inhalation toxicity - Components

DIETHYLENE GLYCOL : LC Lo: 130 mg/m3 Exposure time: 2 h Species: Mouse

Acute dermal toxicity

Acute dermal toxicity - Product : no data available

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

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product : no data available

Biodegradability - Components

DIETHYLENE GLYCOL : 92 %

SAFETY DATA SHEET

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575284

Bioaccumulation

Bioaccumulation - Product : no data available

Bioaccumulation - Components

ETHYLENE GLYCOL : Species: Crayfish (Procambarus) Exposure time: 61 d
Concentration: 1,000 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: MortalityLC 50: 8,050 mg/l
Exposure time: 96 h
Species: Fathead minnow (Pimephales promelas)DIETHYLENE GLYCOL : LC 50: > 32,000 mg/l
Exposure time: 96 h
Species: Western mosquitofish (Gambusia affinis)
Method: Static
Remarks: Mortality

Toxicity to daphnia and other aquatic invertebrates.

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

SAFETY DATA SHEET

Revision Date: 03/19/2012

Print Date: 5/2/2012

MSDS Number: R0382102

Version: 1.12

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575284

Species: Water flea (Daphnia magna) Test Type: static test

DIETHYLENE GLYCOL : LC 50: > 10,000 mg/l Exposure time: 24 h Species: Water flea (Daphnia magna) Method: Static Remarks: Mortality
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Toxicity to algae

Toxicity to algae - Product	: no data available
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Toxicity to bacteria

Toxicity to bacteria - Product	: no data available
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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.

U.S. DOT - ROAD

Not dangerous goods

SAFETY DATA SHEET

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575284

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.

15. REGULATORY INFORMATION

California Prop. 65

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

SAFETY DATA SHEET

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575284

SARA Hazard Classification

SARA 311/312 Classification

Acute Health Hazard

SARA 313 Component(s)

ETHYLENE GLYCOL	47.72 %
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New Jersey RTK Label Information

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

Pennsylvania RTK Label Information

WATER	7732-18-5
ETHYLENE GLYCOL	107-21-1
DIETHYLENE GLYCOL	111-46-6

Notification status

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

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	10476 lbs
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Reportable quantity-Components

ETHYLENE GLYCOL	107-21-1	5000 lbs
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	HMIS	NFPA
Health	2*	2
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).