ARF 4013

ORGANIC ANTIFREEZE ADDITIVE PACKAGE

100% organic base, liquid corrosion inhibitor for "long life" antifreeze manufacturing.
Borates, nitrites, nitrates, amines, phosphates and silicate free formulation

DESCRIPTION

aqueous solution of organic material. The formulation is perfectly balanced to provide long-life protection for all the metals of the engine cooling system, especially aluminium alloys and light metals.

CHARACTERISTICS

Appearance	Homogeneous liquid
Colour	yellow
Specific gravity at 20/4°C	1.125
Solubility in water	complete
Freezing point	<-12°C
Storage stability	12 months

DIRECTION FOR USE

The requirements of ASTM D 3306 or ASTM D 4985, are fully met by adding 8% w/w of ARF 4013 to ethylene glycol (MEG) or propylene glycol (MPG).

ARF 4013 can be customised on request, to manufacture antifreeze meeting special standards or specifications.
ARF 4013 can also be customised to meet the characteristics of antifreeze samples eventually submitted by our customers.

PROCIDURE

A) Pump the glycol in a mixer or a tank.
B) Stir gently the glycol or recirculate it by pumping.
C) Pump the ARF 4013 in the same mixer/tank.
D) Stirror recirculate for 20/30 minutes to homogeneize the glycol and ARF 4013 mix.

Typical Characteristics of Antifreeze Manufactured with ARF 4013 and Comparisons

CHARACTERISTICS	ARF 4013 8% MEG 92% Total 100%	TEST METHOD	LIMITS
Appearance	Clear	Visual	Report
Water, Content %	3.5	ASTM D1123	5 max
Reserve alkalinity ml	5.5	ASTM D1121	Report
pH (aqueous solution 50%)	8.5	ASTM D1287	7.5-11
Specific gravity 15/15°C	1.120	ASTM D1122	Report
Hard waters resistance	Clear	***	Report

ASTM D 1384 – Corrosion Test for Engine Coolants in Glassware

Metal	ARF 4013 8% MEG 92% Total 100% Weight loss mg/specimen	ASTM D3306 ,ASTM D338 LIMITS Weight loss mg/specimen
Copper	-1	10 max
Solder	-0.1	30 max
Brass	-0.5	10 max
steel	1.1	10 max
Cast Iron	-2.5	10 max
Aluminium	1	30 max

ASTM D 4340 - Corrosion of Cast Aluminium Alloys in Engine Coolants Under Heat Rejecting Conditions

Metal	ARF 4013 8% MEG 92% Total 100% Weight loss mg/cm^2/week	ASTM D3306 ,ASTM D338 LIMITS Weight loss mg/cm^2/week
Aluminium	0.37	1.0 max