TECHNICAL SHEET
SANOTHERM 500 MC

DESCRIPTION

Sanotherm 500 MC – mixed with the appropriate amount of water – is used as a multipurpose heat transfer fluid based on mono ethylene glycol.

APPLICATION

Many applications in the industry require a fluid to transport heat or cold. Those applications range from solar panels or heat pump systems, over cooling or heating of industrial processes and refrigerants in indirect cooling systems to artificial ski-tracks or ice rigs. This transport medium is usually called secondary refrigerant or secondary coolant. The ideal secondary refrigerant must ensure a good thermal conductivity, have a high specific heat and low viscosity. It is also important that the secondary refrigerant is non-flammable and compatible with common engineering materials.

Sanotherm 500 MC provides protection against boiling, freezing and corrosion. The dilution is determined by system requirements, mainly freezing requirements. However, to ensure good corrosion protection it is recommended to use at least 35 vol. % of **Sanotherm 500 MC** in the coolant solution, which provides freeze protection to -20 °C. For lower freezing protection it is recommended to use **Sanotherm 500 MC – 15 °C .** This ready-to-use solution contains an adjusted corrosion inhibitor package to ensure optimal corrosion protection.
Mixtures with more than 70 vol. % of **Sanotherm 500 MC** in water are not recommended, because the freeze point is increasing again and physical properties are worse.

Dilution Energy 500 M, vol. %	Freeze point, °C	Dilution Energy 500 M, vol. %	Freeze point, °C
28.0	- 15	52.4	- 40
39.1	- 25	56.2	- 45
43.8	- 30	63.5	- 55

COMPATIBILITY AND MIXABILITY

Sanotherm 500 MC is compatible with most other heat transfer fluid based on ethylene glycol. Exclusive use of **Sanotherm 500 MC** is recommended for optimal corrosion protection. This heat transfer fluid is compatible with European hard tap waters.

CHEMICAL AND PHYSICAL PROPERTIES

Properties	Sanotherm 500 MC	Method	Properties	Sanotherm 500 MC	Method
Ethylene glycol	92 % w/w glycol	Internal			
Inhibitor content	5 % w/w	Internal	Specific gravity, 20 ℃	1.113 typ.	ASTM D1122
Water content	5 % w/w max	ASTDM D1 123	Equilibrium boiling point	180 ℃ typ.	ASTM D1120
Nitrite, amine, phosphate	Nil	IC	pH	8.6 typ.	ASTM D1287
Colour	Yellow	visual	Refractive Index, 20 ℃	1.431 typ.	ASTM D1218

Properties	M - 40 ℃	M -25 ℃	M -15 ℃	Method
Colour	yellow	yellow	yellow	Visual
pH	8.6 typ.	8.5 typ.	8.2 typ.	ASTM D1287
Freeze Point	- 40 ℃	- 25 ℃	- 15 ℃	ASTM D 1177
Specific gravity, 20 ℃	1.071 typ.	1.056 typ.	1.041 typ.	ASTM D1122

CORROSION PROTECTION

Sanotherm 500 MC contains an optimized inhibitor package to ensure maximum and long lasting corrosion protection at both high and low temperature. The inhibitors are based on carboxylate technology, which guarantees a longer lifetime than whit traditional products. Anti-corrosion performance is demonstrated through standard and specific corrosion testing.

ASTM D1384 Glassware corrosion tests	Weight loss in mg/coupon [1]					
	Brass	**Copper**	**Solder**	**Steel**	**Cast Iron**	**Aluminium**
'Industry' limit (max)	10	10	30	10	10	30
Sanotherm 500 MC	0.9	1	0.6	0.2	- 0.1	0.1

Note 1 : Weight loss AFTER chemical cleaning. Weight gain is indicated by a – sign.

Dynamic heat transfer corrosion test (2000 W)	**Weight loss in mg/coupon [1]**	
	Cast Iron	**Aluminium**
Test duration, hrs	48	48
[2] Sanotherm 500 M -9		
Hot coupon	1.5	23.3
Top coupon	2.4	3.6
Sanotherm 500 M -40		
Hot coupon	-	2.1
Top coupon	-	33.3

1 Weight loss AFTER chemical cleaning. Weight gain is indicated by a – sign.
2 Typical test condition are 20 vol. % dilution

STORAGE REQUIREMENT

The product should be stored at ambient temperatures and periods of exposure to temperatures above 35 °C should be minimized. As with any antifr eeze coolant, the use of galvanized steel is not recommended for pipes or any other part of the storage/mixing installation.
Sanotherm 500 MC can be stored for minimum 5 years in unopened containers without any effect on the product quality or performance. It is strongly recommended to use new containers and not recycled ones.

TOXICITY & SAFETY

For detailed Toxicity and Safety Data we refer to the Material Safety Data Sheet.
The transport is not regulated. Labelling as for any MEG based heat transfer fluid is required : X_n : R 22 (Harmful if swallowed) and S 2 (Keep out of reach of children).
This product should not be used to protect the inside of drinking water systems against freezing.

All information contained in this Product Information Leaflet is accurate to the best of our knowledge and belief as at the date of issue specified. However, the Company makes no warranty or representation, express or implied, as to the accuracy or completeness of such information.