300GX

Heat transfer liquid for heating and cooling systems

A heat-carrying medium based on glycol oligomers with a measurable corrosion inhibitor and biocidal protection intended for the transfer of heat and cold in the field of thermal engineering.

Fields of application:

- heating systems
- heat pumps
- refrigeration and air conditioning

Dossage and application

Before use, the concentrate of the heat-carrying medium is diluted with water to the required non-freezing temperature. The concentrate is intended for dilution with appropriately treated water, for optimal system functioning we recommend the use of demineralized water (e.g. using the AVDK 1000 demineralization unit). If untreated water (boreholes, wells), or improperly treated or otherwise contaminated water is used for mixing, the manufacturer is not responsible for the deterioration of the liquid or for the loss of its properties.

It contains a mixture of inhibitors and antibacterial substances for dilution with water up to a ratio of 1:2. Dilution with water must be carried out before the liquid is introduced into the system in a suitable container. When diluting with water, it is necessary to continuously stir the mixture for at least 30 minutes to ensure sufficient mixing with water. We check the non-freezing temperature with a refractometer according to the refractive index values.

Checking the operating properties of the liquid

In order to maintain the appropriate operating parameters of the liquid, we recommend checking the pH value and non-freezing temperature of the operating liquid every year using a refractometer to measure the refractive index.

Properties:

- measurable inhibitory protection up to 1:2
- dilutionantibacterial protection
- "BORAX FREE" liquid
- suitable for all types of metals, including aluminumseal protection
- fluid life 7-10 yearsnot dangerous for the environment
- not dangerous to human health

Dilution ratios:

Product: water	solidification temperature
1 : 0,5	–35 °C
1 : 1	–18 °C
1 : 1,5	–11 °C
1 : 2	-7 °C

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System filling and maintenance

New systems we recommend cleaning with a suitable cleaning mixture before filling with operating fluid to remove assembly dirt. In the case of heating systems, the suitable agent is the cleaning liquid Q400.

Existing systems – when performing maintenance on systems already in operation and refilling them with a heat-carrying medium, we recommend cleaning the system to remove operational deposits. For cleaning heating systems, it is advisable to use cleaning mixture Q400 (cleaning mixture for glycol and greasy dirt), Q800 or Q803R (cleaning mixture for rust and scale).

Compatibility with plastics and rubbers

Material	Temperature		
	25°C	80°C	160°C
Urethane polymers	good	poor	poor
Rubber black 3773	good	poor	poor
Nitrile-butadiene rubber	good	good	-
Styrene butadiene rubber	good	good	poor
Butyl rubber	good	good	-
EPDM	good	good	good
Chlorosulfone polyethylene	good	poor	poor
Perfluoroelastomer	good	good	good
Natural rubber	good	poor	poor
Polychloroprene	good	good	-
Rubber red 107	good	poor	poor
Silicone 65	good	good	-
Polysulfide	good	poor	poor
Fluoroelastomer	good	good	poor

Corrosion protection:

- Copper (99% Cu)
- Solder (PbSn30)
- Brass (CU70Zn30)
- Steel (0.2%C)
- Cast iron (3.3% C, 2% Si)
- Aluminum (AlCu4Si5)
- Silumin (AlSi12Cu4)

Packaging:

- 5, 10, 20 l canister
- 200 l sud
- 1000 l IBC container

Security precautions:

The mixture is not classified as dangerous

Storrage:

Store in tightly closed, original packaging in a designated area.
With proper storage, the product is stable for 24 months.

TECHNICAL DATA

Density 300GX / aqueous solution (g/cm³)

depending on temperature and concentration

T [°C]	20 %vol.	30 %vol.	40 %vol.	50 %vol.	60 %vol.	70 %vol.
100	0,983	0,993	1,002	1,017	1,033	1,042
90	0,992	1,002	1,011	1,026	1,042	1,051
80	0,998	1,009	1,019	1,035	1,051	1,060
70	1,005	1,017	1,027	1,043	1,059	1,068
60	1,011	1,023	1,034	1,051	1,067	1,076
50	1,016	1,030	1,041	1,058	1,075	1,083
40	1,022	1,036	1,047	1,065	1,082	1,090
30	1,026	1,042	1,053	1,072	1,088	1,096
20	1,030	1,046	1,058	1,078	1,094	1,102
10	1,033	1,051	1,063	1,084	1,100	1,108
0	1,036	1,055	1,068	1,089	1,105	1,113
-10		1,060	1,073	1,093	1,110	1,118
-20			1,078	1,097	1,116	1,124
-30				1,100	1,121	1,129
-40					1,125	1,134

Kinematic viscosity 300GX / aqueous solution [mm²/s]

depending on temperature and concentration

T [°C]	20 %vol.	30 %vol.	40 %vol.	50 %vol.	60 %vol.	70 %vol.
100	0,35	0,53	0,65	0,85	1,31	1,91
90	0,41	0,63	0,78	1,03	1,58	2,29
80	0,49	0,76	0,96	1,27	1,93	2,77
70	0,59	0,92	1,18	1,59	2,40	3,41
60	0,72	1,13	1,48	2,02	3,01	4,23
50	0,89	1,41	1,89	2,61	3,86	5,39
40	1,13	1,77	2,44	3,42	4,98	6,85
30	1,45	2,27	3,22	4,56	6,59	8,95
20	1,90	2,98	4,33	6,22	8,86	11,83
10	2,52	3,98	5,96	8,69	13,37	19,06
0	3,46	5,81	9,17	13,80	22,07	32,28
-10		11,32	18,58	37,53	73,91	137,03
-20			45,65	73,72	118,22	236,73

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Specific heat capacity 300GX / aqueous solution [J/g.K]
depending on temperature and concentration

T [°C]	20 %vol.	30 %vol.	40 %vol.	50 %vol.	60 %vol.	70 %vol.
100	4,14	4,10	3,99	3,81	3,61	3,43
90	4,13	4,08	3,95	3,78	3,58	3,39
80	4,11	4,02	3,91	3,73	3,53	3,35
70	4,10	4,00	3,88	3,69	3,49	3,30
60	4,09	3,97	3,83	3,65	3,45	3,26
50	4,07	3,93	3,80	3,60	3,40	3,22
40	4,04	3,91	3,76	3,58	3,37	3,18
30	4,02	3,88	3,73	3,53	3,33	3,13
20	4,01	3,85	3,68	3,49	3,28	3,08
10	3,99	3,81	3,65	3,44	3,25	3,04
0	3,98	3,78	3,61	3,39	3,20	2,99
-10		3,75	3,58	3,35	3,17	2,95
-20			3,54	3,31	3,12	2,90

Thermal conductivity 300GX / aqueous solution [W/m.K]
depending on temperature and concentration

T [°C]	20 %vol.	30 %vol.	40 %vol.	50 %vol.	60 %vol.	70 %vol.
100	0,551	0,500	0,443	0,394	0,343	0,289
90	0,544	0,495	0,441	0,393	0,345	0,296
80	0,538	0,491	0,440	0,393	0,347	0,300
70	0,531	0,486	0,438	0,393	0,349	0,305
60	0,524	0,482	0,436	0,393	0,351	0,309
50	0,517	0,477	0,434	0,393	0,353	0,313
40	0,511	0,472	0,432	0,393	0,355	0,320
30	0,505	0,468	0,430	0,393	0,357	0,324
20	0,497	0,464	0,429	0,392	0,359	0,328
10	0,491	0,458	0,427	0,392	0,361	0,332
0	0,483	0,454	0,425	0,393	0,364	0,336
-10	0,475	0,450	0,423	0,391	0,366	0,340
-20			0,421	0,391	0,368	0,344

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Prandtl number 300P / aqueous solution
depending on temperature and concentration

T [°C]	20 %vol.	30 %vol.	40 %vol.	50 %vol.	60 %vol.	70 %vol.
100	2,57	4,33	5,85	8,34	14,25	23,58
90	3,09	5,19	7,06	10,17	17,12	27,52
80	3,73	6,28	8,66	12,49	20,68	32,77
70	4,54	7,67	10,73	15,59	25,44	39,40
60	5,66	9,50	13,45	19,70	31,60	48,05
50	7,15	11,93	17,21	25,25	39,97	60,01
40	9,15	15,22	22,27	33,14	51,20	74,21
30	11,84	19,65	29,41	43,89	66,85	94,75
20	15,77	25,87	39,31	59,72	88,51	122,41
10	21,14	34,80	54,13	82,63	132,36	193,38
0	29,56	51,01	83,21	129,65	214,44	319,68
-10		100,00	171,21	351,45	710,57	1329,24
-20			413,79	684,61	1118,57	2243,15

Vapor pressure 300GX / aqueous solution [bar]
depending on temperature and concentration

T [°C]	40 %vol.	70 %vol.	80 %vol.	90 %vol.	100 %vol.
180	9,818	7,987	7,148	5,673	3,028
140	3,509	2,735	2,542	2,002	1,059
100	0,985	0,758	0,703	0,550	0,287
70	0,301	0,232	0,215	0,166	0,085
50	0,119	0,091	0,084	0,065	0,033
30	0,042	0,031	0,029	0,022	0,011
20	0,022	0,017	0,016	0,012	0,006

Refractive Index 300GX / Aqueous Solution

	0 %vol.	10 %vol.	20 %vol.	30 %vol.	40 %vol.	50 %vol.	60 %vol.	70 %vol.	80 %vol.	90 %vol.	100 %vol.
25°C	1,3330	1,3471	1,3570	1,3705	1,3833	1,3956	1,4083	1,4197	1,4302	1,4455	1,4562

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