



VIN-FP-108/008

GREENWAY® NEO HEAT PUMP -25



Non-contractual photo

GREENWAY® NEO HEAT PUMP -25 is a **READY-TO-USE heat transfer fluid** based on **1,3 PROPANEDIOL** from renewable plant based materials and with corrosion inhibitors. It is particularly suitable for geothermal ground source (underground collector circuits) and aérothermal Air/Water heat pump systems.

Special features of **GREENWAY® NEO HEAT PUMP -25**

The raw material used, 1,3 Propanediol, comes from renewable plant-based materials, and has the advantage of considerably reducing the risk of polluting the ground or the atmosphere in the event of a system leak.

Its formulation without biocide or volatile organic compounds, is free of Borax, a toxic additive according to the 30th European ATP (Adaptation to Technical Progress).

GREENWAY® HEAT PUMP -25 provides effective protection against freezing and against corrosion of metals in different circuits (steel, aluminium, copper, brass, solder, etc.). It prevents the formation of sludge in the circuit which could clog up the buried circuit.

The corrosion inhibitor technology is organic, based on neutralised carboxylic acids, without phosphates, nitrites or amines. These anti-corrosion agents provide long lasting protection.

GREENWAY® HEAT PUMP -25 is bacteriostatic and therefore prevents bacterial growth in the circuit.

GREENWAY® NEO HEAT PUMP -25 is **authorised by the French health administration (Direction Générale de la Santé), according to the directives of the French regulatory agency ANSES**, as a heat transfer fluid for thermal processing in simple exchange systems for sanitary water production and is also **approved by Belgaqua**, the Belgian federation for the water sector, according to the standard NBN-EN 1717 as a fluid category 3.

A ready-to-use solution and concentrated product are available:

GREENWAY® HEAT PUMP -25: Freezing point of -25°C

Please contact us for the concentrated product.

**1. PHYSICAL AND CHEMICAL PROPERTIES OF GREENWAY® NEO HEAT PUMP -25**

Appearance; Green liquid

pH (AFNOR NF T 90 008 / ASTM D 1287) 8,2 à 8,6

Density (AFNOR NF R 15-602-1 / ASTM D 1122)..... 1,037 ± 0,002 kg/dm³Alkaline Reserve (AFNOR NF T 78-101 / ASTM D 1121)
(ml HCl N/10 for 20 ml of GREENWAY® NEO HEAT PUMP -25) ≥ 4 mlFreezing point °C (AFNOR NF T 78-102 / ASM D 1177)..... - 25 ± 2°C
(Formation of a crystalline mix and not a compact mass)

Boiling point °C (AFNOR NF R 15-602-4 / ASTM D 1120)..... 104 ± 2°C

For uses at temperatures above boiling point and to prevent any boiling in the system, GREENWAY® NEO HEAT PUMP -25 must only be circulated under pressure in closed, sealed circuits.

Temperature (°C)	Density (kg/m ³)	Kinematic viscosity (cSt)	Specific heat (kJ.kg ⁻¹ .K ⁻¹)	Thermal conductivity (Wm ⁻¹ .K ⁻¹)
- 20	1,058	29.5	3.26	0.359
- 10	1,052	19.1	3.34	0.369
0	1,047	11.6	3.42	0.377
+ 10	1,042	6.6	3.50	0.385
+ 20	1,037	4.3	3.58	0.392
+ 30	1,032	2.7	3.66	0.397
+ 40	1,029	2.1	3.74	0.402
+ 50	1,026	1.6	3.82	0.406
+ 60	1,023	1.5	3.90	0.409
+ 70	1,020	1.1	3.98	0.412
+ 80	1,017	0.90	4.06	0.413
+ 90	1,013	0.80	4.14	0.413
+ 100	1,010	0.70	4.22	0.413
+ 110	1,008	0.60	4.31	0.415
+ 120	1,006	0.60	4.39	0.416
+ 130	1,003	0.50	4.47	0.417
+ 140	1,001	0.50	4.55	0.417
+ 150	998	0.50	4.63	0.415
+ 160	995	0.50	4.71	0.413
+ 170	991	0.50	4.79	0.410
+ 180	987	0.50	4.88	0.407
+ 190	983	0.30	4.96	0.402
+ 200	978	0.30	5.04	0.396

Relevant standards: AFNOR NF R 15-602-1 / ASTM D 1122 (density)



2. PROTECTION OF METALS BY GREENWAY® NEO HEAT PUMP -25

As a comparison, the table below shows the corrosion of several metals in tap water and GREENWAY® NEO HEAT PUMP -25 respectively. For information, the table shows the performance requirements defined by standards AFNOR NF R 15-601 and ASTM D 3306 for coolant liquids.

Metals	Weight loss (mg / test piece)	Limits of the standard NF R 15-601	Limits of the standard ASTM D 3306
Copper	± 2	[- 5; +5]	[- 10; +10]
Solder	± 3	[- 5; +5]	[- 30; +10]
Brass	± 2	[- 5; +5]	[- 10; +10]
Steel	± 1	[- 2.5; +2.5]	[- 10; +10]
Cast iron	± 2	[- 4; +4]	[- 10; +10]
Aluminium	± 7	[- 10; +20]	[- 30; +30]

Standards governing test method: AFNOR NF R 15-602-7 / ASTM D 1384

3. PRESSURE LOSS

When using GREENWAY® NEO HEAT PUMP -25 in an installation, account must be taken of the viscosity of the aqueous solution to calculate pressure losses.

4. RECOMMENDATIONS FOR THE IMPLEMENTATION OF GREENWAY® NEO HEAT PUMP -25

It is strongly recommended to conduct thorough cleaning of an installation using Dispersant D*, before filling with the GREENWAY® NEO HEAT PUMP solution, if it contains large deposits of metal oxides.

The procedure is as follows:

- Quickly drain the installation at the lowest point after letting the water circulate for one to two hours.
- Prepare and add a 20g/litre solution of DISPERSANT D* to the installation.
- Let the product circulate for at least two hours.

- Carefully rinse with plenty of clean water.

Cleaning may need to be repeated, depending on the state of the circuit. After cleaning it is important to drain and rinse thoroughly with water.

GREENWAY® NEO HEAT PUMP -25 must not be used with galvanized steel.

An annual check of the GREENWAY® NEO HEAT PUMP -25 with APC* analysis is recommended.

* Marketed by **Climalife**.

*** The data given in this document are purely indicative and do not constitute a sales specification.**

The information in this article is the fruit of the studies we have conducted and of our experience. It is given in good faith but cannot in any way constitute a guarantee from us, or mean that we accept liability, especially in the case of infringement of third parties or of failure by users of our products to abide with the relevant current regulations.

