

THERMODYNAMIC PROPERTIES

Thermodynamic properties of FREEZIUM™ are measured in research laboratories..

Freezing point:

Concentration	w-%	19	24	29	34	37	40	43	45	47	50
Freezing point	°C	-10	-15	-20	-25	-30	-35	-40	-45	-50	-60

Density:

Concentration	Freezing point	Temperature / Density kg/dm ³									
w-%	°C	-40	-35	-30	-25	-20	-15	-10	0	20	40
19	-10							1.121	1.117	1.109	1.101
24	-15						1.155	1.153	1.149	1.141	1.133
29	-20					1.191	1.189	1.187	1.183	1.175	1.167
34	-25				1.229	1.227	1.225	1.223	1.219	1.211	1.203
37	-30			1.254	1.252	1.250	1.248	1.246	1.242	1.234	1.226
40	-35		1.279	1.277	1.275	1.273	1.271	1.269	1.265	1.257	1.249
43	-40	1.305	1.303	1.301	1.299	1.297	1.295	1.293	1.289	1.281	1.273
45	-45	1.321	1.319	1.317	1.315	1.313	1.311	1.309	1.305	1.297	1.289
47	-50	1.338	1.336	1.334	1.332	1.330	1.328	1.326	1.322	1.314	1.306
50	-60	1.364	1.362	1.360	1.358	1.356	1.354	1.352	1.348	1.340	1.332

Viscosity:

Concentration	Freezing point	Temperature / Kinematic viscosity cSt = mm ² /s									
w-%	°C	-40	-35	-30	-25	-20	-15	-10	0	20	40
19	-10							2.56	1.86	1.13	0.77
24	-15						3.16	2.64	1.92	1.17	0.80
29	-20					4.09	3.35	2.79	2.03	1.24	0.84
34	-25				5.54	4.45	3.65	3.04	2.21	1.35	0.92
37	-30			7.50	5.90	4.74	3.88	3.24	2.35	1.44	0.98
40	-35		10.5	8.06	6.34	5.10	4.17	3.48	2.53	1.54	1.05
43	-40	15.1	11.4	8.74	6.88	5.53	4.53	3.77	2.75	1.68	1.14
45	-45	16.0	12.0	9.28	7.30	5.87	4.80	4.00	2.91	1.78	1.21
47	-50	17.1	12.8	9.89	7.78	6.25	5.12	4.27	3.11	1.90	1.29
50	-60	18.9	14.2	11.0	8.63	6.93	5.68	4.73	3.44	2.10	1.43

Specific heat capacity:

Concentration Freezing point Temperature / Specific heat capacity kJ/kg°C

w-%	°C	-40	-35	-30	-25	-20	-15	-10	0	20	40
19	-10							3.49	3.50	3.52	3.55
24	-15						3.32	3.33	3.34	3.37	3.40
29	-20					3.16	3.17	3.18	3.20	3.23	3.27
34	-25				3.00	3.01	3.02	3.03	3.06	3.10	3.14
37	-30			2.90	2.92	2.93	2.94	2.95	2.97	3.02	3.07
40	-35		2.81	2.82	2.83	2.84	2.86	2.87	2.90	2.95	3.00
43	-40	2.71	2.72	2.74	2.75	2.76	2.78	2.79	2.82	2.87	2.93
45	-45	2.65	2.67	2.68	2.70	2.71	2.73	2.74	2.77	2.82	2.88
47	-50	2.60	2.61	2.63	2.64	2.66	2.67	2.69	2.72	2.78	2.84
50	-60	2.52	2.54	2.55	2.57	2.58	2.60	2.61	2.65	2.71	2.77

Thermal conductivity:

Concentration Freezing point Temperature / Thermal conductivity W/m°C

w-%	°C	-40	-35	-30	-25	-20	-15	-10	0	20	40
19	-10							0.51	0.52	0.55	0.58
24	-15						0.49	0.50	0.51	0.54	0.57
29	-20					0.48	0.49	0.49	0.51	0.53	0.56
34	-25				0.47	0.47	0.48	0.49	0.50	0.52	0.55
37	-30			0.46	0.46	0.47	0.48	0.48	0.49	0.52	0.54
40	-35		0.45	0.46	0.46	0.47	0.47	0.48	0.49	0.51	0.54
43	-40	0.44	0.45	0.45	0.46	0.46	0.47	0.47	0.49	0.51	0.53
45	-45	0.44	0.44	0.45	0.46	0.46	0.47	0.47	0.48	0.50	0.53
47	-50	0.44	0.44	0.45	0.45	0.46	0.46	0.47	0.48	0.50	0.52
50	-60	0.44	0.44	0.45	0.45	0.46	0.46	0.47	0.48	0.50	0.52