

## FLOIXEM® L28

Propylene glycol based antifreeze.

Protection temperature -28°C.

Non-toxic, biodegradable.



### Description and applications:

Propylene glycol based antifreeze with protection temperature down to -28°C for applications where a non-toxic and biodegradable product is required.

100% organic formulation (OAT) to guarantee the best protection of all types of metals and compatible with plastics and elastomers usually present in circuits. Aluminum and its alloys are protected from corrosion.

Additives that are not consumed in action, it is not necessary to replenish with supplementary packages or to check residuals.

Free of hazardous products such as nitrites, amines, nitrates, borates, benzoates, 2EH.

### Characteristics of the product:

Aspect	Transparent liquid
Color	Blue
pH at 20°C	8.0-9.0
Propylene glycol % by weight	42%
Protection temperature	-28°C

*The data provided are based on our own measurements and specific literature. They do not constitute part of the technical specifications.*

### Corrosion protection:

Results at INTA laboratories belonging to the Spanish Ministry of Defense according to ASTM D1384 standard.

Metal	Floixem® L28	Limit
Copper	0.5	10
Soft soldering	0.1	30
Brass	-0.5	10
Carbon steel	-1.0	10
Cast iron	-3.7	10
Aluminum	2.0	30

Results in mg per specimen after 336 hours at 88°C with forced aeration and corrosive water. Negative results indicate a weight gain of the specimen due to the formation of a stable protective layer.

Results in INTA laboratories belonging to the Spanish Ministry of Defense according to ASTM D4340.

Result	Limit
0.5 mg/cm <sup>2</sup> week	1.0 mg/cm <sup>2</sup> week

Data after exposure of an aluminum specimen with a 25% dilution of the product with corrosive water for 168 hours at 135°C and 1,93 bar pressure.

### Instructions for use.

Floixem® L28 is ready to use, do not dilute with water or mix with other products.

In new installations it is recommended to rinse with water to remove particles, grease and flux residues (especially if they contain borax, chlorides or fluorides).

It is recommended to purge the circuit avoiding air pockets. Teflon tape or hemp is recommended for sealing the threaded joints. Check the compatibility of other products with propylene glycol before use.

Propylene glycol and its dilutions are not compatible with zinc as it dissolves it. If galvanized pipe is present in the system, a whitish solid will appear at the beginning of the operation. Once removed, the carbon steel will be protected by Floixem® L28 and no additional precautions are necessary.

### Temperature range:

Recommended range for closed circuits from -28°C to 200°C.

Prolonged periods of time at temperatures above 200°C can shorten the operating life of the product due to the degradation of propylene glycol.

In open circuits or where there is an oxygen inlet (valves, automatic filling, etc) the maximum temperature is lower, in case of doubt consult with the technical department.

### Precautions:




Non-hazardous product according to current legislation. If restrictions in transport or storage.

Store in original containers tightly closed and out of direct sunlight.

## Homologations:



## Delivery form:

			
5 Kg.	4	128	
10 Kg.	-	60	
20 Kg.	-	36	
230 Kg.	-	2	
1000 Kg	-	1	

## Physical and chemical properties.

Temperature	Density	Heat Capacity	Thermal Conductivity	Dynamic Viscosity	Kinematic Viscosity	Prandtl number	Thermal expansion coefficient
°C	$\rho$ (Kg/m <sup>3</sup> )	Cp (KJ/KgK)	$\lambda$ (W/mK)	$\mu$ (mPas)	$\nu$ (mm <sup>2</sup> /s)		$\beta$ (*10 <sup>-5</sup> 1/K)
-28	1056,2	3,654	0,406	76,60	72,53	689,43	11,0
-20	1054,7	3,669	0,409	40,65	38,54	365,54	23,8
-10	1051,5	3,689	0,413	20,35	19,35	182,69	36,7
-5	1049,4	3,698	0,415	14,93	14,23	133,92	42,0
0	1047,1	3,708	0,417	11,19	10,69	100,32	46,7
10	1041,8	3,728	0,421	6,67	6,40	59,67	54,6
20	1035,8	3,747	0,425	4,26	4,11	37,99	60,7
30	1029,3	3,766	0,429	2,88	2,80	25,63	65,4
40	1022,4	3,784	0,432	2,05	2,00	18,18	69,1
50	1015,2	3,802	0,436	1,52	1,50	13,46	71,8
60	1007,8	3,820	0,439	1,17	1,16	10,34	73,9
70	1000,2	3,837	0,442	0,93	0,93	8,21	75,4
80	992,6	3,854	0,445	0,76	0,77	6,71	76,4
90	985,0	3,870	0,448	0,64	0,65	5,61	77,0
100	977,4	3,885	0,451	0,55	0,56	4,80	77,3