



DOWTHERM™ SR-1 Fluid

Product Type Inhibited Ethylene Glycol-based heat transfer fluid

- Applications**
- Closed-loop, water-based HVAC
 - Process heating and cooling
 - Food industry applications within temperature range

Recommended Use Temperature Range -50°C (-60°F) to 120°C (250°F)

Description DOWTHERM SR-1 heat transfer fluid is a formulation of 95.5 weight percent ethylene glycol and a specially designed package of industrial corrosion inhibitors. The fluid is dyed fluorescent pink for leak detection purposes. Solutions in water provide freeze protection to below -50°C (-60°F) and burst protection to below -73°C (-100°F).

Typical Properties†	Composition (% by weight)	
	Ethylene Glycol	95.5
	Performance Additives	4.5
	Color	Fluorescent pink
	Specific Gravity 25/25°C (77/77°F)	1.1250-1.1350
	pH of Solution (50% glycol)	9.0-10.5
	Reserve Alkalinity (min.)	12.0 ml

†Typical properties, not to be construed as specifications. Complete sales specifications are available on request.

Typical Concentrations of DOWTHERM SR-1 Fluid Required to Provide Freeze and Burst Protection at Various Temperatures

Temperature		Percent DOWTHERM SR-1 Fluid Concentration Required	
°C	(°F)	For Freeze Protection Volume %	For Burst Protection Volume %
-7	(20)	16.8	11.5
-12	(10)	26.2	17.8
-18	(0)	34.6	23.1
-23	(-10)	40.9	27.3
-29	(-20)	46.1	31.4
-34	(-30)	50.3	31.4
-40	(-40)	54.5	31.4
-46	(-50)	58.7	31.4
-51	(-60)	62.9	31.4

Note: These figures are examples only and may not be appropriate to your situation. Generally, for an extended margin of protection, you should select a temperature in this table that is at least 3°C (5°F) lower than the expected lowest ambient temperature. Inhibitor levels should be adjusted for solutions of less than 30% glycol. Contact Dow for information on specific cases or further assistance.

Attention: These are typical numbers only and are not to be regarded as specifications. As use conditions are not within its control, Dow does not guarantee results from use of the information or products herein; and gives no warranty, express or implied.

Typical Freezing and Boiling Points of DOWTHERM SR-1 Fluid†

Wt. % Ethylene Glycol	Vol. % Ethylene Glycol	Wt. % DOWTHERM SR-1	Vol. % DOWTHERM SR-1	Freezing Point		Boiling Point °C @ 101 kPa (°F @ 760 mmHG)		Degree Brix††	Refractive Index 22°C (72°F)
				°C	(°F)	°C	(°F)		
0.0	0.0	0.0	0.0	0	(32.0)	100.0	(212)	0.0	1.3328
5.0	4.4	5.2	4.6	-1.4	(29.4)	100.6	(213)	3.8	1.3378
10.0	8.9	10.5	9.3	-3.2	(26.2)	101.1	(214)	6.8	1.3428
15.0	13.6	15.7	14.2	-5.4	(22.2)	101.7	(215)	9.9	1.3478
20.0	18.1	20.9	19.0	-7.8	(17.9)	102.2	(216)	13.0	1.3530
25.0	22.9	26.2	24.0	-10.7	(12.7)	103.3	(218)	16.1	1.3582
30.0	27.7	31.4	29.0	-14.1	(6.7)	104.4	(220)	19.2	1.3635
35.0	32.6	36.6	34.1	-17.9	(-0.2)	105.0	(221)	22.3	1.3688
40.0	37.5	41.9	39.3	-22.3	(-8.1)	105.6	(222)	25.3	1.3741
45.0	42.5	47.1	44.5	-27.5	(-17.5)	106.7	(224)	28.3	1.3796
50.0	47.6	52.4	49.8	-33.8	(-28.9)	107.2	(225)	31.2	1.3849
55.0	52.7	57.6	55.2	-41.1	(-42.0)	108.3	(227)	33.9	1.3900
60.0	57.8	62.8	60.5	-48.3	(-54.9)	110.0	(230)	36.6	1.3952
65.0	62.8	68.0	65.8	a	a	112.8	(235)	39.1	1.4003
70.0	68.3	73.3	71.5	a	a	116.7	(242)	41.7	1.4055
75.0	73.6	78.5	77.1	a	a	120.0	(248)	44.2	1.4107
80.0	78.9	83.8	82.6	-46.8	(-52.2)	123.9	(255)	46.6	1.4159
85.0	84.3	89.0	88.3	-36.9	(-34.5)	133.9	(273)	49.0	1.4208
90.0	89.7	94.2	93.9	-29.8	(-21.6)	140.6	(285)	51.2	1.4255
95.0	95.0	99.5	99.5	-19.4	(-3.0)	158.3	(317)	53.2	1.4300

†Typical properties, not to be construed as specifications.

††Degree Brix is a measure of the sugar concentration in a fluid and is important in fermentation and syrups applications. Although there is no sugar present in DOWTHERM heat transfer fluids, the glycol affects the refractive index of the fluid in a similar fashion.

‡Freezing points are below -50°C (-60°F).

NOTE: Generally for an extended margin of protection, you should select a temperature in this table that is at least 3°C (5°F) lower than the expected lowest ambient temperature. Inhibitor levels should be adjusted for solutions of less than 30% glycol. Contact Dow for information on specific cases or further assistance.

Saturation Properties of DOWTHERM SR-1 Fluid at 30% Ethylene Glycol Concentration by Volume

Temperature °C	(°F)	Specific Heat		Density kg/m ³ (lb./ft. ³)	Therm. Cond. W/mK [Btu/hr. ft. ² (°F/ft.)]		Viscosity mPa·s (cps)		
		kJ/(kg)(K)	(Btu/lb. °F)		(0.851)	(0.865)	(0.2400)	(0.2554)	(6.18)
-10	(14)	3.562	(0.851)	1055.47	(65.89)	0.4154	(0.2400)	6.1788	(6.18)
10	(50)	3.619	(0.865)	1049.91	(65.54)	0.4420	(0.2554)	2.9482	(2.95)
40	(104)	3.704	(0.885)	1037.92	(64.80)	0.4731	(0.2733)	1.3398	(1.34)
65	(149)	3.775	(0.902)	1024.59	(63.96)	0.4909	(0.2836)	0.8246	(0.82)
90	(194)	3.846	(0.919)	1008.20	(62.94)	0.5015	(0.2897)	0.5599	(0.56)
120	(248)	3.931	(0.939)	984.53	(61.46)	0.5044	(0.2915)	0.5044	(0.38)

Saturation Properties of DOWTHERM SR-1 Fluid at 40% Ethylene Glycol Concentration by Volume

Temperature °C	(°F)	Specific Heat		Density kg/m ³ (lb./ft. ³)	Therm. Cond. W/mK [Btu/hr. ft. ² (°F/ft.)]		Viscosity mPa·s (cps)		
		kJ/(kg)(K)	(Btu/lb. °F)		(0.797)	(0.821)	(0.2142)	(0.2342)	(15.753)
-20	(-4)	3.336	(0.797)	1073.23	(67.00)	0.3707	(0.2142)	15.7533	(15.75)
10	(50)	3.436	(0.821)	1064.73	(66.47)	0.4053	(0.2342)	4.0451	(4.05)
40	(104)	3.537	(0.845)	1051.85	(65.66)	0.4312	(0.2491)	1.7731	(1.77)
65	(149)	3.621	(0.865)	1037.76	(64.79)	0.4462	(0.2578)	1.0646	(1.06)
90	(194)	3.705	(0.885)	1020.63	(63.72)	0.4552	(0.2630)	0.7013	(0.70)
120	(248)	3.805	(0.909)	996.06	(62.18)	0.4582	(0.2647)	0.4614	(0.46)

Saturation Properties of DOWTHERM SR-1 Fluid at 50% Ethylene Glycol Concentration by Volume

Temperature		Specific Heat		Density		Therm. Cond.		Viscosity	
°C	(°F)	kJ/(kg)(K)		kg/m ³		W/mK		mPa·s	
		(Btu/lb. °F)		(lb./ft. ³)		[Btu/hr. ft. ² (°F/ft.)]		(cps)	
-30	(-22)	3.090	(0.739)	1090.31	(68.07)	0.3333	(0.1926)	43.9970	(44.0)
-20	(-4)	3.129	(0.748)	1088.15	(67.93)	0.3442	(0.1989)	22.0816	(22.08)
10	(50)	3.245	(0.776)	1078.72	(67.34)	0.3724	(0.2152)	5.5071	(5.51)
40	(104)	3.361	(0.803)	1064.91	(66.48)	0.3937	(0.2275)	2.2567	(2.26)
65	(149)	3.457	(0.826)	1050.05	(65.55)	0.4062	(0.2347)	1.2936	(1.29)
90	(194)	3.554	(0.849)	1032.15	(64.44)	0.4139	(0.2391)	0.8227	(0.82)
120	(248)	3.670	(0.877)	1006.66	(62.84)	0.4168	(0.2408)	0.5252	(0.53)

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Contact information:

For more information about this product please call The Dow Chemical Company.

North America: 1-800-447-4369
 Latin America: (+55) 11-5184-8722
 Europe: (+31) 11-567-2626
 Asia/Pacific: (+60) 3-7965-5392
<http://www.dowtherm.com>

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