



Foodmax Freeze

Food safe heat transfer medium

Description

Foodmax Freeze is a concentrated low-toxicity product to be diluted in water and specially prepared for use as a refrigerant and heat transfer fluid.

It is a fluid based on propylene glycol that uses a technology of organic acid inhibitors free of nitrites, amines, phosphates, borates and silicates, which provides excellent protection against corrosion of all metals present in modern cooling equipment, panels, accumulators, pipes and engines.

It is a biodegradable product, which ensures its disappearance over time in case of leak.

Applications

Foodmax Freeze is used in the water purification industries and in the ventilation systems of solar panels, where the presence of silicates is critical and as a secondary refrigerant in food processing (although not for direct contact).

In all industrial applications where cold or heat need to be transported, for systems with heat pumps, in the supply of heat to

industrial processes or as a cooling medium in indirect cooling systems in the food sector.

Foodmax Freeze guarantees total and lasting protection against corrosion, boiling and freezing. Although the dilution of use depends on the needs of the system (mainly in regard to freezing), to ensure a good corrosion protection must be used at least diluted in water to 25% by volume. Unlike traditional antifreezes that use inorganic inhibitors, Foodmax Freeze has a very low rate of inhibitor depletion.

Benefits

- Increased safety for workers
- Safe to handle
- Extends fluid lifetime
- Protects equipment from attack by water and uninhibited glycols
- Reduces system maintenance
- Low toxicity
- All additives used in Foodmax Freeze are food grade materials

Compatibility with other antifreeze/ coolants products

Foodmax Freeze is compatible with other glycol based refrigerants and can be mixed with them. However when mixing Foodmax Freeze with ethylene glycol based antifreeze the resulting mixture will not have low toxicity characteristics.

Foodmax Freeze employs an inhibitory technology that is significantly different

from that used by traditional refrigerants. We recommend emptying the circuit and rinsing it with clean water before refilling it with diluted Foodmax Freeze according to the instructions for use of the system to ensure optimum operation and durability.

All performance data on this Technical Data Sheet are indicative only and can vary during production

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Typical performance data

	Method	Foodmax Freeze
Appearance	-	Clear fluid
Reserve alkalinity, ml	ASTM D-1121	6-9
Water content, %w/w	ASTM D-1123	4
Density at 15°C, kg/dm ³	ASTM D-4052	1.04
Refractive Index at 20°C	ASTM D-1218	1.43
Boiling point, °C	ASTM D-1120	155
NSF approval, H1	-	158311
Kosher approved	-	Yes

Corrosion Protection

ASTM D-1384 Glassware corrosion tests

	Weight loss, mg/coupon ¹					
	Copper	Solder	Brass	Steel	Cast iron	Aluminium
ASTM D-3306 (max)	10	30	10	10	10	30
Foodmax Freeze	1.5	2.0	2.1	1.0	1.5	1.2

¹: Weight lost after chemical cleaning. Weight gain is indicated by a –sign.

ASTM D-4340 Corrosion of Aluminium under heat rejecting conditions Weight Loss mg/cm² /week

ASTM D-3306 (max)	1.0
Foodmax Freeze	0.3

ASTM D 2570 Simulated Service Corrosion Test Weight Loss mg/Coupon

	Cooper	Solder	Brass	Steel	Cast Iron	Aluminium
ASTM D-2570 (max)	20	60	20	20	20	60
Foodmax Freeze	3	3	4	1	2	4

ASTM D 2809 Cavitation Corrosion of Aluminium Pumps

	VISUAL RATING
ASTM D-2809 (min)	8
Foodmax Freeze	9

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Freeze Protection

Concentration by Volume	Freeze protection °C
25	-11
33	-20
40	-31
50	-47
60	-55

Assistance with analysis of concentration and inhibitor condition on samples drawn from systems filled with Foodmax Freeze solutions can be provided by Matrix Specialty Lubricants or through our local representatives.

Foodmax Freeze water solution properties:

Physical properties	Temperature, °C	% Foodmax Freeze			
		30	40	50	60
Thermal conductivity, (W/m.K)	4	0.425	0.384	0.344	0.311
	82	0.484	0.433	0.386	0.343
	177	0.476	0.431	0.386	0.341
Specific heat, (KJ/kg.K)	4	3.90	3.75	3.51	3.28
	82	4.02	3.91	3.76	3.64
	177	4.11	4.06	4.02	3.99
Viscosity, (cP)	4	5.5	9.2	14.0	24.0
	82	0.68	0.85	1.1	1.3
	177	0.30	0.35	0.40	0.44
Density, (g/ml)	4	1.02	1.03	1.03	1.04
	82	0.92	0.92	0.93	0.93

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