



Technical Bulletin



DEX-COOL® 5/150 ANTIFREEZE/COOLANT

Zerex® DEX-COOL® Life 5/150 antifreeze coolant is the latest long life automotive engine coolant development from Valvoline. The patented* carboxylate formulation has 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® 5/150 antifreeze coolant is approved by General Motors to the GM 6277M specification.

Zerex® DEX-COOL® 5/150 antifreeze coolant contains no phosphates, silicates, borates, nitrates, amines and nitrites. It's 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 it's unique chemistry from traditional green and yellow silicate coolants.

When diluted 50% with water, Zerex® DEX-COOL® 5/150 protects modern engine components from winter freezing and summer boiling. The chart at the top right provides detailed mixing information. Zerex® DEX-COOL® 5/150 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.

Zerex® DEX-COOL® 5/150 antifreeze coolant meets or exceeds the following coolant specifications:

ASTM D3306	Ford WSS-M97B44-D
SAE J1034, J814	Saab, Opel Approved
SAE J1941	Navistar CEMS B-1 Type IIIA
TMC of the ATA	GM 6277M DEX-COOL® Approved
RP - 302B	

GM Approved DEX-COOL®
Silicate & Phosphate Free Formula

Zerex® DEX-COOL® 5/150 Antifreeze Coolant Boil/Freeze Protection		
% Antifreeze	Freezing Point, °F/°C	Boiling Point**, °F/°C
40	-12/-24	260/126
50	-34/-36	265/128
70*	-90/-67	277/135

* Maximum freeze protection is at 70%.

** Boiling point shown using conventional 15 psi radiator cap.

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	in PPM	10 max.
Phosphates	in PPM	30 max.

Aluminum Water Pump Tests		
ASTM D2809 Pump Cavitation		
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.

Characteristic	Specifications	Zerex ⁰ Typicals	ASTM Method
Chloride	25 PPM, max.	<25	D3634
Silicon from silicate	10 PPM, max.	<10	-
Specific gravity, 60/60° F	1.11 - 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			
	Weight Loss Mg/Specimen		
Glassware Corrosion Test	Spec.	Actual	ASTM Method
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 ² /wk		
Specimen weight loss	1.0	0.1	D4340
Electrochemical	MV		
Ford Pitting Test	-400	-120.7	FLTM BL5-1

DEX-COOL® is a trademark of General Motors. Used under license DC-4.

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

Effective Date:	Expiration Date:	Replaces:	Author's Initials:	Code
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