Technical Bulletin

Zerex G 48

ANTIFREEZE/COOLANT

Aluminum Protection, Long Life, Phosphate-Free Formula

Valvoline's Zerex G 48 antifreeze coolant is an ethylene glycol-based formulation suitable for passenger cars, light trucks and heavy-duty vehicles. The formulation is designed for both gasoline and diesel engines. Its low-silicate, low pH, phosphate free European technology protects all cooling system metals, including aluminum, from corrosion. The ASTM and other test data shown on this sheet reflect the high performance corrosion inhibitor package.

When diluted 50% with water, Zerex G 48 protects modern engine components from winter freezing and summer boil over. The chart at the top right provides mixing information. A 50% to 70% concentration range is suggested for optimum corrosion protection. Zerex G 48 is compatible with better brands of coolant commonly available. It contains a high quality defoamer system and will not harm hoses, plastics or original vehicle finishes.

Valvoline's Zerex G 48 antifreeze coolant meets ASTM specification D3306 for automobiles and light trucks and ASTM D4985 for heavy duty trucks. It contains less than 250 parts per million of silicon as required by the heavy duty trucking industry. Valvoline recommends following heavy duty engine manufacturers requirements for supplemental coolant additives.

Zerex G 48 antifreeze coolant meets or exceeds the performance requirements of the following antifreeze specifications and/or recommended practices:

ASTM D3306	Detroit Diesel 7SE298
ASTM D4985	TMC of ATA RP-302B
SAE J1034	Federal Specification A-A-870A
GM 1899M	MAN 324 NF
GM 1825M	BMW Approved
SAE J814	Jaguar Approved
SAE J1941	VW TL 774C
Cummins 90T8-4	Saab Approved
Scania Approved	Volvo Approved
Rolls Royce Approved	MTU Approved
Mercedes Approved	Jenbacher TA-NR 1000-0201

Glysantin G48 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.

Zerex G48 - Typical Physical Properties		
Antifreeze Glycols	mass %	93
Corrosion Inhibitors	mass %	4.0
Water	mass %	3.0
Flash Point	°F/°C	250/121
Weight per gallon @ 60°F/16°C	lbs./KG	9.3818/4.2555
Silicon	PPM	250
Phosphates	PPM	30 max.

Aluminum Water Pump Tests		
ASTM D2809 Pump Cavitation (Extended Test)		
Test Period	Results	Specification
100 hours	10	8
300 hours	9	-
1000 hours	7	-

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.

Water used for dilution should contain less than 100 PPM Cl and SO_4. It should also be 0-20 ^{o} dH or treated to conform to these limits.

Characteristic	Specifications	G48 Typicals	ASTM Method
Chloride	25 PPM, max.	<25	D3634
Silicon	250 PPM, max.	<250	-
Specific gravity, 60/60° F	1.110 - 1.145	1.1260	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	8.1	D1287
pH, 100%	7.1 - 7.3	7.3	-
Reserve alkalinity*	10 min.	14.8	D1121
Water mass %	5 max.	2.5	D1123
Color	Distinctive	Blue	-
Effect on nonmetals	No adverse effect	No adverse effect	-
Storage stability	-	3 years	-
Foaming	150 ml vol., max.	90 ml	D1881
	5 sec. break, max.	2.8 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	1	D1384
Solder	30	0	
Brass	10	0	
Steel	10	1	
Cast iron	10	1	
Aluminum	30	0	
Simulated Service Test			
Copper	20	4	D2570
Solder	60	0	
Brass	20	6	
Steel	20	1	
Cast iron	20	0	
Aluminum	60	1	
Hot Surface Corrosion	$mg/cm^2/wk$		
Specimen weight loss	1.0	0.25	D4340

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

Effective Date:	Expiration Date:	Replaces:	Author's Initials:	Code
03-07-2012	03-07-2017	04-24-2008	DET	