Product information

Rodutherm® W-PGF

Heat transfer fluid with NSF-registration
Based on propylene glycol (USP/EP)
-50°C to 170°C

Application

Defrosting, cooling and freezing are frequently part of a food chain process. In these applications, **Rodutherm® W-PGF** and its dilutions are especially useful. Some typical examples include the cooling in beverage industries such as the cooling of wine, beer, milk, and juices. Also during the brewing process, the cooling of fermentation and zest tanks is essential, and **Rodutherm® W-PGF** will provide the necessary heat transfer. Furthermore, it can be used during the bottling process of carbonated beverages, such as champagne or beer, preventing as such loss of carbonation.
Other applications include indirect contact freezing. During this process, the product and a heat transfer fluid are separated by means of an interface or barrier between the cooling medium and the product. This interface can be a metal plate or the products packaging material, which prevents direct contact between the product and the cooling medium. Contact freezing is mainly used to cool packed fish and meat products in blocks with preset linear dimensions.

However, to ensure good corrosion protection, it is recommended to use at least 30 vol. % of **Rodutherm® W-PGF** in the coolant solution. Mixtures with more than 60 vol. % in water are not recommended, because the physical properties like heat transfer are no longer sufficient.

The use of galvanized components should be avoided in pipes and other installation. Particles can become detached and damage gaskets or valves.

Quality

Rodutherm® W-PGF is a clear, colorless and nearly odorless multipurpose heat transfer fluid based on pharma grade propylene glycol in USP/EP quality and contains only FDA approved ingredients. Especially designed for the highest demands in food industry, **Rodutherm® W-PGF** is classified to be acceptable by NSF International for use as a heat transfer fluid where there is the possibility of incidental food contact. Furthermore, it is kosher and halal certified.
Rodutherm® W-PGF is not suitable as food component or additive.

Compatibility and miscibility

Rodutherm® W-PGF is compatible with most other heat transfer fluids based on propylene glycol. To prevent any contamination, we can provide you with ready-to-use dilutions.

Rodutherm® W-PGF should only be diluted with clear and odorless water that meets the following requirements:

- Total water hardness: max. 2.8 °dH (German hardness degrees)
- Chlorides (Cl-) max. 50 mg/l
- Iron and Copper content: max 0.5 mg/l
- Electrical conductivity: max 10 µS/cm
- pH at 20°C : 5 – 7

Rodutherm® W-PGF is easily biodegradable. It is classified water hazard class 1 (slightly hazardous).

Handling and storage

Rodutherm® W-PGF shall be ideally stored in unopened containers in a cool and dry location at temperatures between -20°C and +35°C. It is strongly advised not to expose the coolant to direct sunlight for longer periods because this can change the color of the liquid. **Rodutherm® W-PGF** in unopened container can be stored for at least 8 years without any negative impact.

Packaging

Rodutherm® W-PGF is available as standard in steel drums and in canisters.

Notes

The safety data sheet must be observed when handling the product.

Please contact us if you would like further information or general technical advice.

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Technical data (concentrate)

Propylene glycol	96 w.-%
Inhibitors	2 w.-%
Water	5 w.-% max.
Density at 20°C	1,051 g/ml
pH	9,9
Refractive index at 20°C	1,433
Boiling point	164°C
Nitrite, Amin, Nitrate, Silicate, Borate	none
Color	clear, colorless

Freezing points and Boiling points (Mixtures)

Rodutherm® W-PGF	**[Vol.-%]**	**32**	**37**	**42**	**46**	**49**	**52**	**56**	**58**
Freezing point	[°C]	-15	-20	-25	-30	-35	-40	-45	-50
Boiling point	[°C]	103	104	105	105	106	107	108	108

Physical properties (Mixtures)

Rodutherm® W-PGF	**[Vol.-%]**	**32**	**37**	**42**	**46**	**49**	**52**	**56**	**58**
Density at -10 °C	[g/ml]	1,038	1,046	1,052	1,054	1,057	1,059	1,060	1,062
Density at 20 °C	[g/ml]	1,030	1,036	1,040	1,043	1,044	1,046	1,047	1,048
Density at 100 °C	[g/ml]	0,978	0,984	0,983	0,984	0,986	0,987	0,988	0,988
Viscosity at -10 °C	[mm²/s]	12,07	19,55	25,44	29,73	32,95	43,95	53,87	68,75
Viscosity at 20 °C	[mm²/s]	3,00	4,01	4,79	5,33	5,74	6,76	7,66	9,00
Viscosity at 100 °C	[mm²/s]	0,52	0,61	0,70	0,77	0,83	0,93	1,01	1,14
Heat Capacity at -10 °C	[kJ/kgK]	3,82	3,72	3,62	3,51	3,46	3,40	3,35	3,28
Heat Capacity at 20 °C	[kJ/kgK]	3,86	3,77	3,69	3,59	3,57	3,51	3,47	3,41
Heat Capacity at 100 °C	[kJ/kgK]	4,04	3,96	3,93	3,88	3,85	3,81	3,78	3,74

Corrosion protection performance

Testing method ASTM D1384	**Change of weight in mg/Koupon[1]**					
	brass	**copper**	**solder**	**steel**	**cast iron**	**aluminium**
Upper limit (max.)	-10	-10	-30	-10	-10	-30
Comparable product[2]	-2	-11	-2	-0	-1	-24
Rodutherm® W-PGF	-1	-2	-4	-1	-1	-4

[1] loss of weight after chemical treatment. [2] The comparable product is also based on propylene glycol.