



Technical Data Sheet

DOWCAL™ 100E Heat Transfer Fluid

Borate Free Inhibited Ethylene Glycol-based Heat Transfer Fluid

Recommended Usage

DOWCAL™ 100E is an ethylene glycol-based heat transfer fluid especially suitable for use in cooling applications such as pharmaceutical and specialty chemical industry.

Recommended use temperature range:

-50°C to 120°C

Key Benefits of DOWCAL™ 100E Heat Transfer Fluid

- Improved corrosion protection, in particular for aluminum alloys
- Suitable for cooling, chilling and freeze protection
- Hard water stability to enable use with local tap water
- Compatible with commonly used elastomers
- Long Fluid Lifetime, lowering maintenance cost
- Free of borate, nitrate, and CMR (Carcinogenic, mutagenic, and reprotoxic) classified substances¹
- Recommended use at minimum 30% concentration for corrosion protection

Typical Properties of DOWCAL™ 100E Heat Transfer Fluid²

Composition (% by weight)			
Ethylene Glycol		94%	
Performance additive and water		6%	
Property	Unit	Value	Test Method
Colour		Colourless	
Density at 20°C	g/cm ³	1.114	ASTM D4052
pH (50% vol. solution in demineralized water)		8.0 – 8.8	ASTM E70
Reserve alkalinity, as concentrate	ml	9.5 Min	ASTM D1121
Freeze Point (50% vol. in water)	°C	-37	ASTM D1177

1. DOWCAL™ 100E Heat Transfer Fluid is free of borate, nitrate and CMR (Carcinogenic, mutagenic, and reprotoxic) classified substances, meaning being manufactured without intentionally adding such substances.
2. Typical properties not to be construed as specification. Complete sales specification is available on request.

Typical Freezing, Boiling Points and other properties of DOWCAL™ 100E Heat Transfer Fluid²

DOWCAL™ 100E % vol	DOWCAL™ 100E %wt	Freezing point °C	Refractive Index @ 20°C	Boiling point °C @ 1 bara	Density g/cm³ @ 20°C	Dyn. viscosity mPa.s @ 20°C	Kin. viscosity mm²/s @ 20°C
5.0	5.6	-1.6	1.3389	101	1.003	1.23	1.23
10.0	11.0	-3.6	1.3443	101	1.012	1.40	1.38
15.0	16.4	-6.1	1.3498	102	1.020	1.59	1.56
20.0	21.7	-9.0	1.3551	102	1.028	1.82	1.77
21.0	22.7	-9.7	1.3562	103	1.030	1.87	1.81
22.0	23.8	-10.3	1.3573	103	1.032	1.92	1.86
23.0	24.8	-11.0	1.3583	103	1.033	1.97	1.91
24.0	25.9	-11.7	1.3594	103	1.035	2.02	1.96
25.0	26.9	-12.5	1.3605	103	1.036	2.08	2.01
26.0	27.9	-13.2	1.3615	103	1.038	2.14	2.06
27.0	29.0	-14.0	1.3626	103	1.039	2.19	2.11
28.0	30.0	-14.8	1.3637	103	1.040	2.25	2.17
29.0	31.0	-15.6	1.3647	104	1.042	2.32	2.22
30.0	32.0	-16.4	1.3658	104	1.043	2.38	2.28
31.0	33.1	-17.2	1.3668	104	1.045	2.45	2.34
32.0	34.1	-18.1	1.3679	104	1.046	2.52	2.41
33.0	35.1	-19.0	1.3689	104	1.048	2.59	2.47
34.0	36.1	-19.9	1.3699	104	1.049	2.66	2.54
35.0	37.1	-20.8	1.3710	104	1.050	2.74	2.61
36.0	38.1	-21.7	1.3720	105	1.052	2.82	2.68
37.0	39.1	-22.7	1.3731	105	1.053	2.90	2.75
38.0	40.1	-23.7	1.3741	105	1.054	2.98	2.83
39.0	41.1	-24.7	1.3751	105	1.056	3.06	2.90
40.0	42.1	-25.7	1.3761	105	1.057	3.15	2.98
41.0	43.1	-26.7	1.3772	105	1.058	3.24	3.07
42.0	44.1	-27.8	1.3782	106	1.059	3.34	3.15
43.0	45.1	-28.9	1.3792	106	1.061	3.44	3.24
44.0	46.1	-30.0	1.3802	106	1.062	3.54	3.33
45.0	47.1	-31.1	1.3812	106	1.063	3.64	3.43
46.0	48.0	-32.2	1.3823	106	1.064	3.75	3.52
47.0	49.0	-33.4	1.3833	106	1.066	3.86	3.62
48.0	50.0	-34.6	1.3843	107	1.067	3.98	3.73
49.0	51.0	-35.8	1.3853	107	1.068	4.10	3.83
50.0	52.0	-37.0	1.3863	107	1.069	4.22	3.95
51.0	52.9	-38.2	1.3873	107	1.070	4.35	4.06
52.0	53.9	-39.5	1.3883	107	1.072	4.48	4.18
53.0	54.9	-40.8	1.3893	108	1.073	4.62	4.30
54.0	55.9	-42.1	1.3902	108	1.074	4.76	4.43
55.0	56.8	-43.4	1.3912	108	1.075	4.90	4.56
60.0	61.7	-50.3	1.3961	109	1.081	5.72	5.29
65.0	66.5	<-51	1.4009	111	1.086	6.70	6.17
70.0	71.3	<-51	1.4056	113	1.091	7.88	7.22
75.0	76.0	<-51	1.4130	115	1.096	9.33	8.51
80.0	80.8	<-51	1.4148	119	1.101	11.1	10.1
85.0	85.6	-50.9	1.4192	123	1.106	13.4	12.1
90.0	90.3	-40.8	1.4236	129	1.111	16.3	14.7
95.0	95.1	-34.5	1.4278	136	1.115	20.2	18.1
100.0	100.0	-28.7	1.4319	145	1.119	25.7	22.9

2. Typical properties not to be construed as specification. Complete sales specification is available on request.

Saturation properties of DOWCAL™ 100E Heat Transfer Fluid at 30% volume concentration²

Temp °C	Specific Heat kJ/kg.K	Density g/cm3	Thermal conductivity W/m.K	Dyn. viscosity mPa.s
0	3.63	1.051	0.467	4.78
25	3.70	1.041	0.484	2.06
50	3.76	1.028	0.496	1.14
75	3.83	1.014	0.503	0.73
100	3.90	0.999	0.505	0.52
120	3.96	0.986	0.503	0.42

Saturation properties of DOWCAL™ 100E Heat Transfer Fluid at 40% volume concentration²

Temp °C	Specific Heat kJ/kg.K	Density g/cm3	Thermal conductivity W/m.K	Dyn. viscosity mPa.s
0	3.46	1.066	0.441	6.60
25	3.54	1.054	0.451	2.70
50	3.62	1.040	0.456	1.43
75	3.7	1.025	0.458	0.89
100	3.78	1.008	0.456	0.62
120	3.84	0.995	0.452	0.49

Saturation properties of DOWCAL™ 100E Heat Transfer Fluid at 50% volume concentration²

Temp °C	Specific Heat kJ/kg.K	Density g/cm3	Thermal conductivity W/m.K	Dyn. viscosity mPa.s
0	3.27	1.079	0.417	9.23
25	3.37	1.066	0.420	3.58
50	3.46	1.051	0.420	1.82
75	3.55	1.035	0.417	1.10
100	3.64	1.018	0.411	0.74
120	3.72	1.003	0.404	0.58

2. Typical properties not to be construed as specification, complete sales specification is available on request

**Handling
Precaution**

Before using this product, consult the Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

**Disposal
Considerations**

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner. It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

**Product
Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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