Overview and applications

APPLICATION

StaticTherm S is ideal for applications such as negative pressure mold heaters, annealing tanks, open bath forming, or any processing equipment where oxidation is prevalent and problematic. StaticTherm S resists the affects of oxidation seen with most other heat transfer fluids. High temperature stability is maintained to 315°C (600°F), this combined with a low end working temperature of -51°C (-60°F) also makes StaticTherm S ideally suited for low temperature applications, batch processing application requiring a single fluid for both heating and cooling.

THE DIFFERENCE

• Superior oxidation resistance (virtually unaffected) • Non-fouling - extremely long life • Low odor • Non corrosive • Non hazardous

• Non Toxic

• Extremely high working temperature 315°C (600°F) • Extremely low working temperature -51°C (-60°F)

LASTS LONGER

StaticTherm S is a high performance, extremely stable, long lasting silicone based heat transfer fluid. Virtually unaffected by oxidation under 204°C (400°F), StaticTherm S is perfect for use in a variety of applications requiring a safe, non-reportable, non-toxic and non-corrosive heat transfer fluid. An extremely oxidative and thermally stable heat transfer fluid offering precise temperature control in applications requiring the highest level of oxidative resistance across a wide temperature range.

Ratings and physical properties

TEMPERATURE RATINGS

Maximum Bulk Temp. (Closed System)	315°C	600°F
Maximum Bulk Temp. (Open System)	204°C	400°F
Maximum Film Temp.	365°C	690°F
Pour Point ASTM D97	-66°C	-87°F

SAFETY DATA

Flash Point ASTM D92	323°C	615°F
Fire Point ASTM D92	335°C	636°F
Autoignition ASTM E-659-78	436°C	818°F

- Maximum temperature: 315°C / 600°F
- Flash point 323°C / 615°F
- Highest StaticTherm flash point
- Silicone-based fluid
- Great oxidation stability for open baths
- Non-toxic/non-hazardous
- Includes free fluid analysis and tech support

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

THERMAL PROPERTIES

Thermal Expansion Coefficient	0.105 %/°C	0.0584 %/°F
Thermal Conductivity	W/m K	BTU/hr F ft
-17°C / 0°F	0.142	0.082
38°C / 100°F	0.134	0.077
148°C / 300°F	0.118	0.068
260°C / 500°F	0.101	0.058
316°C / 600°F	0.093	0.054
Heat Capacity	kJ/kg K	BTU/lb F
-17°C / 0°F	1.611	0.385
38°C / 100°F	1.714	0.410
148°C / 300°F	1.921	0.461
260°C / 500°F	2.137	0.512
316°C / 600°F	2.246	0.537

PHYSICAL PROPERTIES

Appearance: clear liquid, slight yellow tint		
Viscosity ASTM D445		
cSt at -51°C / -60°F	299.88	
cSt at -18°C / 0°F	113.08	
cSt at 40°C / 104°F	36.13	
cSt at 149°C / 300°F	10.57	
cSt at 260°C / 500°F	5.19	
cSt at 316°C / 600°F	4.03	
Density ASTM D1298	kg/m3	lb/ft3
38°C / 100°F	0.9486	59.23
260°C / 500°F	0.7668	47.88
316°C / 600°F	0.7209	45.01
Vapor Pressure ASTM D2879	kPa	psi
38°C / 100°F	0.00	0.00
260°C / 500°F	1.83	0.26
316°C / 600°F	7.21	0.99
Distillation Range ASTM D2887	10%	494°C (922°F)
	90%	679°C (1255°F)

Temperature-dependent properties - metric

TEMPERATURE (Celsius)	DENSITY (kg/l)	KINEMATIC VISCOSITY (Centistoke)	DYNAMIC VISCOSITY (Centipoise)	THERMAL CONDUCTIVITY (W/m-K)	HEAT CAPACITY (kJ/kg-K)	VAPOR PRESSURE (kPa)
-50	1.0290	288.71	283.33	0.147	1.551	0.00
-40	1.0200	209.03	204.58	0.145	1.569	0.00
-30	1.0110	156.02	152.30	0.144	1.587	0.00
-20	1.0020	119.58	116.41	0.142	1.606	0.00
-10	0.9920	93.79	91.06	0.141	1.624	0.00
0	0.9820	75.07	72.68	0.139	1.643	0.00
10	0.9730	61.17	59.06	0.138	1.662	0.00
20	0.9640	50.63	48.75	0.136	1.680	0.00
30	0.9556	42.50	40.81	0.135	1.699	0.00
40	0.9468	36.13	34.60	0.133	1.718	0.00
50	0.9380	31.06	29.66	0.132	1.736	0.00
60	0.9298	26.97	25.68	0.130	1.755	0.00
70	0.9216	23.63	22.45	0.129	1.774	0.00
80	0.9134	20.88	19.78	0.127	1.793	0.00
90	0.9052	18.59	17.55	0.126	1.811	0.00
100	0.8970	16.66	15.69	0.124	1.830	0.00
110	0.8890	15.02	14.11	0.123	1.849	0.00
120	0.8810	13.63	12.76	0.121	1.868	0.00
130	0.8730	12.42	11.60	0.120	1.887	0.01
140	0.8650	11.38	10.60	0.119	1.906	0.01
150	0.8570	10.47	9.72	0.117	1.925	0.01
160	0.8488	9.67	8.96	0.116	1.944	0.02
170	0.8406	8.97	8.28	0.114	1.963	0.03
180	0.8324	8.35	7.68	0.113	1.982	0.05
190	0.8242	7.79	7.15	0.111	2.002	0.07
200	0.8160	7.30	6.68	0.110	2.021	0.12
210	0.8078	6.85	6.25	0.108	2.040	0.19
220	0.7996	6.45	5.87	0.107	2.059	0.30
230	0.7914	6.09	5.53	0.105	2.079	0.48
240	0.7832	5.76	5.21	0.104	2.098	0.77
250	0.7750	5.46	4.93	0.102	2.117	1.22
260	0.7668	5.19	4.67	0.101	2.137	1.82
270	0.7586	4.94	4.43	0.099	2.156	2.40
280	0.7504	4.71	4.21	0.098	2.175	2.98
290	0.7422	4.50	4.01	0.097	2.195	3.72
300	0.7340	4.30	3.82	0.095	2.214	4.62
310	0.7258	4.12	3.65	0.094	2.234	5.94
315	0.7217	4.04	3.57	0.093	2.244	6.85

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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)	VAPOR PRESSURE (Psia)
-60	64.34	299.88	294.57	0.085	0.370	0.00
-40	63.69	209.03	204.71	0.084	0.375	0.00
-20	63.04	151.29	147.72	0.083	0.380	0.00
0	62.38	113.08	110.08	0.082	0.385	0.00
20	61.73	86.90	84.34	0.081	0.390	0.00
40	61.08	68.40	66.18	0.080	0.395	0.00
60	60.45	54.97	53.02	0.079	0.400	0.00
80	59.84	44.99	43.27	0.078	0.405	0.00
100	59.23	37.42	35.88	0.077	0.410	0.00
120	58.65	31.57	30.17	0.076	0.415	0.00
140	58.06	26.97	25.70	0.075	0.421	0.00
160	57.49	23.30	22.14	0.074	0.426	0.00
180	56.93	20.34	19.26	0.073	0.431	0.00
200	56.36	17.91	16.91	0.072	0.436	0.00
220	55.79	15.90	14.96	0.072	0.441	0.00
240	55.23	14.22	13.34	0.071	0.446	0.00
260	54.67	12.80	11.98	0.070	0.451	0.00
280	54.12	11.60	10.81	0.069	0.456	0.00
300	53.56	10.57	9.82	0.068	0.461	0.00
320	53.00	9.67	8.96	0.067	0.466	0.00
340	52.44	8.90	8.22	0.066	0.471	0.00
360	51.87	8.22	7.57	0.065	0.476	0.01
380	51.31	7.62	6.99	0.064	0.481	0.01
400	50.74	7.09	6.49	0.063	0.486	0.02
420	50.16	6.63	6.04	0.062	0.491	0.04
440	49.59	6.21	5.64	0.061	0.496	0.06
460	49.02	5.83	5.28	0.060	0.501	0.10
480	48.45	5.49	4.96	0.059	0.506	0.17
500	47.88	5.19	4.67	0.058	0.512	0.26
520	47.30	4.91	4.41	0.057	0.517	0.35
540	46.73	4.66	4.17	0.056	0.522	0.46
560	46.16	4.43	3.95	0.056	0.527	0.58
580	45.60	4.22	3.75	0.055	0.532	0.74
600	45.01	4.03	3.57	0.054	0.537	0.99

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