



Valvoline™ ZEREX™ DEX-COOL® antifreeze coolant is a patented\* carboxylate formulation with a service life of up to five years or 150,000 miles. It incorporates state-of-the-art organic acid technology in an ethylene glycol base for protection of all cooling system metals including aluminum. ZEREX™ DEX-COOL® antifreeze coolant is approved by General Motors to the GM 6277M specification.

ZEREX™ DEX-COOL® antifreeze coolant contains no phosphates, silicates, borates, nitrates, amines and nitrites. Its global formulation meets the phosphate-free requirements of European automobile manufacturers and the silicate free requirement of Asian automobile manufacturers like Toyota, Scion, Acura, Hyundai, Kia, Honda, Isuzu and others. It can be mixed with any DEX-COOL® and is approved by Opel, Dae Woo and Saab. It is dyed orange to distinguish its unique chemistry from traditional green and yellow silicate coolants.

When diluted 50% with water, ZEREX™ DEX-COOL® protects modern engine components from winter freezing and summer boiling. The chart at the top right provides detailed mixing information. ZEREX™ DEX-COOL® antifreeze coolant is storage stable for up to five years as both a concentrate or diluted with water. It contains a high quality defoamer and will not harm gaskets, hoses, plastics or original vehicle paint.

Call 1-800- TEAM-VAL with questions.

ZEREX™ DEX-COOL® is formulated to meet or exceed the following antifreeze specifications and/or is recommended:

ASTM D3306  
SAE J1034, J814  
SAE J1941  
Ford WSS-M97B44-D  
Saab, Opel Approved  
Scania, Volvo

GM 6277M DEX-COOL®  
APPROVED  
Siemens Wind Turbines  
TMC of ATA RP-302B  
Federal Specification A-A-870A  
Navistar CEMS B-1 Type IIIA

## ZEREX™ DEX-COOL® Antifreeze / Coolant

5 Years / 150,000 miles / 3,000 hours  
GM® Approved DEX-COOL®

Silicate & Phosphate Free Formula

ZEREX™ DEX-COOL® 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™ DEX-COOL® Typical Physical Properties		
Antifreeze Glycols	mass %	93.5
Corrosion Inhibitors	mass %	3.5
Water	mass %	3.0
Flash Point	°F/°C	250/121
Weight per gallon @ 60°F/16°C	lbs / KG	9.299 / 4.218
Si from Silicates	PPM	10 max
Phosphates	PPM	30 max

ZEREX™ DEX-COOL® 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 6,235,217 and 6,126,852

*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 – 1.14	1.112	D1122
Freezing point, 50% V/V	-34°F/-36°C	-34°F/-36°C	D1177
Boiling point, undiluted	325°F/162°C	330°F/162°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	1.36	D1119
pH, 50% V/V	8.3 – 8.8	8.6	D1287
Reserve alkalinity*	Report	4.8	D1121
Water mass %	5 max.	3.0	D1123
Color	Distinctive	Orange	-
Effect on nonmetals	No Adverse Effect	No Adverse Effect	-
Storage stability	-	5 years	-
Foaming	150 ml Vol., max.	31.7 ml	D1881
	5 sec. Break, max.	3 sec.	D1881
Cavitation-erosion rating	8 min.	9	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.

Typical ASTM Corrosion Test Results			
Glassware Corrosion Test	Weight Loss Mg/Specimen		ASTM Method
	Spec.	Actual	
Copper	10	2	D1384
Solder	30	6	
Brass	10	3	
Steel	10	0	
Cast iron	10	0	
Aluminum	30	0	
Simulated Service Test			
Copper	20	2	D2570
Solder	60	5	
Brass	20	1	
Steel	20	1	
Cast iron	20	0	
Aluminum	60	0	
Hot Surface Corrosion			
	mg/cm <sup>2</sup> /wk		
Specimen weight loss	1.0	0.1	D4340
Electrochemical	Minimum, mV		
Ford Pitting Test	>-400	-120.7	FLTM BL5-1

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

Material/Product:

<i>Part #</i>	<i>Product</i>	<i>Unit UPC</i>	<i>Carton UPC</i>
ZXEL1	ZEREX DEX-COOL <sup>®</sup> AFC 6/1 GAL	0 28882-50102 6	0 28882-60102 3
ZXEL2	ZEREX DEX-COOL <sup>®</sup> AFC 55 GAL Drum		
ZXEL0	ZEREX DEX-COOL <sup>®</sup> Bulk		
ZXELRU1	ZEREX DEX-COOL <sup>®</sup> Ready-To-Use AFC 6/1 GAL	0 28882-50147 7	0 28882-60147 4
ZXELRU2	ZEREX DEX-COOL <sup>®</sup> Ready-To-Use 55 GAL Drum		

<b><u>Effective Date:</u></b> 06/01/2014	<b><u>Expiration Date:</u></b> 06/01/2019	<b><u>Replaces:</u></b> 02/07/2011	<b><u>Author's Initials:</u></b> DET	<b><u>Pages:</u></b> 3	<b><u>Code:</u></b>
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