



GREENWAY® NEO SOLAR N



Non contractual photo

Greenway® Neo Solar N is a READY-TO-USE renewable plant-based heat transfer fluid (1,3-propanediol and corrosion inhibitors), specially formulated for sanitary hot water production circuits with flat or tubular vacuum solar thermal collectors.

Greenway® Neo Solar N protects against freezing and the formation of deposits in the system.

It contains no biocide, no volatile organic compounds and no Borax; a toxic additive according to the 30th European ATP (Adaptation to Technical Progress). The anti-corrosive H-OAT (neutralised carboxylic acids) formulation is nitrite and amine free.

The formulation slows down degradation and reduces "tarring" of the sensors during system shutdown periods.

The formula contains a bittering agent, in accordance with the French Order of 14 January 2019 relating to the conditions for placing products on the market in facilities used for the thermal treatment of water intended for human consumption.

Freezing point of the solutions:

Greenway® Neo Solar N -20 : -20°C

Greenway® Neo Solar N -25 : -25°C

Greenway® Neo Solar N -30 : -30°C

1. **USE:** The dilution must be prepared with demineralised water.

The compatibility of the joints with a heat transfer medium with a higher wetting power than water must be checked. It will sometimes be necessary to tighten the joints and connections with a higher torque to prevent seepage.

In case of doubt, given the diversity of materials available, it is advisable to check the compatibility of **Greenway® Neo Solar N** or 1,3-propanediol bio-sourced from the manufacturers of the components (pumps, solar collectors, pipes, joints, etc.).

Galvanised steel should never be used with Greenway® Neo Solar N.

It is recommended that an installation be thoroughly cleaned before filling with a heat transfer fluid.

If the installation is scaled or strongly oxidised with deposits, circulate **Deoxidant P*** (100 g/l of water) for 2 hours at 50°C, then clean with **Dispersant D***.

If the installation has a lot of deposits of non-incrusted metal oxides, clean with Dispersant D* to remove all particles. After cleaning, drain and rinse thoroughly with water.

* Marketed by the Climalife. (www.climalife.dehon.com)



2. PROPERTIES OF GREENWAY® NEO SOLAR N

Appearance Green liquid

Density (AFNOR NF R 15-602-1 / ASTM D 1122)

Greenway® Neo Solar N -20	1.032 ± 0.002 kg/dm ³
Greenway® Neo Solar N -25	1.037 ± 0.002 kg/dm ³
Greenway® Neo Solar N -30	1.042 ± 0.002 kg/dm ³

pH (AFNOR NF T 90 008 / ASTM D 1287)

Greenway® Neo Solar N -20	8.5 to 9.5
Greenway® Neo Solar N -25	8.5 to 9.5
Greenway® Neo Solar N -30	9 to 10

Alkaline Reserve on 20ml of product (AFNOR NF T 78-101 / ASTM D 1121)

Greenway® Neo Solar N -20	> 5 ml
Greenway® Neo Solar N -25	> 6 ml
Greenway® Neo Solar N -30	> 7 ml

Freezing point °C (AFNOR NF T 78-102 / ASTM D 1177)

Greenway® Neo Solar N -20	- 20 ± 2°C
Greenway® Neo Solar N -25	- 25 ± 2°C
Greenway® Neo Solar N -30	- 30 ± 2°C

(Formation of a crystalline mix and not a compact mass.)

Freezing points are however subject to variation due to overcooling phenomena that may occur. For use as a transfer medium below 0°C, the viscosity must be taken into account when calculating pressure loss.

Boiling point °C (AFNOR R 15-602-4 / ASTM D 1120)

Greenway® Neo Solar N -20	104 ± 2°C
Greenway® Neo Solar N -25	105 ± 2°C
Greenway® Neo Solar N -30	106 ± 2°C

When using at temperatures above their boiling points and to prevent any evaporation from the system, **Greenway® Neo Solar N** must only be circulated under pressure in closed sealed circuits and kept in circulation during that time.



2.1 Properties of Greenway® Neo Solar N -20

Temperature (°C)	Density (kg/m ³)	Kinematic Viscosity (cSt)	Specific Heat (kJ.kg ⁻¹ .K ⁻¹)	Thermal Conductivity (W.m-1.K-1)
- 15	1049	20.3	3.51	0.378
- 10	1047	14.77	3.55	0.384
0	1042	9.77	3.62	0.394
+ 10	1037	6.07	3.69	0.403
+ 20	1033	3.88	3.77	0.411
+ 30	1029	2.88	3.84	0.419
+ 40	1026	2.17	3.91	0.425
+ 50	1023	1.69	3.99	0.43
+ 60	1020	1.35	4.06	0.435
+ 70	1017	1.15	4.13	0.439
+ 80	1014	0.9	4.2	0.442
+ 90	1010	0.78	4.28	0.444
+ 100	1007	0.64	4.35	0.445
+ 110	1005	0.55	4.42	0.446
+ 120	1003	0.47	4.5	0.446
+ 130	1000	0.41	4.57	0.445
+ 140	998	0.36	4.64	0.443
+ 150	995	0.32	4.71	0.441
+ 160	992	0.28	4.79	0.438
+ 170	988	0.25	4.86	0.435
+ 180	984	0.22	4.93	0.431
+ 190	980	0.2	5.01	0.427
+ 200	975	0.18	5.08	0.422

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



2.2 Properties of Greenway® Neo Solar N -25

Temperature (°C)	Density (kg/m ³)	Kinematic Viscosity (cSt)	Specific Heat (kJ.kg ⁻¹ .K ⁻¹)	Thermal Conductivity (W.m-1.K-1)
- 20	1058	34.22	3.28	0.356
- 10	1052	18.23	3.36	0.366
0	1046	11.74	3.44	0.375
+ 10	1041	7.24	3.52	0.383
+ 20	1038	4.78	3.6	0.39
+ 30	1033	3.47	3.68	0.396
+ 40	1030	2.58	3.76	0.402
+ 50	1027	1.98	3.84	0.406
+ 60	1024	1.58	3.92	0.41
+ 70	1021	1.33	4	0.412
+ 80	1018	1.03	4.08	0.415
+ 90	1014	0.89	4.16	0.416
+ 100	1011	0.73	4.24	0.416
+ 110	1009	0.62	4.32	0.416
+ 120	1007	0.53	4.4	0.415
+ 130	1004	0.46	4.48	0.414
+ 140	1002	0.4	4.56	0.412
+ 150	999	0.35	4.64	0.409
+ 160	996	0.31	4.72	0.406
+ 170	992	0.28	4.8	0.402
+ 180	988	0.25	4.88	0.398
+ 190	984	0.22	4.96	0.393
+ 200	979	0.2	5.03	0.388

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



2.3 Properties of Greenway® Neo Solar N -30

Temperature (°C)	Density (kg/m ³)	Kinematic Viscosity (cSt)	Specific Heat (kJ.kg ⁻¹ .K ⁻¹)	Thermal Conductivity (W.m-1.K-1)
-25	1065	57.11	3.07	0.339
- 20	1062	41.43	3.11	0.344
- 10	1056	21.95	3.19	0.353
0	1050	13.58	3.28	0.361
+ 10	1045	8.26	3.36	0.368
+ 20	1041	5.68	3.45	0.374
+ 30	1036	4.05	3.53	0.379
+ 40	1033	2.99	3.62	0.384
+ 50	1030	2.26	3.7	0.388
+ 60	1027	1.79	3.79	0.39
+ 70	1024	1.5	3.88	0.393
+ 80	1021	1.17	3.96	0.394
+ 90	1017	0.99	4.05	0.395
+ 100	1014	0.81	4.13	0.395
+ 110	1012	0.69	4.22	0.394
+ 120	1010	0.59	4.3	0.393
+ 130	1007	0.51	4.39	0.391
+ 140	1005	0.44	4.47	0.388
+ 150	1002	0.38	4.56	0.385
+ 160	999	0.34	4.64	0.382
+ 170	995	0.3	4.73	0.378
+ 180	991	0.27	4.81	0.373
+ 190	987	0.24	4.9	0.368
+ 200	982	0.22	4.98	0.362

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



3. PRESSURE LOSS

The pressure drop is calculated according to the viscosity of **Greenway® Neo Solar N** at the desired temperatures.

Compatibility lists (not exhaustive):

Material	Greenway® Neo N
CR (Neoprene)	+
CSM (Hypalon)	+
EPDM	+
FPM (Viton)	+
NBR (Buna N)	+
PE _{HD}	+
PP	+
PTFE (Teflon)	+
PVC	+
PVDF	+
TS (Nitrile)	+
Fibre	X

Material	Greenway® Neo N
Aluminium T356 (Al/Si)	+
Cast iron (Fe>2%)	+
Hastelloy (Nickel alloy)	+
Stainless steel 304	+
Stainless steel 316	+
Galvanised steel	-
Coated steel	-

+ = compatible
x = not recommended
- = not compatible

Once the installation is in service, APC* analysis (once a year) to check the main characteristics of the **Greenway® Neo Solar N** is recommended to verify the condition and correct operation of the installation and prevent possible breakdowns or damage.

The data given (viscosity, specific heat, etc.) are intended to help the user in the application of the product. It is the user's responsibility to carry out any calculations (pressure drop, etc.) necessary for the correct operation of the installation.

The information contained in this product data sheet is the result of our studies and experience. It is given in good faith, but can under no circumstances constitute a guarantee on our part, nor engage our responsibility, particularly in the event of infringement of the rights of third parties, nor in the event of failure on the part of the users of our products to comply with the regulations in force concerning them.

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