		Page: 1
<b>SAFETY DATA SHEET</b>		Revision Date: 09/13/2018
		Print Date: 9/14/2018
		SDS Number: R0368895
ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant ZXEDRU2		Version: 1.7

29 CFR 1910.1200 (OSHA HazCom 2012)

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

**Product identifier**

Trade name : ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

**Relevant identified uses of the substance or mixture and uses advised against**

Recommended use : Antifreeze Coolant

<p><b>Details of the supplier of the safety data sheet</b>  Valvoline LLC  100 Valvoline Way  Lexington, KY 40509  United States of America (USA)  1-800-TEAMVAL (1-800-832-6825)</p> <p>SDS@valvoline.com</p>	<p><b>Emergency telephone number</b>  1-800-VALVOLINE (1-800-825-8654)</p> <p><b>Regulatory Information Number</b>  1-800-TEAMVAL (1-800-832-6825)</p> <p><b>Product Information</b>  1-800-TEAMVAL (1-800-832-6825)</p>
--	--

**SECTION 2. HAZARDS IDENTIFICATION**

**GHS Classification**

Acute toxicity (Oral) : Category 4

Carcinogenicity : Category 1B

Specific target organ systemic toxicity - repeated exposure (Oral) : Category 2 (Kidney, Liver)

**GHS label elements**

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : Harmful if swallowed.  
May cause cancer.  
May cause damage to organs (Kidney, Liver) through

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

prolonged or repeated exposure if swallowed.

**Precautionary Statements**

**Prevention:**

Obtain special instructions before use.  
 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/doctor 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	>=40.00 - < 50.00
DIETHYLENE GLYCOL	111-46-6	Acute Tox. 4; H302 STOT RE 2; H373	>=1.50 - < 5.00
POTASSIUM HYDROXIDE	1310-58-3	Met. Corr. 1; H290 Acute Tox. 4; H302 Skin Corr. 1A; H314 Eye Dam. 1; H318	>=1.00 - < 1.50

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant


Version: 1.7

ZXEDRU2

SODIUM NITRITE	7632-00-0	Ox. Sol. 2; H272 Acute Tox. 3; H301 Eye Irrit. 2A; H319 Carc. 1B; H350	>=0.10 - < 0.50
SODIUM NITRATE	7631-99-4	Ox. Sol. 3; H272 Eye Irrit. 2A; H319 Carc. 1B; H350	>=0.10 - < 0.50

**SECTION 4. FIRST AID MEASURES**

- General advice : Move out of dangerous area.  
Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.
- If inhaled : If breathed in, move person into fresh air.  
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

		Page: 4
<b>SAFETY DATA SHEET</b>		Revision Date: 09/13/2018
		Print Date: 9/14/2018
		SDS Number: R0368895
ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant		Version: 1.7
ZXEDRU2		

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
- Harmful if swallowed.
- May cause cancer.
- 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)

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

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  
potassium oxide

Specific extinguishing methods :

Product is compatible with standard fire-fighting agents.

Further information : Standard procedure for chemical fires.

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

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures : 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.

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

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.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
ETHYLENE GLYCOL	107-21-1	C	50 ppm 125 mg/m <sup>3</sup>	OSHA P0
		C	40 ppm 100 mg/m <sup>3</sup> Vapour	CAL PEL
		TWA	25 ppm Vapour	ACGIH
		STEL	50 ppm Vapour	ACGIH
		STEL	10 mg/m <sup>3</sup> Inhalable fraction, Aerosol only	ACGIH
DIETHYLENE GLYCOL	111-46-6	TWA	10 mg/m <sup>3</sup>	US WEEL
POTASSIUM HYDROXIDE	1310-58-3	C	2 mg/m <sup>3</sup>	ACGIH
		C	2 mg/m <sup>3</sup>	NIOSH REL
		C	2 mg/m <sup>3</sup>	OSHA P0
		C	2 mg/m <sup>3</sup>	CAL PEL

**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**

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.

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX<sup>TM</sup> HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

- Skin and body protection : Wear resistant gloves (consult your safety equipment supplier).  
Wear as appropriate:  
Impervious clothing  
Safety shoes  
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures : Wash hands before breaks and at the end of workday.  
When using do not eat or drink.  
When using do not smoke.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

- Physical state : liquid
- Colour : dark orange
- Odour : No data available
- Odour Threshold : No data available
- pH : 8 - 10
- Melting point/freezing point : < -33 °F / < -36 °C
- Boiling point/boiling range : 225 °F / 107 °C
- Flash point : > 250.00 °F / > 121.11 °C
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available
- Upper explosion limit : 15.3 %(V)
- Lower explosion limit : 1 %(V)
- Vapour pressure : 23.3333333 hPa (20 °C)  
Calculated Vapor Pressure
- Relative vapour density : No data available
- Relative density : 1.0745 (15.6 °C)
- Density : 1.0745 g/cm<sup>3</sup> (15.6 °C)
- Solubility(ies)

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

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
Viscosity, kinematic	: No data available
Oxidizing properties	: No data available

**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	: Keep away from heat, flame, sparks and other ignition sources. excessive heat
Incompatible materials	: Acids Alcohols Aldehydes Alkali metals Alkaline earth metals Amines Bases chlorinated solvents halogenated hydrocarbons strong alkalis Strong oxidizing agents Sulphur compounds Zinc
Hazardous decomposition products	Alcohols Aldehydes carbon dioxide and carbon monoxide ethers Hydrocarbons Organic acids



**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

potassium oxide  
ketones**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 considered toxic by ingestion.

Acute toxicity estimate: 945.86 mg/kg  
Method: Calculation method

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

**Components:****ETHYLENE GLYCOL:**

Acute oral toxicity : LD0 (Human): estimated 1.56 g/kg

Assessment: The component/mixture is classified as acute oral toxicity, category 4.

Acute inhalation toxicity : LC50 (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 : LD50 (Rabbit): 9,530 mg/kg

Acute toxicity (other routes of administration) : LD50 (Rat): 5,010 mg/kg  
Application Route: Intraperitoneal

**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

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

Assessment: No adverse effect has been observed in acute inhalation toxicity tests.

Acute dermal toxicity : LD50 (Rabbit): 13,300 mg/kg

**POTASSIUM HYDROXIDE:**

Acute oral toxicity : LD50 (Rat): 333 mg/kg

**SODIUM NITRITE:**

Acute oral toxicity : LD50 (Rat): 180 mg/kg

Acute inhalation toxicity : LC50 (Rat): 5.5 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist

**SODIUM NITRATE:**

Acute oral toxicity : LD50 (Rat): ca. 3,430 mg/kg  
 Method: OECD Test Guideline 401

**Skin corrosion/irritation**

Not classified based on available information.

**Product:**

Result : No skin irritation  
 Remarks : Expected based on components.

**Components:**

**ETHYLENE GLYCOL:**

Species : Rabbit  
 Result : No skin irritation

**DIETHYLENE GLYCOL:**

Species : Human  
 Result : Slight, transient irritation

**POTASSIUM HYDROXIDE:**

Species : Rabbit  
 Result : Corrosive after 3 minutes or less of exposure

**SODIUM NITRITE:**

Assessment : No skin irritation  
 Result : No skin irritation

**SODIUM NITRATE:**

Species : Rabbit  
 Method : OECD Test Guideline 404  
 Result : No skin irritation  
 Remarks : Information given is based on data obtained from similar substances.

**Serious eye damage/eye irritation**

Not classified based on available information.

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

**Product:**

Result : No eye irritation  
 Remarks : Expected based on components.

Remarks : Unlikely to cause eye irritation or injury.

**Components:**

**ETHYLENE GLYCOL:**

Result : Slight, transient irritation

**DIETHYLENE GLYCOL:**

Species : Rabbit  
 Result : Slight, transient irritation

**POTASSIUM HYDROXIDE:**

Species : Rabbit  
 Result : Corrosive

**SODIUM NITRITE:**

Result : Irritating to eyes.  
 Assessment : Irritating to eyes.

**SODIUM NITRATE:**

Species : Rabbit  
 Result : Irritating to eyes.  
 Method : OECD Test Guideline 405

**Respiratory or skin sensitisation**

**Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

**Components:**

**ETHYLENE GLYCOL:**

Test Type : Maximisation Test  
 Species : Guinea pig  
 Assessment : Does not cause skin sensitisation.

**DIETHYLENE GLYCOL:**

Test Type : Maximisation Test  
 Species : Guinea pig  
 Method : Directive 67/548/EEC, Annex V, B.6.  
 Result : Did not cause sensitisation on laboratory animals.

**POTASSIUM HYDROXIDE:**

Test Type : Maximisation Test  
 Species : Guinea pig  
 Assessment : Does not cause skin sensitisation.

**Germ cell mutagenicity**

Not classified based on available information.

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

**Components:****ETHYLENE GLYCOL:**

Genotoxicity in vitro : Test Type: Ames test  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Result: negative

**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 system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 479  
Result: negative  
GLP: yes

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

**Carcinogenicity**

May cause cancer.

**IARC** Group 2A: Probably carcinogenic to humans  
Sodium nitrite Not Assigned  
(nitrite (ingested) under conditions that result in endogenous nitrosation)  
Group 2A: Probably carcinogenic to humans  
Sodium nitrate Not Assigned  
(nitrate (ingested) under conditions that result in endogenous nitrosation)

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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

**Reproductive toxicity**

Not classified based on available information.

**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

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

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.

**Product:**

No aspiration toxicity classification

**Experience with human exposure****Components:****ETHYLENE GLYCOL:**

Ingestion : Target Organs: Kidney

**DIETHYLENE GLYCOL:**General Information : Liver  
Kidney**Further information****Product:**

Remarks : No data available

**Components:****POTASSIUM HYDROXIDE:**

Remarks : No data available

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Product:**

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : Not classified based on available information.

Long-term (chronic) aquatic hazard : Not classified based on available information.

**Components:****ETHYLENE GLYCOL:**Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 27,540 mg/l  
Exposure time: 96 h  
Test Type: static test

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

LC50 (Pimephales promelas (fathead minnow)): 8,050 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 10,000 mg/l  
Exposure time: 48 h  
Test Type: static test

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 6,500 - 13,000 mg/l  
End point: Growth inhibition  
Exposure time: 7 Days

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 32,000 mg/l  
Exposure time: 7 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 24,000 mg/l  
Exposure time: 7 d

**DIETHYLENE GLYCOL:**  
Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 10,000 mg/l  
Exposure time: 24 h  
Test Type: static test  
Method: DIN 38412

**POTASSIUM HYDROXIDE:**  
Toxicity to fish : LC50 (Gambusia affinis (Mosquito fish)): 80 mg/l  
Exposure time: 96 h  
Test Type: static test

Ecotoxicology Assessment Long-term (chronic) aquatic hazard : Not expected to cause long-term toxicity to fish., Not expected to cause long-term toxicity to aquatic invertebrates., Not expected to cause long-term toxicity to aquatic plants.

**SODIUM NITRITE:**  
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2.35 - 3.81 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.54 - 26.3 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 15.4 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

Exposure time: 72 h  
 Test Type: Growth inhibition  
 Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC (Ictalurus catus (catfish)): 6.16 mg/l  
 Exposure time: 31 d  
 Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Aquatic invertebrates): 9.86 mg/l  
 Exposure time: 80 d  
 Test Type: static test

Toxicity to bacteria : EC10 (activated sludge): 210 mg/l  
 Exposure time: 3 h  
 Test Type: Static  
 Method: OECD Test Guideline 209

**SODIUM NITRATE:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,355 - 2,063 mg/l  
 Exposure time: 96 h  
 Method: Static  
 Remarks: Mortality

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 3,581 mg/l  
 Exposure time: 48 h  
 Method: Static

LC50 (Daphnia magna (Water flea)): 665 mg/l  
 Exposure time: 96 h  
 Method: Static

**Persistence and degradability**

**Components:**

**ETHYLENE GLYCOL:**

Biodegradability : Result: Readily biodegradable.  
 Biodegradation: 90 - 100 %  
 Exposure time: 10 d  
 Method: OECD Test Guideline 301

**DIETHYLENE GLYCOL:**

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

**POTASSIUM HYDROXIDE:**

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

**SODIUM NITRITE:**

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

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

No data available

**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

SODIUM NITRITE:

Partition coefficient: n-octanol/water : log Pow: -3.700 (25 °C)

No data available

**Mobility in soil**

**Components:**

SODIUM NITRITE:

Stability in soil : Remarks: Not expected to adsorb on soil.

No data available

**Other adverse effects**

No data available

**Product:**

Additional ecological information : No data available

**Components:**

POTASSIUM HYDROXIDE:

Additional ecological information : No data available

**SECTION 13. DISPOSAL CONSIDERATIONS**

**Disposal methods**

General advice : Do not dispose of waste into sewer.





**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

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
---------------------

**CFR\_RAIL\_C**

Not dangerous goods
---------------------

**U.S. DOT - INLAND WATERWAYS**

Not dangerous goods
---------------------

**TDG\_ROAD\_C**

Not dangerous goods
---------------------

**TDG\_RAIL\_C**

Not dangerous goods
---------------------

**TDG\_INWT\_C**

Not dangerous goods
---------------------

**INTERNATIONAL MARITIME DANGEROUS GOODS**

Not dangerous goods
---------------------



**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

**INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO**

Not dangerous goods

**INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER**

Not dangerous goods

**MX\_DG**

Not dangerous goods

\*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Marine pollutant	no
------------------	----

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	10203

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Specific target organ toxicity (single or repeated exposure)  
Acute toxicity (any route of exposure)

**California Prop. 65**

**WARNING:** Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

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

- DSL : All components of this product are on the Canadian DSL
- AICS : On the inventory, or in compliance with the inventory
- ENCS : Not in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory

**SAFETY DATA SHEET**

Revision Date: 09/13/2018

Print Date: 9/14/2018

SDS Number: R0368895

ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant

Version: 1.7

ZXEDRU2

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TSCA : On TSCA Inventory

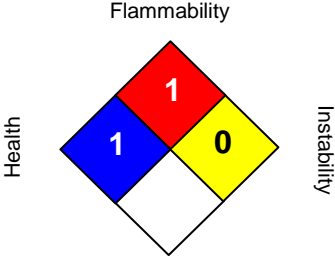
**TSCA list**

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:  
 SODIUM NITRITE 7632-00-0

**SECTION 16. OTHER INFORMATION**

**Further information**

Revision Date: 09/13/2018


<p><b>NFPA:</b></p>  <p>Flammability</p> <p>Health</p> <p>Instability</p> <p>Special hazard.</p>	<p><b>HMIS III:</b></p> <table border="1"> <tr> <td style="background-color: blue; color: white;"><b>HEALTH</b></td> <td style="text-align: center;"><b>1*</b></td> </tr> <tr> <td style="background-color: red; color: white;"><b>FLAMMABILITY</b></td> <td style="text-align: center;"><b>1</b></td> </tr> <tr> <td style="background-color: yellow; color: black;"><b>PHYSICAL HAZARD</b></td> <td style="text-align: center;"><b>0</b></td> </tr> </table> <p>0 = not significant, 1 =Slight,                  2 = Moderate, 3 = High                  4 = Extreme, * = Chronic</p>	<b>HEALTH</b>	<b>1*</b>	<b>FLAMMABILITY</b>	<b>1</b>	<b>PHYSICAL HAZARD</b>	<b>0</b>
<b>HEALTH</b>	<b>1*</b>						
<b>FLAMMABILITY</b>	<b>1</b>						
<b>PHYSICAL HAZARD</b>	<b>0</b>						

**NFPA Flammable and Combustible Liquids Classification**

Combustible Liquid Class IIIB

**Full text of H-Statements**

- H272 May intensify fire; oxidizer.
- H290 May be corrosive to metals.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H350 May cause cancer.
- H373 May cause damage to organs through prolonged or repeated exposure if swallowed.

		Page: 20
<b>SAFETY DATA SHEET</b>		Revision Date: 09/13/2018
		Print Date: 9/14/2018
		SDS Number: R0368895
ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant		Version: 1.7
ZXEDRU2		

Sources of key data used to compile the Safety Data Sheet  
Valvoline 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 Valvoline's Environmental Health and Safety Department (1-800-VALVOLINE).

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

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act  
DOT : Department of Transportation

	Page: 21
<b>SAFETY DATA SHEET</b>	Revision Date: 09/13/2018
	Print Date: 9/14/2018
	SDS Number: R0368895
ZEREX™ HD EXTENDED LIFE 50/50 Antifreeze Coolant ZXEDRU2	Version: 1.7

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