



Technical Bulletin



Valvoline's ZEREX™ Pre-Charged Heavy Duty antifreeze coolant is a complete ethylene glycol based formulation specifically designed for heavy duty diesel engines. The formulation is fully-formulated with specific chemical inhibitors to protect diesel engines from liner pitting and hard water scale deposits. The patented* inhibitor chemistry protects all cooling system metals from corrosion including aluminum. ZEREX™ Pre-Charged Heavy Duty can be used in gasoline engines and passenger cars as well. The ASTM test data shown on this sheet reflects the high performance corrosion inhibitor package.

When diluted 50% with water, ZEREX™ Pre-Charged Heavy Duty protects modern engines from winter freezing and summer boil over. The chart at the top right provides mixing information. Clean tap water or demineralized water is recommended for dilution. A 40% to 70% concentration range is suggested for optimum corrosion protection. ZEREX™ Pre-Charged Heavy Duty is compatible with major American brands of ethylene glycol based coolant. It contains a high quality defoamer and will not harm gaskets, hoses, plastics or original vehicle finishes.

ZEREX™ Pre-Charged Heavy Duty is a universal engine coolant that meets the performance requirements of ASTM specification D3306 for automobiles and light trucks and D6210 for heavy duty engines. It meets the low silicate formulation requirements of GM6038 and contains less than 250 parts per million of silicate as required by the heavy duty trucking industry.

Call 1-800- TEAM-VAL with questions.

ZEREX™ Pre-Charged Heavy Duty is formulated to meet or exceed the following antifreeze specifications and/or is recommended:

ASTM D6210	Cummins
ASTM D3306	Case New Holland
SAE J1034, J814, J1941	Detroit Diesel 7SE298
GM 1899M, GM 1825M	Thermo King Approved
Waukesha	Freightliner
TMC of ATA RP-329B	Federal Specification A-A-870A
TMC of ATA RP-302B	Federal Specification A-A-52624
Mack	Cat
Navistar	Paccar
John Deere	

ZEREX™ Pre-Charged Heavy Duty Antifreeze / Coolant

3 Years / 150,000 Miles / 3,000 Hours
For Heavy Duty Diesel Engines

ZEREX™ Pre-Charged HD 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 psi radiator cap.

ZEREX™ Pre-Charged HD Typical Physical Properties		
Antifreeze Glycols	mass %	94.3
Corrosion Inhibitors	mass %	2.7
Water	mass %	3.0
Flash Point	°F/°C	250/121
Weight per gallon @ 60°F/16°C	lbs / KG	9.415 / 4.271
Silicates	PPM	250 max.

ZEREX™ Pre-Charged HD Aluminum Water Pump Tests		
ASTM D2809 Pump Cavitation (Extended Test)		
Test Period	Results	Specification
100 hours	9	8

ASTM cavitation corrosion rating: 10 - perfect 1 - perforated

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 4,548,787 and 6,203,719

The information contained herein is correct to the best of our knowledge. The recommendations or suggestions contained in this bulletin are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory prior to use. Our responsibility for claims arising from breach of warranty, negligence or otherwise is limited to the purchase price of the material. Freedom to use any patent owned by Ashland or others is not to be inferred from any statement contained herein.



Characteristics	Specifications	Typicals	ASTM Method
Chloride	25 PPM, max.	<25	D3634
Silicon	250 ppm, max.	<250	-
Specific gravity, 60/60° F	1.110 – 1.1450	1.1305	D1122
Freezing point, 50% V/V	-34°F/-36°C	-34°F/-36°C	D1177
Boiling point, undiluted	325°F/162°C	330°F/164°C	D1120
Boiling point, 50% V/V	226°F/107°C	226°F/107°C	D1120
Effect on engine or vehicle finish	No Effect	No Effect	-
Ash content, mass %	5 max	<3	D1119
pH, 50% V/V	7.5 – 11.0	10.7	D1287
Reserve alkalinity*	10 min.	14.3	D1121
Water mass %	5 max.	3.5	D1123
Color	Distinctive	Green	-
Effect on nonmetals	No Adverse Effect	No Adverse Effect	-
Storage stability	-	>1 year	-
Foaming	150 ml Vol., max.	45 ml	D1881
	5 sec. Break, max.	1 sec.	D1881
	8 min.	9	D2809
Cavitation-erosion rating			

*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.

Typical ASTM Corrosion Test Results			
	Weight Loss Mg/Specimen		
Glassware Corrosion Test	Spec.	Actual	ASTM Method
Copper	10	3	D1384
Solder	30	5	
Brass	10	3	
Steel	10	3	
Cast iron	10	0	
Aluminum	30	0	
Simulated Service Test			
Copper	20	7	D2570
Solder	60	2	
Brass	20	4	
Steel	20	1	
Cast iron	20	0	
Aluminum	60	0	
Hot Surface Corrosion	mg/cm ² /wk		
Specimen weight loss	1.0	0.3	D4340

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

Material/Product:

Part #	Product	Unit UPC	Carton UPC
ZXPC2	ZEREX Green HD Pre-Charged AFC 55 GAL Drum		
ZXPC0	ZEREX Green HD Pre-Charged AFC Bulk		
ZXPCRU1	ZEREX Green HD Pre-Charged RTU AFC 6/1 GAL	0 28882-50107 1	0 28882-60104 7
ZXPCRU2	ZEREX Green HD Pre-Charged RTU AFC 55 GAL Drum		
808138	ZEREX Green HD Pre-Charged RTU AFC 255 GAL Tote		
ZXPCRU0	ZEREX Green HD Pre-Charged RTU AFC Bulk		

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