



## VALVOLINE™ ZEREX™ EXTENDED LIFE HEAVY DUTY ANTIFREEZE / COOLANT

Valvoline ZEREX Extended Life HD antifreeze coolant meets Cummins 14603, DDC, Terex, Cat EC-1 and other heavy duty diesel engine requirements. Fully formulated ZEREX Extended Life HD incorporates organic acid technology and heavy duty corrosion inhibitors to protect diesel engines from liner pitting and hard water scale deposits for 3 years, 7000 hours or 300,000 miles on initial fill. The patented\* chemistry protects all cooling system metals from corrosion including aluminum. ZEREX Extended Life HD can be used in gasoline engines, stationary power, marine, and light duty applications.

A 50% to 70% concentration range is suggested for optimum performance. ZEREX Extended Life HD is compatible with many long life and conventional brands of ethylene glycol based coolant. Applications requiring a water filter should use blank filters (without SCA/DCA) and follow engine manufacturers filter change guidelines. Valvoline recommends always topping off with ZEREX Extended Life HD coolant, keeping the system full, and using 3-way test strips to check concentration and freeze point regularly. Add one bottle of ZEREX Extender per 50 quarts of system capacity at 300,000 miles, 3 years or 7000 hours for another equivalent distance/time. Replace the fluid after one extender cycle, 6 years/600,000 miles or 14,000 hours.

Call 1-800- TEAM-VAL with questions.

ZEREX™ Extended Life HD is an approved formula for the following specifications:

Cummins 14603  
ASTM D3306  
ASTM D6210

ZEREX™ Extended Life HD is formulated to meet or exceed the following antifreeze specifications:

Caterpillar EC-1	Navistar CEMS B-1 TYPE III
Cummins 3666286	Paccar
Detroit Diesel 7SE298	Peterbilt
Federal Specification A-A-870A	SAE J1034
Freightliner	SAE J814
GM 1825M	Terex
GM 1899M	Thermo King
John Deere	TMC of ATA RP-329B
Link Belt	TMC of ATA RP-338
Mack	Volvo

Valvoline recommends that spent coolant never be disposed of by dumping into a septic system, storm sewer or onto the ground. Instead, contact your state or local municipality for instructions on where to and how to properly dispose of this coolant and protect our environment.

If any coolant is spilled onto the ground, contain the spill and call the state authorities and ask for proper instruction on how to clean up the spill.

\*US Patents 6,126,852 and 6,235,217

ZEREX Extended Life Heavy Duty Antifreeze/Coolant Boil/Freeze Protection		
% Antifreeze	Freezing Point, °F/°C	Boiling Point**, °F/°C
40	-12/-24	260/126
50	-34/-36	265/128
60	-54/-48	271/133
70*	-90/-67	277/135

\* Maximum freeze protection is at 70%.

\*\* Boiling point shown using conventional 15 psig radiator cap.

ZEREX Extended Life Heavy Duty Typical Physical Properties		
Antifreeze Glycols	mass %	92.0
Corrosion Inhibitors	mass %	4
Water	mass %	4
Flash Point	°F/°C	250/121
Weight per gallon @ 60°F/16°C	lbs / KG	9.340 / 4.237
Phosphate free	PPM	10 max

ZEREX ELC Aluminum Water Pump Tests		
ASTM D2809 Pump Cavitation (Extended Test)		
Test Period	Results	Specification
100 hours	8	8

ASTM cavitation corrosion rating: 10 - perfect 1 – perforated

Characteristics	Specifications	Typicals	ASTM Method
Chloride	25 PPM, max.	3 typical	D3634
Specific gravity, 60/60° F	1.110 – 1.145	1.1291	-
Freezing point, 50% V/V	-34°F/-36°C	-34°F/-36°C	D1122
Boiling point, undiluted	325°F/162°C	325°F/162°C	D1177
Boiling point, 50% V/V	226°F/107°C	226°F/107°C	D1120
Effect on engine or vehicle finish	No Effect	No Effect	D1120
Ash content, mass %	5 max	2.0 typical	-
pH, 50% V/V	7.5 – 11.0	9	D1119
Reserve alkalinity*	Report	9	D1287
Water mass %	5 max.	4	D1121
Color	Distinctive	Red	D1123
Effect on nonmetals	No Adverse Effect	No Adverse Effect	-
Storage stability	-	> 3 year	-
Foaming	150 ml Vol., max.	40 ml	-
	5 sec. Break, max.	2 sec.	D1881
Cavitation-erosion rating	8 min.	8	D1881
			D2809

\*Reserve alkalinity (RA) is a term used to indicate the amount of alkaline inhibitors present in an antifreeze formulation. It is incorrect to relate a high RA with a high-quality antifreeze. Present state-of-the-art antifreeze formulations contain many new inhibitors which give added protection to certain metals but do not raise the RA number.

<b>Typical ASTM Corrosion Test Results</b>			
	Weight Loss Mg/Specimen		
<b>Glassware Corrosion Test</b>	<b>Spec.</b>	<b>Actual</b>	<b>ASTM Method</b>
Copper	10	3	D1384
Solder	30	2	
Brass	10	0	
Steel	10	0	
Cast iron	10	0	
Aluminum	30	0	
<b>Simulated Service Test</b>			
Copper	20	5	D2570
Solder	60	1	
Brass	20	2	
Steel	20	0	
Cast iron	20	0	
Aluminum	60	1	
<b>Hot Surface Corrosion</b>	mg/cm <sup>2</sup> /wk		
Specimen weight loss	1.0	0.1	D4340
<b>John Deere Coolant Cavitation Test</b>	SRI Test 66-39-0302-5	Passed	D7583

This information only applies to products manufactured in the following location(s): USA, Canada, and Mexico

<i>Part #</i>	<i>Product</i>
ZXED1	ZEREX Extended Life HD AFC 6/1 GAL
ZXED2	ZEREX Extended Life HD AFC 55 GAL Drum
808139	ZEREX Extended Life HD AFC 275 GAL Tote
ZXED0	ZEREX Extended Life HD Bulk
ZXEDRU1	ZEREX Extended Life HD Ready-To-Use AFC 6/1 GAL
ZXEDRU2	ZEREX Extended Life HD Ready-To-Use 55 GAL Drum
688183	ZEREX Extended Life HD Ready-To-Use 275 GAL Tote
ZXEDRU0	ZEREX Extended Life HD Ready-To-Use AFC Bulk

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