OPTI-THERM® XR HEAT TRANSFER FLUID

OXIDATION RESISTANT, NON-FOULING, LONGER LASTING FORMULA



Heat Transfer Fluids

OPTI-THERM XR is formulated to meet HT-1 food-grade requirements without comprising performance or fluid life. It utilizes clear base fluids that are free from the impurities and aromatic compounds common in many competitive heat transfer formulations. OPTI-THERM XR is rated for applications up to 621°F (327°C).

Applications

- Closed and open loop systems with a maximum bulk temperature of 621°F (327°C)
- Food-grade systems

Temperature Range



Performance Advantages

NSF
Nonfood Compounds
Category Code HT1
Registration # 156442

- **NSF HT-1 registered**
  Ideal for food-processing applications
- **Low varnishing tendencies**
  Allows for clean operation and greater thermal transfer efficiency
- **Minimal odor**

Typical Properties	Caldera 3
Minimum Temperature, °F (°C)	32 (0)
Maximum Film Temperature, °F (°C)	669 (354)
Maximum Bulk Temperature, °F (°C)	621 (327)
Pour Point, °F (°C)	1 (-17)
Flash Point, °F (°C)	441 (227)
Fire Point, °F (°C)	466 (241)
Autoignition Point, °F (°C)	682 (361)
Thermal Expansion Coefficient, %/°F	0.0564
Thermal Conductivity @ 100°F, BTU/h-ft-F	0.0829
Thermal Conductivity @ 500°F, BTU/h-ft-F	0.0754
Heat Capacity @ 100°F, BTU/lb-F	0.471
Heat Capacity @ 100°F, BTU/lb-F	0.645
Distillation Range (ASTM D2887), 10% °F	721
Distillation Range (ASTM D2887), 90% °F	921
Average Molecular Weight	395

PPE

PLASTIC PROCESS EQUIPMENT, INC.

EAST
8303 CORPORATE PARK DRIVE
MACEDONIA, OHIO 44056
216-367-7000 • FAX: 216-367-7022
TOLL FREE: 800-321-0562

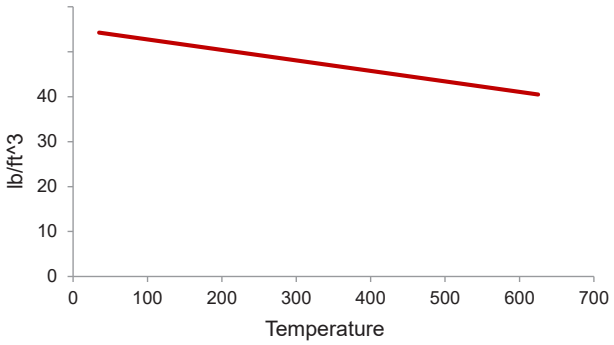
WEST
6385 MONTESSOURI STREET
LAS VEGAS, NEVADA 89113
702-433-6385 • FAX: 702-433-6388
TOLL FREE: 800-258-8877

www.ppe.com
e-mail: sales@ppe.com
Toll Free: USA, Canada & Mexico
800-362-0706
Order Fax: 800-223-8305

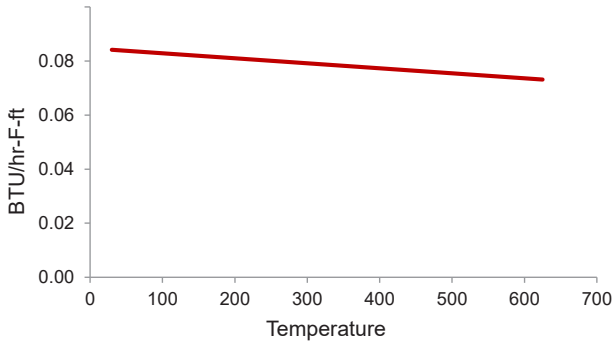
OPTI-THERM® XR HEAT TRANSFER FLUID

OXIDATION RESISTANT, NON-FOULING, LONGER LASTING FORMULA

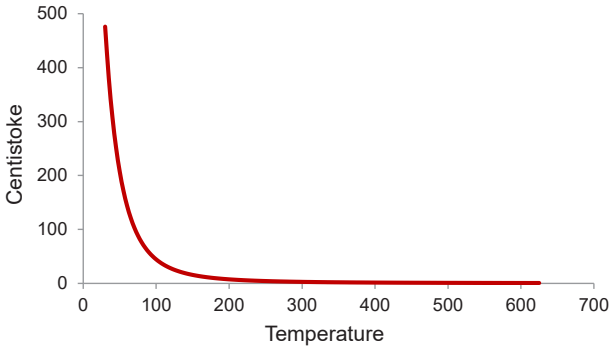
Density



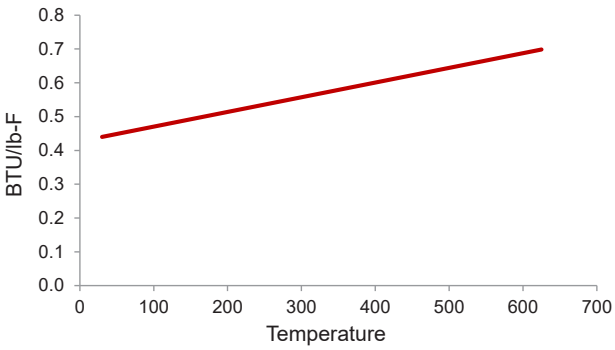
Thermal Conductivity



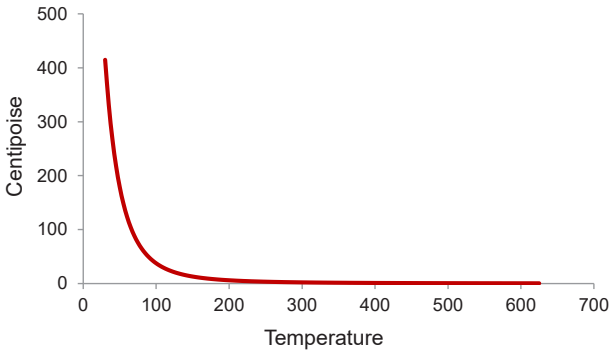
Kinematic Viscosity



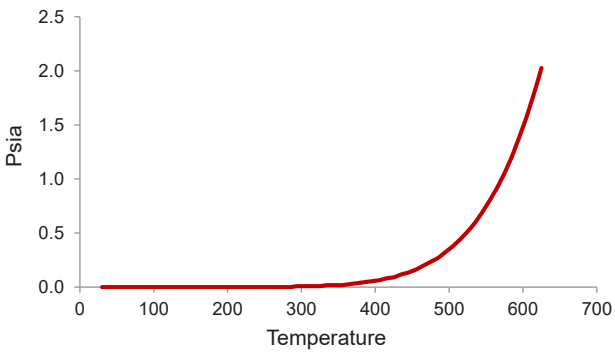
Heat Capacity



Dynamic Viscosity



Vapor Pressure



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 - S

All products manufactured in the USA

OPTI-THERM® XR HEAT TRANSFER FLUID

OXIDATION RESISTANT, NON-FOULING, LONGER LASTING FORMULA

Temperature (°F)	Density (lb/ft^3)	Kinematic Viscosity (Centistoke)	Dynamic Viscosity (Centipoise)	Thermal Conductivity (BTU/hr-F-ft)	Heat Capacity (BTU/lb-F)	Vapor Pressure (Psia)
30	54.37	475.98	414.77	0.084	0.440	0.00
35	54.25	381.18	331.45	0.084	0.442	0.00
40	54.13	308.34	267.54	0.084	0.444	0.00
45	54.02	251.79	218.00	0.084	0.446	0.00
50	53.90	207.45	179.22	0.084	0.449	0.00
55	53.78	172.37	148.59	0.084	0.451	0.00
60	53.67	144.37	124.18	0.084	0.453	0.00
65	53.55	121.83	104.57	0.084	0.455	0.00
70	53.43	103.55	88.68	0.083	0.457	0.00
75	53.32	88.60	75.72	0.083	0.459	0.00
80	53.20	76.30	65.06	0.083	0.462	0.00
85	53.08	66.11	56.25	0.083	0.464	0.00
90	52.97	57.60	48.90	0.083	0.466	0.00
95	52.85	50.47	42.75	0.083	0.468	0.00
100	52.73	44.44	37.57	0.083	0.470	0.00
105	52.62	39.33	33.17	0.083	0.473	0.00
110	52.50	34.97	29.43	0.083	0.475	0.00
115	52.38	31.23	26.22	0.083	0.477	0.00
120	52.27	28.00	23.46	0.082	0.479	0.00
125	52.15	25.21	21.07	0.082	0.481	0.00
130	52.03	22.78	19.00	0.082	0.483	0.00
135	51.92	20.66	17.19	0.082	0.486	0.00
140	51.80	18.80	15.61	0.082	0.488	0.00
145	51.68	17.17	14.22	0.082	0.490	0.00
150	51.57	15.72	13.00	0.082	0.492	0.00
155	51.45	14.44	11.91	0.082	0.494	0.00
160	51.33	13.30	10.95	0.082	0.496	0.00
165	51.22	12.29	10.09	0.082	0.499	0.00
170	51.10	11.38	9.32	0.082	0.501	0.00
175	50.98	10.56	8.63	0.081	0.503	0.00
180	50.87	9.83	8.01	0.081	0.505	0.00
185	50.75	9.16	7.45	0.081	0.507	0.00
190	50.63	8.56	6.95	0.081	0.509	0.00
195	50.52	8.02	6.49	0.081	0.512	0.00
200	50.40	7.52	6.08	0.081	0.514	0.00
205	50.28	7.07	5.70	0.081	0.516	0.00
210	50.17	6.66	5.35	0.081	0.518	0.00
215	50.05	6.28	5.04	0.081	0.520	0.00

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 - S

All products manufactured in the USA

OPTI-THERM® XR HEAT TRANSFER FLUID

OXIDATION RESISTANT, NON-FOULING, LONGER LASTING FORMULA

Temperature (°F)	Density (lb/ft^3)	Kinematic Viscosity (Centistoke)	Dynamic Viscosity (Centipoise)	Thermal Conductivity (BTU/hr-F-ft)	Heat Capacity (BTU/lb-F)	Vapor Pressure (Psia)
220	49.93	5.93	4.75	0.081	0.523	0.00
225	49.82	5.61	4.48	0.081	0.525	0.00
230	49.70	5.32	4.24	0.080	0.527	0.00
235	49.58	5.05	4.01	0.080	0.529	0.00
240	49.47	4.80	3.80	0.080	0.531	0.00
245	49.35	4.56	3.61	0.080	0.533	0.00
250	49.23	4.35	3.43	0.080	0.536	0.00
255	49.12	4.15	3.27	0.080	0.538	0.00
260	49.00	3.96	3.11	0.080	0.540	0.00
265	48.88	3.79	2.97	0.080	0.542	0.00
270	48.77	3.63	2.83	0.080	0.544	0.00
275	48.65	3.47	2.71	0.080	0.546	0.00
280	48.53	3.33	2.59	0.080	0.549	0.00
285	48.42	3.20	2.48	0.079	0.551	0.00
290	48.30	3.08	2.38	0.079	0.553	0.01
295	48.18	2.96	2.29	0.079	0.555	0.01
300	48.07	2.85	2.19	0.079	0.557	0.01
305	47.95	2.75	2.11	0.079	0.559	0.01
310	47.83	2.65	2.03	0.079	0.562	0.01
315	47.72	2.56	1.95	0.079	0.564	0.01
320	47.60	2.47	1.88	0.079	0.566	0.01
325	47.48	2.39	1.82	0.079	0.568	0.01
330	47.37	2.31	1.75	0.079	0.570	0.01
335	47.25	2.24	1.69	0.079	0.572	0.02
340	47.13	2.17	1.64	0.078	0.575	0.02
345	47.02	2.10	1.58	0.078	0.577	0.02
350	46.90	2.04	1.53	0.078	0.579	0.02
355	46.78	1.98	1.48	0.078	0.581	0.02
360	46.67	1.92	1.44	0.078	0.583	0.02
365	46.55	1.87	1.39	0.078	0.586	0.03
370	46.43	1.81	1.35	0.078	0.588	0.03
375	46.32	1.76	1.31	0.078	0.590	0.04
380	46.20	1.72	1.27	0.078	0.592	0.04
385	46.08	1.67	1.24	0.078	0.594	0.05
390	45.97	1.63	1.20	0.077	0.596	0.05
395	45.85	1.59	1.17	0.077	0.599	0.05
400	45.73	1.55	1.14	0.077	0.601	0.06
405	45.62	1.51	1.11	0.077	0.603	0.06

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 - S

All products manufactured in the USA

OPTI-THERM® XR HEAT TRANSFER FLUID

OXIDATION RESISTANT, NON-FOULING, LONGER LASTING FORMULA

Temperature (°F)	Density (lb/ft^3)	Kinematic Viscosity (Centistoke)	Dynamic Viscosity (Centipoise)	Thermal Conductivity (BTU/hr-F-ft)	Heat Capacity (BTU/lb-F)	Vapor Pressure (Psia)
410	45.50	1.48	1.08	0.077	0.605	0.07
415	45.38	1.44	1.05	0.077	0.607	0.08
420	45.27	1.41	1.02	0.077	0.609	0.09
425	45.15	1.38	1.00	0.077	0.612	0.09
430	45.03	1.35	0.97	0.077	0.614	0.10
435	44.92	1.32	0.95	0.077	0.616	0.12
440	44.80	1.29	0.93	0.077	0.618	0.13
445	44.68	1.26	0.91	0.076	0.620	0.14
450	44.57	1.24	0.88	0.076	0.622	0.15
455	44.45	1.21	0.86	0.076	0.625	0.16
460	44.33	1.19	0.84	0.076	0.627	0.18
465	44.22	1.17	0.83	0.076	0.629	0.20
470	44.10	1.14	0.81	0.076	0.631	0.22
475	43.98	1.12	0.79	0.076	0.633	0.23
480	43.87	1.10	0.77	0.076	0.636	0.25
485	43.75	1.08	0.76	0.076	0.638	0.27
490	43.63	1.06	0.74	0.076	0.640	0.30
495	43.52	1.04	0.73	0.076	0.642	0.32
500	43.40	1.03	0.71	0.075	0.644	0.35
505	43.28	1.01	0.70	0.075	0.646	0.38
510	43.17	0.99	0.69	0.075	0.649	0.41
515	43.05	0.98	0.67	0.075	0.651	0.44
520	42.93	0.96	0.66	0.075	0.653	0.48
525	42.82	0.94	0.65	0.075	0.655	0.51
530	42.70	0.93	0.64	0.075	0.657	0.55
535	42.58	0.92	0.62	0.075	0.659	0.60
540	42.47	0.90	0.61	0.075	0.662	0.64
545	42.35	0.89	0.60	0.075	0.664	0.69
550	42.23	0.88	0.59	0.075	0.666	0.75
555	42.12	0.86	0.58	0.074	0.668	0.80
560	42.00	0.85	0.57	0.074	0.670	0.86
565	41.88	0.84	0.56	0.074	0.672	0.92
570	41.77	0.83	0.55	0.074	0.675	0.99
575	41.65	0.82	0.54	0.074	0.677	1.05
580	41.53	0.80	0.54	0.074	0.679	1.13
585	41.42	0.79	0.53	0.074	0.681	1.21
590	41.30	0.78	0.52	0.074	0.683	1.30
595	41.18	0.77	0.51	0.074	0.685	1.39

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 - S

All products manufactured in the USA

OPTI-THERM® XR HEAT TRANSFER FLUID

OXIDATION RESISTANT, NON-FOULING, LONGER LASTING FORMULA

Temperature (°F)	Density (lb/ft^3)	Kinematic Viscosity (Centistoke)	Dynamic Viscosity (Centipoise)	Thermal Conductivity (BTU/hr-F-ft)	Heat Capacity (BTU/lb-F)	Vapor Pressure (Psia)
600	41.07	0.76	0.50	0.074	0.688	1.48
605	40.95	0.76	0.50	0.074	0.690	1.58
610	40.83	0.75	0.49	0.073	0.692	1.69
615	40.72	0.74	0.48	0.073	0.694	1.79
620	40.60	0.73	0.47	0.073	0.696	1.91
625	40.48	0.72	0.47	0.073	0.699	2.03

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 - S

PPE
PLASTIC PROCESS EQUIPMENT, INC.
EAST
8303 CORPORATE PARK DRIVE
MACEDONIA, OHIO 44056
216-367-7000 • FAX: 216-367-7022
TOLL FREE: 800-321-0562
WEST
6385 MONTESSOURI STREET
LAS VEGAS, NEVADA 89113
702-433-6385 • FAX: 702-433-6388
TOLL FREE: 800-258-8877
www.ppe.com
e-mail: sales@ppe.com
Toll Free: USA, Canada & Mexico
800-362-0706
Order Fax: 800-223-8305