Overview and applications

Application

StaticTherm XLT-2 is a liquid phase heat transfer fluid with outstanding heating and cooling capabilities throughout a wide temperature range. This fluid is ideal for heating and cooling applications with working range as low as -84C with most efficient heat transfer between -60C and 177C. It can also be used as a secondary coolant in refrigeration loops where a wide ranging fluid is required.

TROUBLE-FREE OPERATION

StaticTherm XLT-2 heat transfer fluid does not require monitoring of concentration or additive levels.

ENVIRONMENTAL

StaticTherm XLT-2 is plant and user friendly. Low odors, high flash point and no SARA reportable substances makes StaticTherm XLT-2 the wise choice for worker health and safety.

DISPOSAL

After its extensive service life, StaticTherm XLT-2 can typically be disposed of through local waste oil recycling programs. Check your local regulations. Engineered for long-term operation in heat transfer applications requiring precise temperature control ranging from -84°C (-120°F) up to 177°C (350°F). Ideal for near-cryogenic applications StaticTherm XLT-2’s economical cost and wide operating temperature also makes it well-suited for heating and cooling applications found in the food processing, pharmaceutical, chemical and botanical extraction industries.

Ratings and physical properties

TEMPERATURE RATINGS

Maximum Bulk/Use Temp.	177°C	350°F
Minimum Bulk/Use Temp.	-84°C	-120°F
Maximum Film Temp.	204°C	400°F
Pour Point ASTM D97	-90°C	-130°F

SAFETY DATA

Flash Point ASTM D93	63°C	145°F
Fire Point ASTM D92	70°C	158°F
Autoignition ASTM E-659-78	275°C	527°F

- Maximum temperature: 177°C/350°F
- Minimum temperature: -84°C/-120°F
- Flash point 63°C/145°F
- Extreme low-temperature capabilities
- Stable and non-corrosive
- Properties remain consistent over temperature range
- Includes free fluid analysis and tech support

THERMAL PROPERTIES

Thermal Expansion Coefficient	0.105 %°C	0.0583 %/°F
Thermal Conductivity	W/m K	BTU/hr F ft
-84°C / -120°F	0.124	0.072
-40°C / -40°F	0.119	0.069
0°C / 32°F	0.116	0.067
65°C / 150°F	0.102	0.059
Heat Capacity	kJ/kg K	BTU/lb F
-84°C / -120°F	1.695	0.405
-40°C / -40°F	1.863	0.445
0°C / 32°F	1.946	0.465
65°C / 150°F	2.277	0.544

PHYSICAL PROPERTIES

Appearance: clear liquid, slight yellow tint		
Viscosity ASTM D445		
cSt at -84°C / -120°F	392	
cSt at -40°C / -40°F	8.68	
cSt at -18°C / 0°F	3.78	
cSt at 0°C / 32°F	2.41	
cSt at 65°C / 150°F	0.90	
Density ASTM D1298	kg/m3	lb/ft3
-84°C / -120°F	842.09	52.57
-40°C / -40°F	811.01	50.63
0°C / 32°F	796.75	49.74
65°C / 150°F	744.21	46.46
Vapor Pressure ASTM D2879	kPa	psi
-120°F / -84°C	0.00	0.00
15°C / 60°F	0.00	0.00
38°C / 100°F	0.22	0.032
65°C / 150°F	1.19	0.173
176°C / 350°F	69.22	10.04
Normal Boiling Point	195°C	383°F

Temperature-dependent properties - metric

Temperature (Celsius)	Density (kg/m3)	Viscosity (cSt)	Thermal conductivity (W/m-K)	Heat Capacity (kJ/kg-K)	Vapor pressure (kPa)
-94	848.57	2059.20	0.126	1.662	
-90	846.55	967.23	0.125	1.682	
-80	839.49	210.87	0.124	1.712	
-70	832.43	67.62	0.123	1.752	
-60	825.36	28.61	0.121	1.792	
-50	818.30	14.65	0.120	1.822	
-40	812.25	8.68	0.119	1.862	
-30	805.18	5.70	0.117	1.902	
-20	798.12	4.05	0.116	1.942	0.001
-10	791.06	3.05	0.115	1.982	0.004
0	783.99	2.41	0.113	2.022	0.011
10	776.93	1.96	0.112	2.052	0.027
20	768.86	1.63	0.110	2.092	0.061
30	761.80	1.40	0.109	2.132	0.130
40	754.73	1.22	0.107	2.172	0.256
50	747.67	1.07	0.105	2.212	0.479
60	739.60	0.95	0.104	2.252	0.850
70	732.53	0.85	0.102	2.292	1.445
80	724.46	0.77	0.100	2.332	2.366
90	716.39	0.70	0.098	2.372	3.732
100	709.33	0.64	0.097	2.412	5.702
110	701.25	0.59	0.095	2.452	8.484
120	693.18	0.54	0.093	2.503	12.276
130	684.10	0.50	0.091	2.543	17.424
140	676.03	0.47	0.089	2.583	24.156
150	666.95	0.43	0.087	2.623	32.868
160	658.88	0.40	0.085	2.673	43.857
170	649.80	0.38	0.083	2.713	57.717
180	640.72	0.35	0.081	2.753	74.745

The values quoted are typical of normal production. They do not constitute a specification.

Temperature-dependent properties - imperial

Temperature (Fahrenheit)	Density (lb/ft3)	Viscosity (cSt)	Thermal conductivity (Btu/(ft·h·°F))	Heat capacity (Btu/(lb·°F))	Vapor Pressure (psia)
-137	52.97	2059.20	0.073	0.397	
-120	52.57	392.04	0.072	0.405	
-100	52.06	95.34	0.071	0.415	
-80	51.66	33.96	0.070	0.425	
-60	51.16	15.64	0.070	0.435	
-40	50.65	8.68	0.069	0.445	
-20	50.15	5.47	0.068	0.455	
0	49.74	3.78	0.067	0.465	0.000
20	49.24	2.80	0.066	0.475	0.001
40	48.73	2.19	0.065	0.486	0.002
60	48.23	1.76	0.064	0.496	0.006
80	47.73	1.48	0.063	0.507	0.015
100	47.22	1.25	0.062	0.518	0.032
120	46.72	1.09	0.061	0.528	0.065
140	46.21	0.95	0.060	0.539	0.124
160	45.71	0.84	0.059	0.550	0.222
180	45.10	0.76	0.058	0.560	0.380
200	44.60	0.68	0.057	0.571	0.626
220	43.99	0.62	0.055	0.582	0.990
240	43.49	0.56	0.054	0.593	1.515
260	42.88	0.52	0.053	0.604	2.257
280	42.28	0.48	0.052	0.615	3.257
300	41.77	0.44	0.051	0.627	4.604
320	41.07	0.40	0.049	0.638	6.366
340	40.46	0.38	0.048	0.650	8.613
360	39.86	0.35	0.047	0.661	11.484

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