

PURE ECOLOGICAL ANTIFREEZE



**Atigel for cars and thermal systems
Suitable for solar panels**

DESCRIPTION:

ECOLOGIC ATIGEL is a permanent MONOETHYLENE GLYCOL-based antifreezing product which stands for the absence of amines and nitrites in its inhibitors.

Thanks to its protection properties, ATIGEL E can protect all metals which the different parts of a cooling circuit are made of, particularly aluminium.

Thanks to its formulation is also compatible with all materials that are commonly found in heat pumps.

TECHNICAL SPECIFICATION AND ATIGEL CHARACTERISTICS:

	ASTM F 3306 Limits	ASTM Limits	ATIGEL Specification
Specific weight at 15 °C	1,115 – 1,145	D1122	1,125 – 1,130
pH (aqueous solution , 50 % volume)	7,5 – 11,0	D 1287	9,0 – 10,0
Apparent water content	5 % max	D 1123	3,5 % max
Alkaline reserve	10 min.	D 1121	15 min.
Ashes	5 % max	D 1119	1,5 % max
Boiling point	163 °C min	D 1120	170 °C min
Water solution boiling point, 50 % of volume			
Impact on motor vehicles finishes	107 °C min	D 1120	108 °C min
Odour	no impact		no impact
Foaming	not unpleasant 150/5		light
Solubility in water	complete	D 1881	50/3
Resistance to hard water		NC956-14	complete limpid

INSTRUCTIONS FOR USE:

Clean carefully the concerned parts of the plant according to the regulations in force (available on request), e.g. BS 7593/2 (Treatment of water into the thermal systems), if necessary effect a pickling of the pipes to eliminate rust or soldering wastes.

Prepare apart the mixing "water-antifreeze" mixing the antifreeze into the water and not vice versa.

Introduce the mixture into the circuit through the most accessible point near the boiler pump.

Make the system run "A FREDDO" (on cold) for some hours; then switch the boiler on and vent carefully the points where there is a low circulation.

ATTENTION: for a good anticorrosion protection do not use less than 30 % antifreeze.

Lower % should be integrated with suitable corrosion inhibitors FILMAX line, of course after an accurate cleaning of the plant. When some time has passed, check the antifreeze density and the efficiency of the anticorrosion protection grade.



BOILING POINTS:

The value are obtained with different concentrations of ATIGEL in water:

% ATIGEL WEIGHT (Kg)	BOILING TEMPERATURE (°C)
0	100
10	101
20	102
25	102,5
30	103
40	105
50	107
60	110
70	114
80	122
82	124
84	127
86	129
88	133
90	137
92	143
94	149
96	160
98	179
100	197,6

FREEZING POINT:

The values are obtained with different concentrations of ATIGEL in water:

% WEIGHT (Kg)	FREEZING TEMPERATURE (°C)
0	0
2	-0,6
4	-1,3
6	-2
8	-2,7
10	-3,5
12	-4,4
14	-5,3
16	-6,3
18	-7,3
20	-8
22	-9
24	-11
26	-12
28	-13
30	-15
32	-17
34	-18
36	-20
38	-22
40	-24

% WEIGHT (Kg)	FREEZING TEMPERATURE (°C)
42	-26
44	-28
46	-31
48	-33
50	-36
52	-38
54	-41
56	-44
58	-48
80	-47
82	-43
84	-40
86	-36
88	-33
90	-29
92	-26
94	-23
96	-19
98	-16
100	-13



Note: The values shown in bold type indicate the percentages by weight of ATIGEL sufficient to obtain in the plant, as well as a frost protection, also a proper corrosion protection of metals.

CORROSION TEST OF ECOLOGIC ATIGEL: in glass, ASTM D 1384 (weight loss mg/specimen)

METALS	ASTM D 3306 Limits (mg)	ATIGEL Specification (mg)
Copper	10 max	0,8
Soldering alloy	30 max	1,6
Brass	10 max	0,7
Steel	10 max	0,1
Cast iron	10 max	0,1
Aluminium	30 max	0,4
Magnesium	30 max	0,4

Reaction on rubber couplings and other plastic parts:

Thanks to its pure MONOETHYLENE GLYCOL base and to the additives of its inhibitors, ECOLOGIC ATIGEL is a very reliable product on non metallic materials which cooling circuits are made of.

In general, the product is compatible with elastomers, especially with EPDM rubbers. The product fully respects compatibility requirements of CUNA Norm, more exactly CUNA NC 956-16 and 956-18 regulations.

RESISTANCE TEST TO HARD WATERS *

METHOD	VALUE
NC 956-14 CUNA	limpid

* Water hardness value 25 °f (45 % antifreeze solution)

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