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		Print Date: 6/30/2015
		SDS Number: 000000196019
Zerex™ GREEN HD PRE-CHARGED ANTIFREEZE COOLANT		Version: 1.0
ZXPC1		

29 CFR 1910.1200 (OSHA HazCom 2012)

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

### Product identifier

Trade name : Zerex™ GREEN HD PRE-CHARGED  
ANTIFREEZE COOLANT

### Recommended use of the chemical and restrictions on use


<b>Details of the supplier of the safety data sheet</b> Ashland P.O. Box 2219 Columbus, OH 43216 United States of America  EHS Customer Requests@ashland.com	<b>Emergency telephone number</b> 1-800-ASHLAND (1-800-274-5263)  <b>Regulatory Information Number</b> 1-800-325-3751  <b>Product Information</b> 614-790-3333
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## SECTION 2. HAZARDS IDENTIFICATION

### GHS Classification

Acute toxicity (Oral) : Category 4  
  
Reproductive toxicity : Category 1B  
  
Specific target organ systemic toxicity - repeated exposure (Oral) : Category 2 (Kidney, Liver)

### GHS Label element

Hazard pictograms :  

Signal Word : Danger

Hazard Statements : Harmful if swallowed.  
May damage fertility or the unborn child.  
May cause damage to organs (Kidney, Liver) through prolonged or repeated exposure if swallowed.

Precautionary Statements : **Prevention:**  
Obtain special instructions before use.

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Do not handle until all safety precautions have been read and understood.

Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.

IF exposed or concerned: Get medical advice/ attention.

**Storage:**

Store locked up.

**Disposal:**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

**Hazardous components**

Chemical Name	CAS-No.	Classification	Concentration (%)
ETHYLENE GLYCOL	107-21-1	Acute Tox. 4; H302 STOT RE 2; H373	95.22
DIETHYLENE GLYCOL	111-46-6	Acute Tox. 4; H302 STOT RE 2; H373	4.76
DISODIUM TETRABORATE ANHYDROUS	1330-43-4	Repr. 1B; H360	0.50

### SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.  
Call a POISON CENTRE or doctor/physician if exposed or you feel unwell.

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Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.

- If inhaled : If unconscious place in recovery position and seek medical advice.  
If symptoms persist, call a physician.
- In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.
- In case of eye contact : Flush eyes with water as a precaution.  
Remove contact lenses.  
Protect unharmed eye.  
If eye irritation persists, consult a specialist.
- If swallowed : Obtain medical attention.  
Rinse mouth with water.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : 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.

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  
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)  
Convulsions

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Harmful if swallowed.  
 May damage fertility or the unborn child.  
 May cause damage to organs through prolonged or repeated exposure if swallowed.

Notes to physician : 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.

## SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
 Water spray  
 Foam  
 Carbon dioxide (CO2)  
 Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Alcohols  
 Aldehydes  
 carbon dioxide and carbon monoxide  
 ethers  
 toxic fumes  
 Hydrocarbons

Specific extinguishing methods :  
  
 Product is compatible with standard fire-fighting agents.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Ensure adequate ventilation.  
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
- Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.
- Other information : Comply with all applicable federal, state, and local regulations.

## SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Do not breathe vapours/dust.  
Do not smoke.  
Container hazardous when empty.  
Avoid exposure - obtain special instructions before use.  
Avoid contact with skin and eyes.  
Smoking, eating and drinking should be prohibited in the application area.  
For personal protection see section 8.  
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Observe label precautions.  
Electrical installations / working materials must comply with the technological safety standards.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible	Basis

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			concentration	
ETHYLENE GLYCOL	107-21-1	Ceiling	100 mg/m3 Aerosol.	ACGIH
		TWA	10 mg/m3 Inhalable fraction and vapor	ACGIHLIS_P
DIETHYLENE GLYCOL	111-46-6	TWA	10 mg/m3	WEEL
DISODIUM TETRABORATE ANHYDROUS	1330-43-4	REL	1 mg/m3	NIOSH/GUID E
		TWA	10 mg/m3	TN OEL
		TWA	2 mg/m3 Inhalable fraction.	ACGIH
		STEL	6 mg/m3 Inhalable fraction.	ACGIH

**Engineering measures** : 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.

#### Personal protective equipment

**Respiratory protection** : In the case of vapour formation use a respirator with an approved filter.

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.

**Hand protection**  
**Remarks** : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

**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 as appropriate:  
impervious clothing  
Safety shoes  
Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
Wear resistant gloves (consult your safety equipment supplier).

**Hygiene measures** : Wash hands before breaks and at the end of workday.

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When using do not eat or drink.

When using do not smoke.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Odour	: No data available
Odour Threshold	: No data available
pH	: 10 - 11.2, 100 %
Melting point/freezing point	: No data available
Boiling point/boiling range	: 212 °F / 100 °C (1,013.333333 hPa) Calculated Phase Transition Liquid/Gas
Flash point	: > 482 °F / > 250 °C
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Upper explosion limit	: 15.3 %(V) GLP: Calculated Explosive Limit
Lower explosion limit	: 3.2 %(V) GLP: Calculated Explosive Limit
Vapour pressure	: 23.3333333 hPa (20 °C) Calculated Vapor Pressure
Relative vapour density	: No data available
Relative density	: No data available
Density	: 1.1229 g/cm3 (15.6 °C)
Solubility(ies)	
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Thermal decomposition	: No data available
Viscosity	
Viscosity, dynamic	: No data available

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Viscosity, kinematic : No data available

Oxidizing properties : No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Product will not undergo hazardous polymerization.

Conditions to avoid : excessive heat

Incompatible materials : 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  
ketones

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## SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation  
Skin contact  
Eye Contact  
Ingestion

### Acute toxicity

Harmful if swallowed.

### Product:

Acute oral toxicity : Remarks: Ingestion of medications contaminated with diethylene glycol has caused kidney failure and death in humans. Products containing diethylene glycol should be



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considered toxic by ingestion.

Acute dermal toxicity : Remarks: Skin absorption of this material (or a component) may be increased through injured skin.

**Components:**

**ETHYLENE GLYCOL:**

Acute oral toxicity : LD 50 (Rat): 6,140 mg/kg  
 LD50 (Human): Estimated 1.56 g/kg  
 Assessment: The component/mixture is classified as acute oral toxicity, category 4.

Acute inhalation toxicity : LC 50 (Rat): 10.9 mg/l  
 Exposure time: 1 h  
 Test atmosphere: dust/mist  
 Assessment: No adverse effect has been observed in acute inhalation toxicity tests.

Acute dermal toxicity : LD 50 (Rabbit): 9,530 mg/kg

**DIETHYLENE GLYCOL:**

Acute oral toxicity : LD50 (Human): Expected 1,120 mg/kg  
 Target Organs: Kidney

Acute inhalation toxicity : LC50 (Rat): > 4.6 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Assessment: No adverse effect has been observed in acute inhalation toxicity tests.

Acute dermal toxicity : LD 50 (Rabbit): 13,300 mg/kg

**DISODIUM TETRABORATE ANHYDROUS:**

Acute inhalation toxicity : LC50 (Rat): > 2.03 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Method: OECD Test Guideline 403  
 Assessment: No adverse effect has been observed in acute inhalation toxicity tests.

Acute dermal toxicity : LD 50 (Rabbit): > 2,000 mg/kg  
 Assessment: No adverse effect has been observed in acute dermal toxicity tests.

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**ETHYLENE GLYCOL:**

Result: Mildly irritating to skin

**DIETHYLENE GLYCOL:**

Species: Human

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Result: Slightly irritating to skin

DISODIUM TETRABORATE ANHYDROUS:

Species: Rabbit

Result: Not irritating to skin

**Serious eye damage/eye irritation**

Not classified based on available information.

**Product:**

Remarks: Unlikely to cause eye irritation or injury.

**Components:**

ETHYLENE GLYCOL:

Result: Possibly irritating to eyes

DIETHYLENE GLYCOL:

Species: Rabbit

Result: Slightly irritating to eyes

DISODIUM TETRABORATE ANHYDROUS:

Result: Slightly irritating to eyes

**Respiratory or skin sensitisation**

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

**Components:**

DIETHYLENE GLYCOL:

Test Type: Maximisation Test (GPMT)

Species: Guinea pig

Method: Directive 67/548/EEC, Annex V, B.6.

Result: Did not cause sensitisation on laboratory animals.

DISODIUM TETRABORATE ANHYDROUS:

Test Type: Buehler Test

Species: Guinea pig

Assessment: Does not cause skin sensitisation.

Method: OECD Test Guideline 406

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

DIETHYLENE GLYCOL:

Genotoxicity in vitro

: Test Type: Ames test

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

GLP: yes

: Test species: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 479

Result: negative

GLP: yes

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Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Test species: Mouse  
Method: OECD Test Guideline 474  
Result: negative  
GLP: yes

#### **Carcinogenicity**

Not classified based on available information.

#### **Reproductive toxicity**

May damage fertility or the unborn child.

#### **Components:**

DISODIUM TETRABORATE ANHYDROUS:

Reproductive toxicity - : Clear evidence of adverse effects on sexual function and  
Assessment fertility, and/or on development, based on animal experiments

#### **STOT - single exposure**

Not classified based on available information.

#### **STOT - repeated exposure**

May cause damage to organs (Kidney, Liver) through prolonged or repeated exposure if swallowed.

#### **Components:**

ETHYLENE GLYCOL:

Exposure routes: Ingestion

Target Organs: Kidney, Liver

Assessment: May cause damage to organs through prolonged or repeated exposure.

DIETHYLENE GLYCOL:

Exposure routes: Ingestion

Target Organs: Kidney

Assessment: May cause damage to organs through prolonged or repeated exposure.

#### **Aspiration toxicity**

Not classified based on available information.

#### **Experience with human exposure**

#### **Components:**

DIETHYLENE GLYCOL:

Liver

#### **Further information**

#### **Product:**

Remarks: No data available

#### **Carcinogenicity:**

##### **IARC**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

##### **OSHA**

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

##### **NTP**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen

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by NTP.

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### ETHYLENE GLYCOL:

- Toxicity to fish : LC 50 (Bluegill (*Lepomis macrochirus*)): 27,540 mg/l  
 Exposure time: 96 h  
 Method: Static  
 Remarks: Mortality
- LC 50 (Fathead minnow (*Pimephales promelas*)): 8,050 mg/l  
 Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC 50 (Water flea (*Daphnia magna*)): > 10,000 mg/l  
 Exposure time: 48 h  
 Test Type: static test

##### DIETHYLENE GLYCOL:

- Toxicity to fish : LC 50 (Fathead minnow (*Pimephales promelas*)): 75,210 mg/l  
 Exposure time: 96 h  
 Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates : LC 50 (Water flea (*Daphnia magna*)): > 10,000 mg/l  
 Exposure time: 24 h  
 Test Type: static test  
 Method: DIN 38412

##### DISODIUM TETRABORATE ANHYDROUS:

- Toxicity to fish : LC50 (*Pimephales promelas* (fathead minnow)): 79.7 mg/l  
 Exposure time: 96 h  
 Remarks: Information refers to the main component.
- Toxicity to algae : NOEC (*Pseudokirchneriella subcapitata* (green algae)): 17.5 mg/l  
 End point: Growth inhibition  
 Exposure time: 72 h  
 Test Type: static test  
 Method: OECD Test Guideline 201  
 Remarks: Information refers to the main component.
- Toxicity to fish (Chronic toxicity) : NOEC (*Danio rerio* (zebra fish)): 5.6 mg/l  
 Exposure time: 34 d  
 Test Type: semi-static test  
 Method: OECD Test Guideline 210  
 Remarks: Information refers to the main component.

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#### Persistence and degradability

##### Components:

##### DIETHYLENE GLYCOL:

Biodegradability : Result: Readily biodegradable  
 Biodegradation: 70 - 80 %  
 Exposure time: 28 d  
 Method: OECD Test Guideline 301B

##### DISODIUM TETRABORATE ANHYDROUS:

Biodegradability : Result: The methods for determining biodegradability are not applicable to inorganic substances.

#### Bioaccumulative potential

##### Components:

##### ETHYLENE GLYCOL:

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

Partition coefficient: n-octanol/water : log Pow: -1.36

##### DIETHYLENE GLYCOL:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)  
 Bioconcentration factor (BCF): 100

Partition coefficient: n-octanol/water : log Pow: -1.47

#### Mobility in soil

##### Components:

No data available

##### **Other adverse effects**

No data available

##### Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Harmful to aquatic life.

##### Components:

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## SECTION 13. DISPOSAL CONSIDERATIONS

#### Disposal methods

General advice : The product should not be allowed to enter drains, water

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courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

Dispose of in accordance with all applicable local, state and federal regulations.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.

## SECTION 14. TRANSPORT INFORMATION

### International transport regulations

#### REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.

#### 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

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#### 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

Marine pollutant	no
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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.

#### SECTION 15. REGULATORY INFORMATION

##### EPCRA - Emergency Planning and Community Right-to-Know Act

##### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
ETHYLENE GLYCOL	107-21-1	5000	5250.655807

**SARA 311/312 Hazards** : Acute Health Hazard  
Chronic Health Hazard

##### SARA 313 Component(s)

ETHYLENE GLYCOL	107-21-1	95.22 %
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##### Pennsylvania Right To Know

ETHYLENE GLYCOL	107-21-1	90.00 - 100.00 %
DIETHYLENE GLYCOL	111-46-6	1.00 - 5.00 %

##### New Jersey Right To Know

ETHYLENE GLYCOL	107-21-1	90.00 - 100.00 %
DIETHYLENE GLYCOL	111-46-6	1.00 - 5.00 %
WATER	7732-18-5	1.00 - 5.00 %

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#### California Prop 65

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

#### The components of this product are reported in the following inventories:

TSCA	: On TSCA Inventory
DSL	: All components of this product are on the Canadian DSL.
AUSTR	: On the inventory, or in compliance with the inventory
NZIOC	: Not in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECL	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory

#### Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECL (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

## SECTION 16. OTHER INFORMATION

#### Further information

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NFPA:	HMIS III:						
<p>Flammability</p> <p>Health</p> <p>Instability</p> <p>Special hazard.</p>	<table border="1"> <tr> <td><b>HEALTH</b></td><td><b>2</b></td></tr> <tr> <td><b>FLAMMABILITY</b></td><td><b>1</b></td></tr> <tr> <td><b>PHYSICAL HAZARD</b></td><td><b>0</b></td></tr> </table> <p>0 = not significant, 1 = Slight, 2 = Moderate, 3 = High 4 = Extreme, * = Chronic</p>	<b>HEALTH</b>	<b>2</b>	<b>FLAMMABILITY</b>	<b>1</b>	<b>PHYSICAL HAZARD</b>	<b>0</b>
<b>HEALTH</b>	<b>2</b>						
<b>FLAMMABILITY</b>	<b>1</b>						
<b>PHYSICAL HAZARD</b>	<b>0</b>						

#### NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB



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**Full text of H-Statements referred to under sections 2 and 3.**

H302	Harmful if swallowed.
H360	May damage fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure if swallowed.

Sources of key data used to compile the Safety Data Sheet

Ashland internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

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 SDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index

CAS : Chemical Abstracts Service (Division of the American Chemical Society).

CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

FG : Food grade

GHS : Globally Harmonized System of Classification and Labeling of Chemicals.

H-statement : Hazard Statement

IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization

ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"

IMDG : International Maritime Code for Dangerous Goods

ISO : International Organization for Standardization

logPow : octanol-water partition coefficient

LCxx : Lethal Concentration, for xx percent of test population

LDxx : Lethal Dose, for xx percent of test population.

ICxx : Inhibitory Concentration for xx of a substance

Ecxx : Effective Concentration of xx

N.O.S.: Not Otherwise Specified

OECD : Organization for Economic Co-operation and Development

OEL : Occupational Exposure Limit

P-Statement : Precautionary Statement

PBT : Persistent , Bioaccumulative and Toxic

PPE : Personal Protective Equipment

STEL : Short-term exposure limit

STOT : Specific Target Organ Toxicity

TLV : Threshold Limit Value

TWA : Time-weighted average

vPvB : Very Persistent and Very Bioaccumulative

WEL : Workplace Exposure Level

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CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act

DOT : Department of Transportation

FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act

HMIRC : Hazardous Materials Information Review Commission

HMIS : Hazardous Materials Identification System

NFPA : National Fire Protection Association

NIOSH : National Institute for Occupational Safety and Health

OSHA : Occupational Safety and Health Administration

PMRA : Health Canada Pest Management Regulatory Agency

RTK : Right to Know

WHMIS : Workplace Hazardous Materials Information System