

TEST REPORT		ANNEXURE "A"
ENGINEERING RESEARCH CENTRE		C I R T
FORM NO : ERC :TP:889:FM03		
ITEM : ANTIFREEZE COOLANT CONCENTRATE Batch No.5802		
SAMPLE NO:0902550489	SPECIFICATION NO: AS:253:67:JUL:2004(Glycol based coolant)	PAGE 1 OF 4

Sr. No.	Nature of Test	Results		Remarks
		Specified	Actual	

1.0 Appearance (CL 4.1.2a and b)	Coolant concentrate shall be clear, homogeneous liquid free from water, dirt, suspended and any type of impurities	Conforms	Meets the specification
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2.0 Colour (CL 4.1.3)	Blue /Blue Green	Green	For record only
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Physical and Chemical and performance requirement as per Table -1(Cl.4.2.1 4.2.2)

3.0 Compatibility with Hard water of Hardness 700 PPM	No separation of phases or precipitation or gelling shall be observed	Conforms	Meets the specification
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4.0 Foaming Tendency , Foam volume,in ml,Max.(20% Concentration)	4	2	Meets the Specification
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5.0 PH,Min

a) Concentrate	7.0	8.3	Meets the Specification
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b) 20 Volume,%Aqueous	7.0	7.58	Meets the Specification
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6.0 Boiling Point °C,Min

a) Concentrate	163	165	Meets the Specification
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b) 20 Volume,%Aqueous	103	105	Meets the Specification
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7.0 Total Apparent Water, % Mass,Max.	5.0	4.25	Meets the Specification
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8.0 FreezingPoint °C,Min

a) 20 Volume,%Aqueous	-10	-10	Meets the Specification
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9.0 Compatibility with cooling system Non metal

a) Natural Rubber	±5	2.2435	Meets the Specification
b) EPDM Rubber		-0.2093	Meets the Specification
c) Nitril Rubber		2.1142	Meets the Specification
e) Chloroprene Rubber		2.2042	Meets the Specification
f) Silicon Rubber		-0.7467	Meets the Specification
g) Poly AcrylicRubber		4.2968	Meets the Specification

10.0 Effect on Painted Finishes
No discoloration, loss of gloss or swelling of film or other visible defect shall be observed.
Conforms Meets the specification

11.0 Corrosion Test in Glassware For 20 %concentration
It shall be conducted after dilution with water at 88±2°C for 336±2hrs

a) Foaming during Test	No foam shall flood out of the collar during the test	No foam flooded out of the collar	Meets the specification
b) Appearance of the liquid phases	No separation of phases or generation of gell or gelling and precipitation shall be observed	Conforms	Meets the specification

c) Amount of precipitation, %Vol. Max. 0.5 0 Meets the Specification

d) Change in mass of metal test pieces,mg/cm2

Aluminium Casting	±0.3	0.02159	Meets the Specification
Brass	±0.15	0.01156	Meets the Specification
Cast Iron	±0.15	-0.01206	Meets the Specification
Copper	±0.15	-0.01288	Meets the Specification
Solder	±0.3	-0.01181	Meets the Specification
Steel	±0.15	0.00472	Meets the Specification

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12.0 Corrosion property of Cast Aluminium at heat transfer surface diluted with hard water of 700 ppm Hardness at $135 \pm 3^\circ\text{C}$ and 180 kpa to 200 pressure for 168 ± 2 hrs

a) Loss in Weight, Mg/cm² ± 1.0 Not done since suitable apparatus is not available

13.0 Circulating corrosive property for 20 %concentration at $88 \pm 2^\circ\text{C}$ for 420 ± 2 hrs

a) Appearance of the liquid phase No separation of phases or precipitation or generation of gell or gelling shall be observed Conforms Meets the specification

b) Properties of solution after test
Change in PH value ± 1.0 0.2 Meets the Specification

c) Precipitation, %, Vol. Max 0.5 0 Meets the specification

d) Appearance of internal surface of water pump casing and vanes of pump No corrosion and cavitation on surface of water pump casing and impeller vane shall be observed Conforms Meets the specification

e) Rubber Components

Appearance of rubber No deteriorating effect on rubber part shall be observed. e.g. disintergration ,carbon deposition etc. Conforms Meets the specification

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f) Change in mass of metal test pieces,mg/cm²

Aluminium Casting	±0.15	-0.01122	Meets the Specification
Brass	±0.15	0.00385	Meets the Specification
Cast Iron	±0.15	-0.00031	Meets the Specification
Copper	±0.15	-0.01496	Meets the Specification
Solder	±0.15	0.00327	Meets the Specification
Steel	±0.15	-0.00751	Meets the Specification

14.0 Marking(CI-6.2)

Shall be Marked

P S Auto Pvt Ltd

Grade "A"

REMARK

The sample meets the requirements of tests carried out and is acceptable.

Shubha Kante
19/5/09
Scientist Testing