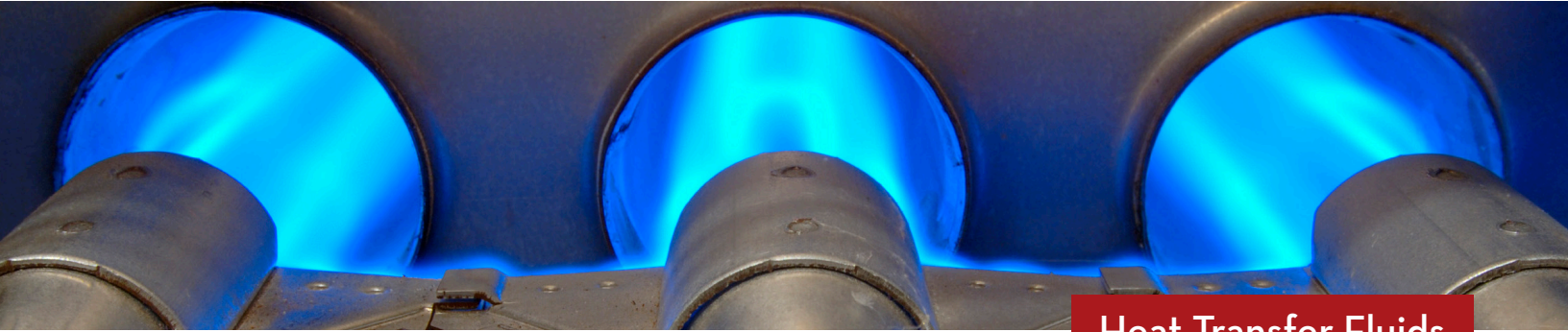


Caldera 11

Multi-Temperature Heat Transfer Fluid



CALDERA®
HEAT TRANSFER FLUIDS



Heat Transfer Fluids

Caldera 11 is an advanced heat transfer fluid designed specifically for systems requiring both heating and cooling cycles. This creates a heat transfer fluid that provides efficiency and longevity throughout a wide variety of temperature ranges. Caldera 11 is rated for applications operating between -32°C (-26°F) to 316°C (601°F).

Applications

- Systems requiring heating and low-temperature cooling
- Systems with a temperature range of -32°C (-26°F) to 316°C (601°F)

Performance Advantages

- Ideal for systems requiring both heating and cooling
- Fluidity at low temperatures
- Easy disposal
Can be disposed using standard oil recycling services

Temperature Range



Typical Properties

Caldera 11

Minimum Temperature, °C (°F)	-32 (-26)
Maximum Film Temperature, °C (°F)	332 (630)
Maximum Bulk Temperature, °C (°F)	316 (601)
Pour Point, °C (°F)	-58 (-72)
Flash Point, °C (°F)	165 (329)
Fire Point, °C (°F)	188 (370)
Autoignition Point, °C (°F)	357 (675)
Thermal Expansion Coefficient, %/°C	0.1016
Thermal Conductivity @ -40°C, W/m-K	0.151
Thermal Conductivity @ 38°C, W/m-K	0.145
Heat Capacity @ -40°C, kJ/kg-K	1.898
Heat Capacity @ 38°C, kJ/kg-K	2.166
Distillation Range (ASTM D2887), 10% °C	324
Distillation Range (ASTM D2887), 90% °C	339
Average Molecular Weight	395

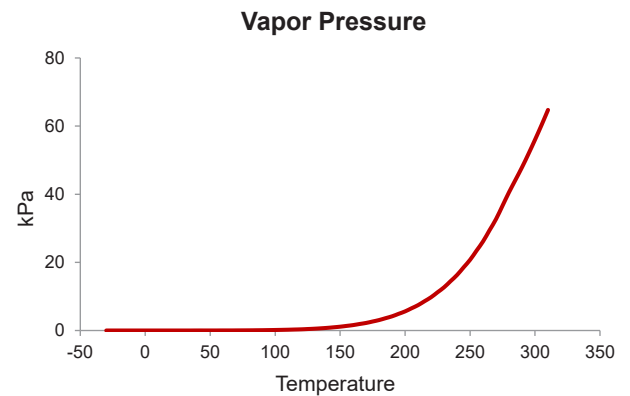
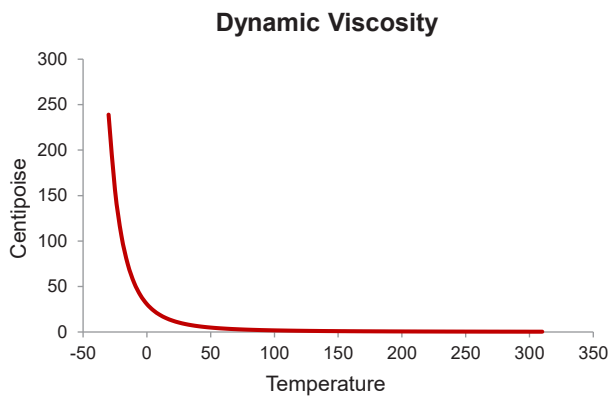
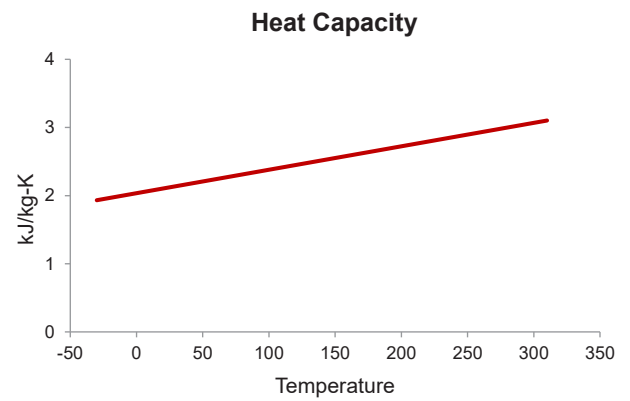
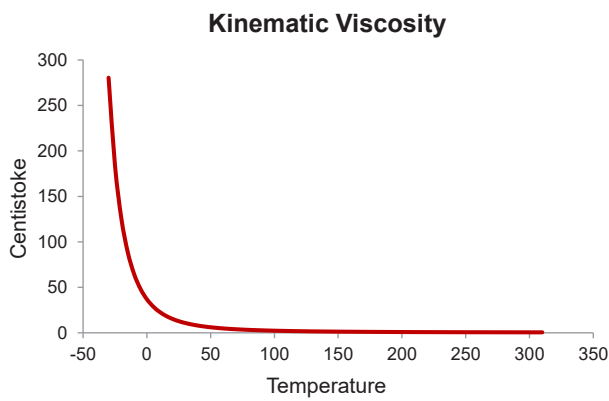
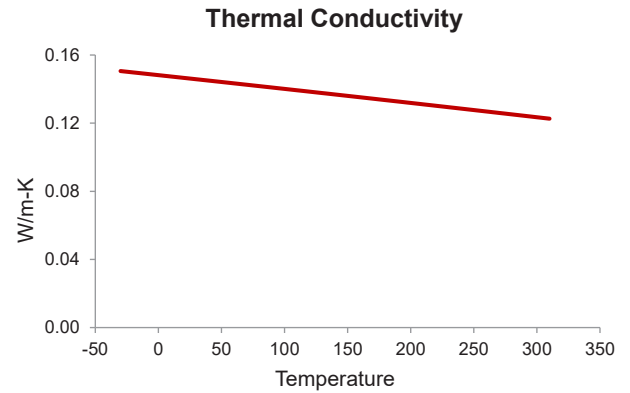
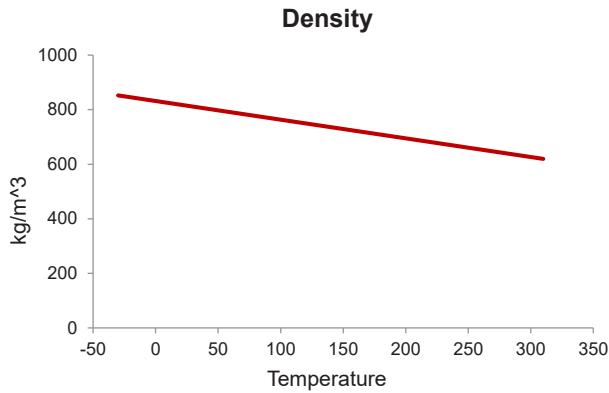
Fluid properties are typical results and should not serve as a sole resource for determining the correct fluid for a particular application. Please consult an Isel representative to ensure that the product is the correct choice for the application. Revised 9/2018 - M

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Caldera 11



Multi-Temperature Heat Transfer Fluid

Temperature (°C)	Density (kg/m ³)	Kinematic Viscosity (Centistoke)	Dynamic Viscosity (Centipoise)	Thermal Conductivity (W/m-K)	Heat Capacity (kJ/kg-K)	Vapor Pressure (kPa)
-50	865.93	2458.64	2129.01	0.152	1.864	0.00
-45	862.51	1310.33	1130.17	0.152	1.881	0.00
-40	859.08	743.42	638.66	0.151	1.898	0.00
-35	855.66	445.67	381.34	0.151	1.915	0.00
-30	852.24	280.49	239.04	0.151	1.932	0.00
-25	848.82	184.28	156.42	0.150	1.950	0.00
-20	845.40	125.77	106.33	0.150	1.967	0.00
-15	841.98	88.79	74.76	0.149	1.984	0.00
-10	838.55	64.59	54.17	0.149	2.001	0.00
-5	835.13	48.27	40.31	0.149	2.018	0.00
0	831.71	36.93	30.72	0.148	2.036	0.00
5	828.29	28.87	23.91	0.148	2.053	0.00
10	824.87	23.00	18.97	0.147	2.070	0.00
15	821.45	18.64	15.32	0.147	2.087	0.00
20	818.02	15.34	12.55	0.147	2.104	0.00
25	814.60	12.80	10.43	0.146	2.122	0.00
30	811.18	10.82	8.78	0.146	2.139	0.00
35	807.76	9.24	7.47	0.145	2.156	0.00
40	804.34	7.98	6.42	0.145	2.173	0.01
45	800.92	6.95	5.57	0.145	2.190	0.01
50	797.49	6.11	4.87	0.144	2.208	0.01
55	794.07	5.41	4.30	0.144	2.225	0.01
60	790.65	4.82	3.81	0.143	2.242	0.02
65	787.23	4.33	3.41	0.143	2.259	0.02
70	783.81	3.91	3.06	0.143	2.276	0.03
75	780.39	3.55	2.77	0.142	2.294	0.04
80	776.96	3.24	2.51	0.142	2.311	0.05
85	773.54	2.97	2.29	0.141	2.328	0.07
90	770.12	2.73	2.10	0.141	2.345	0.09
95	766.70	2.52	1.93	0.141	2.362	0.12
100	763.28	2.34	1.79	0.140	2.380	0.15
105	759.86	2.18	1.66	0.140	2.397	0.19
110	756.43	2.03	1.54	0.139	2.414	0.23
115	753.01	1.91	1.43	0.139	2.431	0.29
120	749.59	1.79	1.34	0.138	2.448	0.34
125	746.17	1.69	1.26	0.138	2.466	0.43
130	742.75	1.59	1.18	0.138	2.483	0.52
135	739.33	1.51	1.11	0.137	2.500	0.64

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Temperature (°C)	Density (kg/m ³)	Kinematic Viscosity (Centistoke)	Dynamic Viscosity (Centipoise)	Thermal Conductivity (W/m-K)	Heat Capacity (kJ/kg-K)	Vapor Pressure (kPa)
140	735.90	1.43	1.05	0.137	2.517	0.77
145	732.48	1.36	1.00	0.136	2.534	0.94
150	729.06	1.29	0.94	0.136	2.552	1.12
155	725.64	1.24	0.90	0.136	2.569	1.35
160	722.22	1.18	0.85	0.135	2.586	1.59
165	718.80	1.13	0.81	0.135	2.603	1.91
170	715.37	1.08	0.78	0.134	2.620	2.22
175	711.95	1.04	0.74	0.134	2.638	2.64
180	708.53	1.00	0.71	0.134	2.655	3.07
185	705.11	0.97	0.68	0.133	2.672	3.62
190	701.69	0.93	0.65	0.133	2.689	4.17
195	698.27	0.90	0.63	0.132	2.706	4.89
200	694.84	0.87	0.61	0.132	2.724	5.61
205	691.42	0.84	0.58	0.131	2.741	6.53
210	688.00	0.82	0.56	0.131	2.758	7.45
215	684.58	0.79	0.54	0.131	2.775	8.61
220	681.16	0.77	0.53	0.130	2.792	9.77
225	677.73	0.75	0.51	0.130	2.810	11.23
230	674.31	0.73	0.49	0.129	2.827	12.68
235	670.89	0.71	0.48	0.129	2.844	14.49
240	667.47	0.69	0.46	0.129	2.861	16.30
245	664.05	0.68	0.45	0.128	2.878	18.52
250	660.63	0.66	0.44	0.128	2.896	20.74
255	657.20	0.65	0.43	0.127	2.913	23.45
260	653.78	0.63	0.41	0.127	2.930	26.16
265	650.36	0.62	0.40	0.126	2.947	29.44
270	646.94	0.61	0.39	0.126	2.964	32.71
275	643.52	0.60	0.38	0.126	2.982	36.65
280	640.10	0.58	0.37	0.125	2.999	40.59
285	636.67	0.57	0.37	0.125	3.016	44.25
290	633.25	0.56	0.36	0.124	3.033	47.92
295	629.83	0.55	0.35	0.124	3.050	51.88
300	626.41	0.54	0.34	0.123	3.068	56.01
305	622.99	0.54	0.33	0.123	3.085	60.30
310	619.57	0.53	0.33	0.123	3.102	64.75



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All products manufactured in the USA