Rodutherm® W-ECO

Heat transfer fluid with OAT (Organic Additive Technology)
Based on ethylene glycol
-50°C to 170°C

Application

Water is the best and most economical heat transfer medium. However, it freezes at 0°C and has a corrosive effect on many metals and alloys. Mixing **Rodutherm® W- ECO** with water enables lower working temperatures, increases the boiling point and simultaneously prevents corrosive attacks on metallic systems.

Rodutherm® W- ECO is used for heating and cooling in secondary cooling circuits within a temperature range of -50°C to 170°C.
The product is particularly well suited for use in closed heat pump systems, for cooling and heating industrial processes, and as a coolant in indirect cooling systems such as artificial ski slopes or ice rinks.

Rodutherm® W-ECO provides good thermal conductivity, high heat capacity and low viscosity, which enables good pumpability at low temperatures.
Rodutherm® W-ECO is available in concentrate form. The degree of dilution is dependent on the system requirements and above all on the desired frost protection temperature.
Mixtures containing more than 60 % vol. **Rodutherm® W- ECO** in water are not recommended. On the one hand this does not enable any further improvement in frost protection, whilst the physical characteristics with respect to heat transfer and pumpability become increasingly unsuitable.

Quality

Rodutherm® W-ECO is a heat transfer fluid based on ethylene glycol.

Rodutherm® W-ECO is an anti-corrosion and antifreeze medium that is free of nitrite, amine, phosphate and borate and therefore contributes to improved environmental compatibility.
The corrosion protection is based on the new OAT inhibitors, which exhibit an entirely different mode of action to conventional additive systems. The anti-corrosion capability has been confirmed in standard and special corrosion tests.

Compatibility and miscibility

Rodutherm® W-ECO is miscible with the majority of conventional heat transfer fluids based on ethylene glycol.

However, in order to attain the optimum system protection, we recommend using **FRAGOLTHERM® W-ECO** exclusively.

Rodutherm® W-ECO is compatible with conventional technical sealing materials.

Use in systems produced from galvanised steel is not recommended.

Handling and storage

Rodutherm® W-ECO should be stored at room temperature. The storage temperature should not exceed 35°C on a continuous basis.

Rodutherm® W-ECO can be stored in unopened containers for a minimum of eight years, without the product quality being adversely affected.

If decanted, it is advisable to use new, unused containers only.

Packaging

Rodutherm® W-ECO is available as standard in tankers and in 1,131 kg IBC containers.

Note

When handling the product it is essential to observe the safety datasheet.

Please get in touch with us if you require further information or general technical advice.

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Rodutherm® W-ECO

Technical data (concentrate)

Ethylene glycol	92 % weight
Inhibitors + water	approx. 8 % weight
Density at 20°C	1.131 g/ml
pH value	8.6
Refractive index (20°C)	1.435
Average boiling point	171°C
Reserve alkalinity pH 5.5, ASTM 1121	6.0
Nitrite, amine, phosphate, borate	None
Colour	blue

Freezing and boiling point (mixture)

Rodutherm® W-ECO	**[% vol.]**	**30**	**40**	**45**	**50**	**55**	**60**
Freezing point	[°C]	-16	-25	-31	-38	-45	-50
Boiling point	[°C]	105	108	109	111	112	115

Physical characteristics (mixture)

Rodutherm® W-ECO	**[% vol.]**	**30**	**40**	**45**	**50**	**55**	**60**
Density at -10°C	[g/ml]	1.05	1.07	1.08	1.08	1.10	1.10
Density at 20°C	[g/ml]	1.04	1.06	1.07	1.07	1.08	1.09
Density at 100°C	[g/ml]	1.00	1.01	1.02	1.02	1.03	1.03
Viscosity at -10°C	[mm²/s]	6.44	10.60	12.60	15.00	19.60	25.60
Viscosity at 20°C	[mm²/s]	2.34	3.19	3.69	4.28	5.05	5.95
Viscosity at 100°C	[mm²/s]	0.57	0.67	0.71	0.78	0.82	0.87
spec. heat at -10°C	[kJ/kgK]	3.72	3.40	3.24	3.11	3.03	2.96
spec. heat at 20°C	[kJ/kgK]	3.85	3.57	3.44	3.31	3.23	3.16
spec. heat at 100°C	[kJ/kgK]	3.97	3.80	3.73	3.65	3.57	3.50

Anti-corrosion effect

Test set-up per ASTM D1384	**Weight change in mg/test sheet[1]**					
	Brass	**Copper**	**Tin solder**	**Steel**	**Cast iron**	**Aluminium**
Upper limit (max.)	-10	-10	-30	-10	-10	-30
Rodutherm® W-ECO	-0.2	-0.3	-1.2	-0.3	-0.3	-5.0

[1] Weight loss after chemical cleaning.