Overview and applications

APPLICATION

StaticTherm 450 is specifically engineered for applications requiring process heating and cooling efficiently between -25°C and 232°C (-12°F and 450°F).

Economical and thermally stable, StaticTherm 450 offers an excellent alternative to costly synthetics and aromatic fluids while delivering precise and efficient cooling down to -25°C (-12°F). StaticTherm 450 is an oxidative and thermally stable, high performance, long lasting, environmentally friendly heat transfer fluid. Offering precise temperature control and long life at an economical cost.

THE DIFFERENCE

StaticTherm 450 contains the industry's most effective and resilient blend of additives to ensure long-lasting, trouble-free service.

Our exclusive system includes a proprietary, dual stage anti-oxidant and a special blend of metal deactivators, extenders, and other agents that prolong fluid life and help keep systems clean. That also means longer life for parts like pumps and rotary seals.

LASTS LONGER

Oxidation can cripple your system. Left unchecked, it will ultimately cause catastrophic failure and costly downtime. That's why StaticTherm 450 offers

unsurpassed levels of protection against oxidation, and a service life that other fluids simply can't match.

RUNS CLEANER

StaticTherm 450 delivers superior resistance to sludging, a problem plaguing most other fluids. That makes it the best defense against extreme oxidation found in many of today's demanding manufacturing environments, including plastics processing, molding, casting, asphalt, paint, chemical and a wide variety of other applications.

In fact, our exclusive additive technology makes StaticTherm 450 the perfect solution for all applications, large or small requiring precise temperature control up to 232°C (450°F).

ENVIRONMENTAL

StaticTherm 450 is environmentally friendly, non-toxic, non-hazardous and non-reportable. It poses no ill effect to worker safety and does not require special handling. After its long service life, StaticTherm 450 can easily be disposed of with other waste oils.

Specifically engineered for applications requiring process heating and cooling efficiently between -25°C and 232°C (-12°F and 450°F). Economical and thermally stable, StaticTherm 450 heat transfer fluid offers an excellent alternative to costly synthetics and aromatic fluids while delivering precise and efficient cooling down to -25°C (-12°F).

Ratings and physical properties

TEMPERATURE RATINGS

Maximum Bulk/Use Temp.	232°C	450°F
Maximum Film Temp.	254°C	490°F
Pour Point ASTM D97	-45°C	-49°F

SAFETY DATA

Flash Point ASTM D92	150°C	302°F
Fire Point ASTM D92	163°C	327°F
Autoignition ASTM E-659-78	329°C	625°F

- Maximum temperature: 232°C / 450°F
- Flash point 150°C / 302°F
- Non-toxic/non-hazardous
- Runs longer, keeps systems cleaner
- Great oxidation resistance
- Efficient for lower-temperature applications
- Includes free fluid analysis and tech support

THERMAL PROPERTIES

Thermal Expansion Coefficient	0.1016 %/°C	0.0564 %/°F
Thermal Conductivity	W/m K	BTU/hr F ft
-18°C / 0°F	0.135	0.078
38°C / 100°F	0.131	0.076
121°C / 250°F	0.124	0.071
232°C / 450°F	0.114	0.066
Heat Capacity	kJ/kg K	BTU/lb F
-18°C / 0°F	2.110	0.504
38°C / 100°F	2.299	0.549
121°C / 250°F	2.583	0.617
232°C / 450°F	2.959	0.707

PHYSICAL PROPERTIES

Appearance: colorless, clear and bright liquid		
Viscosity ASTM D445		
cSt at -18°C / 0°F	129	
cSt at 40°C / 104°F	8.34	
cSt at 121°C / 250°F	1.69	
cSt at 232°C / 450°F	0.68	
Density ASTM D1298	kg/m3	lb/ft3
-18°C / 0°F	858.59	53.6
38°C / 100°F	823.34	51.4
121°C / 250°F	768.88	48
232°C / 450°F	695.20	43.4
Vapor Pressure ASTM D2879	kPa	psi
-18°C / 0°F	0	0
38°C / 100°F	0	0
121°C / 250°F	0.48	0.07
232°C / 450°F	15.72	2.28
Distillation Range ASTM D2887	0.1	289°C (516°F)
	0.9	411°C (772°F)
Average Molecular Weight	372	

Temperature-dependent properties - metric

TEMPERATURE (Celsius)	DENSITY (kg/m^3)	KINEMATIC VISCOSITY (Centistoke)	DYNAMIC VISCOSITY (Centipoise)	THERMAL CONDUCTIVITY (W/m K)	HEAT CAPACITY (kJ/kg K)	VAPOUR PRESSURE (kPa)
-40	873.8	1026.37	896.84	0.138	2.034	0.00
-30	867.3	360.52	312.66	0.137	2.068	0.00
-20	860.7	153.00	131.69	0.136	2.102	0.00
-10	854.2	75.30	64.32	0.135	2.136	0.00
0	847.6	41.65	35.30	0.134	2.170	0.00
10	841.1	25.27	21.26	0.133	2.204	0.00
20	834.5	16.52	13.78	0.132	2.238	0.00
30	828.0	11.45	9.48	0.132	2.272	0.00
40	821.4	8.34	6.85	0.131	2.306	0.01
50	814.9	6.26	5.10	0.130	2.340	0.02
60	808.3	4.87	3.93	0.129	2.374	0.03
70	801.8	3.89	3.12	0.128	2.408	0.05
80	795.2	3.19	2.54	0.127	2.442	0.08
90	788.7	2.67	2.10	0.126	2.476	0.13
100	782.1	2.27	1.78	0.125	2.510	0.21
110	775.6	1.96	1.52	0.124	2.544	0.32
120	769.0	1.72	1.32	0.124	2.578	0.48
130	762.5	1.52	1.16	0.123	2.612	0.71
140	755.9	1.36	1.03	0.122	2.646	1.03
150	749.4	1.23	0.92	0.121	2.680	1.47
160	742.8	1.12	0.83	0.120	2.714	2.05
170	736.3	1.03	0.76	0.119	2.748	2.83
180	729.7	0.95	0.69	0.118	2.782	3.85
190	723.2	0.88	0.64	0.117	2.816	5.17
200	716.6	0.82	0.59	0.116	2.850	6.85
210	710.1	0.77	0.55	0.116	2.884	8.97
220	703.5	0.73	0.51	0.115	2.918	11.62
230	697.0	0.69	0.48	0.114	2.952	14.90
232	695.6	0.68	0.47	0.114	2.959	15.65

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

Temperature-dependent properties - imperial

TEMPERATURE (Fahrenheit)	DENSITY (lb/ft^3)	KINEMATIC VISCOSITY (Centistoke)	DYNAMIC VISCOSITY (Centipoise)	THERMAL CONDUCTIVITY (BTU/hr-F-ft)	HEAT CAPACITY (BTU/lb-F)	VAPOUR PRESSURE (Psia)
-40	54.5	1026.37	896.84	0.080	0.486	0.00
-30	54.3	559.09	486.50	0.079	0.490	0.00
-20	54.1	325.00	281.62	0.079	0.495	0.00
-10	53.9	199.91	172.50	0.079	0.499	0.00
0	53.6	129.20	111.01	0.078	0.504	0.00
10	53.4	87.18	74.59	0.078	0.508	0.00
20	53.2	61.09	52.05	0.078	0.513	0.00
30	53.0	44.26	37.55	0.078	0.517	0.00
40	52.7	33.02	27.89	0.077	0.522	0.00
50	52.5	25.27	21.26	0.077	0.526	0.00
60	52.3	19.79	16.57	0.077	0.531	0.00
70	52.1	15.81	13.19	0.076	0.535	0.00
80	51.8	12.86	10.68	0.076	0.540	0.00
90	51.6	10.63	8.79	0.076	0.544	0.00
100	51.4	8.92	7.34	0.076	0.549	0.00
110	51.1	7.55	6.18	0.075	0.553	0.00
120	50.9	6.45	5.26	0.075	0.558	0.00
130	50.7	5.58	4.53	0.075	0.563	0.00
140	50.5	4.87	3.93	0.074	0.567	0.00
150	50.2	4.29	3.45	0.074	0.572	0.01
160	50.0	3.80	3.05	0.074	0.576	0.01
170	49.8	3.40	2.71	0.074	0.581	0.01
180	49.6	3.06	2.43	0.073	0.585	0.01
190	49.3	2.77	2.19	0.073	0.590	0.02
200	49.1	2.52	1.99	0.073	0.594	0.02
210	48.9	2.31	1.81	0.072	0.599	0.03
220	48.6	2.12	1.66	0.072	0.603	0.04
230	48.4	1.96	1.52	0.072	0.608	0.05
240	48.2	1.82	1.40	0.072	0.612	0.06
250	48.0	1.69	1.30	0.071	0.617	0.07
260	47.7	1.58	1.21	0.071	0.621	0.09
270	47.5	1.48	1.13	0.071	0.626	0.11
280	47.3	1.39	1.06	0.070	0.630	0.14
290	47.1	1.31	0.99	0.070	0.635	0.17
300	46.8	1.24	0.93	0.070	0.639	0.20
310	46.6	1.18	0.88	0.070	0.644	0.25
320	46.4	1.12	0.83	0.069	0.648	0.30
330	46.1	1.07	0.79	0.069	0.653	0.36
340	45.9	1.02	0.75	0.069	0.657	0.43
350	45.7	0.97	0.71	0.068	0.662	0.50
360	45.5	0.93	0.68	0.068	0.666	0.60
370	45.2	0.89	0.65	0.068	0.671	0.70
380	45.0	0.86	0.62	0.068	0.675	0.82
390	44.8	0.83	0.59	0.067	0.680	0.96
400	44.6	0.80	0.57	0.067	0.684	1.12
410	44.3	0.77	0.55	0.067	0.689	1.30
420	44.1	0.75	0.53	0.066	0.693	1.50
430	43.9	0.72	0.51	0.066	0.698	1.73
440	43.6	0.70	0.49	0.066	0.702	1.99
450	43.4	0.68	0.47	0.066	0.707	2.28

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