PRODUCT DATA

DefendAL™ Heavy Duty Extended Life Coolant/Antifreeze

DefendAL™ Heavy Duty Extended Life Coolant/Antifreeze is an extended life coolant that contains a proprietary inhibitor system that makes it significantly more durable than other coolants. In heavy-duty diesel applications it can provide a service life of 600,000 miles, with the addition of Extenders at 300,000 miles. In automobiles this extended life Coolant/Antifreeze will provide a service life in excess of 5 years or 150,000 miles.

DefendAL™ Heavy Duty Extended Life Coolant/Antifreeze concentrate contains an inhibitor combination of molybdate/nitrite to comply with ATA TMC RP 329 and ASTM D 6210 requirements for diesel coolants. It contains no added phosphates, silicates, nitrates or amines. It is a balanced combination of organic and inorganic additives and is compatible with both organic acid extended life coolants and conventional inorganic coolants. In addition, our Extended Life Antifreeze will not cause turbidity, precipitation or inhibitor effectiveness reduction when mixed with other carboxylate-based coolants such as ChevronTexaco Extended Life Coolant or Dex-Cool nor with conventional coolants such as Prestone or Zerex. It is ideal for use in initial fills, coolant change-outs or top-offs.

DefendAL™ Heavy Duty Extended Life Coolant/Antifreeze meets ASTM D 3306 (automotive antifreeze), ASTM D 4985 (heavy duty antifreeze), ASTM D 6210 (fully formulated, pre-charged antifreeze) and TMC of ATA RP 329 performance requirements. It also meets or exceeds the following industry specifications as a concentrate or pre-diluted heavy-duty antifreeze/coolant:

- ASTM D3306, D4985, and D6210
- Cat EC-1 (ELC)
- Chrysler MS 7170
- Cummins 90T8-4
- Detroit Diesel 7SE298
  (DDC Powercool Plus and Powercool Plus 6000)
- Ford ESE-M97B44-A, WSE-M97B44-B
- Freightliner 48-22880
- GM 1825, 1899M, 6277M
- International
- J.I. Case JIC-501
- Mack Truck
- MTU
- Mercedes DBL 7700
- Navistar B-1
- SAE J1034, J1038
- TMC of ATA*: RP329 - Type B/302A-1, RP338
- Volvo
- VW TL-774D

** Technology & Maintenance Council of the American Trucking Association*
This antifreeze also meets the non-phosphate requirements of European OEM's and non-silicate requirements of Japanese OEM's.

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Made in the U.S.A.

FREEZE/BOIL PROTECTION – MAXIMUM FREEZE PROTECTION IS AT 70%

	FREEZING POINT		BOILING POINT*	
Antifreeze %	º F.	º C	º F.	º C
50	-34	-37	265	129
60	-62	-52	270	132
70	-83	-64	277	136

**Boiling Point shown using conventional 15 psi radiator cap*

PHYSICAL PROPERTIES:	Unit of Measure	CONCENTRATE	50/50
Glycols Content	mass %	90 min.	45 min.
Water	mass %	2.9	52.9
Flash Point	º F	250	NONE
Weight Per Gallon	@ 60º F (15.6º C)	9.27 #/gal.	8.81 #/gal.
Silicate Content	mass %	NIL	NIL
Product Number:		9033	9036
Additional Properties:	Specification	Typical Value	ASTM Method
Chloride Content, ppm	25 max.	<25	D 3634
Molybdate/Nitrite Content, ppm	2400 min.	>2400	D 5827
Specific Gravity @ 60/60 º F.	1.115 -1.125	1.112	D 1122
Freeze Point, 50% Volume	-34ºF / -36ºC max.	-34ºF / -37ºC	D 1177
Boiling Point, Undiluted	325ºF / 162ºC min.	330ºF / 164ºC	D 1120
Boiling Point, 50% Volume	226ºF /107ºC min.	226ºF / 107ºC	D 1120
Effect on engine or			
vehicle finish	no effect	no effect	----------
Ash Content, mass %	5 max.	< 3	D 1119
pH, 50% Volume	9.8-10.6	9.8	D 1287
Reserve Alkalinity, ml	3 min.	4-5	D 1121*
Water Content, mass %	5 max.	3.0	D 1123
Color	distinctive	Strawberry Red	----------
Effect on Non-Metals	no adverse effect	no adverse effect	----------
Storage Stability	----------	> 1 year	----------
Foaming	150 mi vol., max.	35 ml	D 1881
	5 sec. break, max.	2.5 sec.	D 1881
Cavitation-Erosion Rating	8 min.	9	D 2809

** 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 value with high-quality antifreeze. Present state-of-the-art antifreeze formulations contain new inhibitor systems that give added protection to certain metals but do not raise the RA numbers.*