

**Relatherm**  
Heat Transfer Fluids

# RELATHERM FG-2

Food Grade Heat Transfer Fluid



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## Food Grade Heat Transfer Fluid

A premium engineered thermal fluid rated for use in food processing, food packaging and pharmaceutical application. It is rated for use up to 327°C / 621°F. Infused with the Relatherm Dual Stage Anti-Oxidation technology, this fluid is robustly resistant to oxidation and sludge formation. A non-toxic/non-hazardous, it provides a safer alternative in sanitary production environments.

### PRODUCT SUMMARY

- Meets USDA and FDA requirements for incidental food contact (H1) as set out in 21CFR178.3570.
- Maximum use temperature: 327°C / 621°F.
- High flash point: 227°C / 444°F.
- Non-toxic and non-hazardous heat transfer fluid.
- Ultra-pure base chemistry .

### WHY RELATHERM FG-2?

Relatherm FG-2 is manufactured from ultra-pure food-grade base fluids and the most advanced life-extending additive technology. In comparison with other industry fluids, it provides for a safer, cleaner, and thermally stable equipment operation. More specifically, Relatherm FG-2 features industry-leading two-stage anti-oxidation additive package and a complimentary mix of metal deactivators, rust inhibitors, seal/gasket extenders and other proprietary agents. This superior formulation provides precise temperature control and efficient heat transfer much longer than many industry fluids.

### LONGER FLUID LIFE

Relatherm FG-2 exhibits extended service life even in oxidation-prone systems. Its superior additive technology extends its usability under operating conditions at which other industry fluids would typically degrade.

### MAXIMUM OXIDATION RESISTANCE

By virtue of its advanced Extended Life Additive Technology, Relatherm FG-2 greatly minimizes sludge formation in heat transfer systems and carbon deposition on heat transfer surfaces. It contains highly effective oxidation mitigants, making it the best choice for applications in food processing, food packaging and pharmaceutical processing. For these systems, Relatherm FG-2 provides lower maintenance costs, longer uptime and less frequent fluid changeouts.

### HEALTH, SAFETY & THE ENVIRONMENT

Relatherm FG-2 is non-toxic and non-hazardous. It is environmentally friendly and poses no adverse effect to personnel safety. There are no special handling procedures for fluid disposal, it can be disposed with other waste oils/lubricants in accordance with applicable statutes.

### COMPREHENSIVE PRODUCT PORTFOLIO

If Relatherm FG-2 does not meet your application requirements, there is a very good chance that we will be able to offer a better suited solution from our comprehensive portfolio of thermal fluids and system cleaners. Contact us to discuss your application with a Thermal Fluids Expert.

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## TEMPERATURE RATINGS

Maximum Bulk/Use Temp.	327°C	620°F
Maximum Film Temp.	354°C	670°F
Pour Point ASTM D97	-17°C	1°F

## THERMAL PROPERTIES

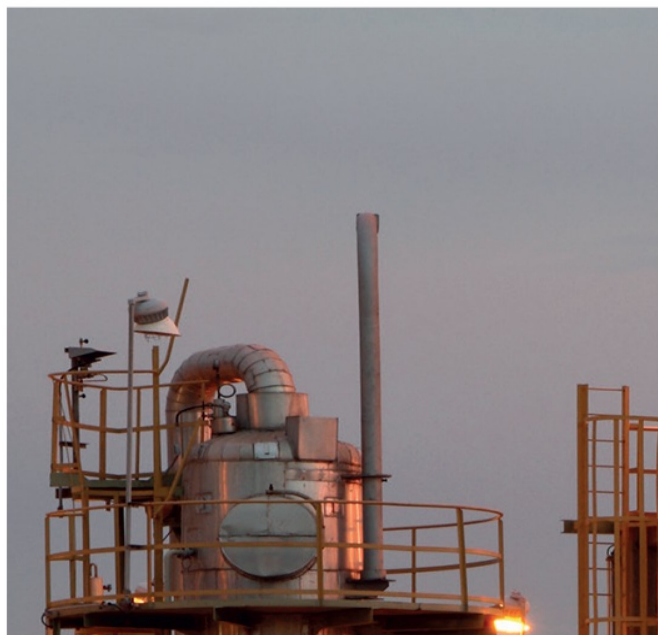
Thermal Expansion Coefficient	0.1016 %/°C	0.0564 %/°F
Thermal Conductivity	W/m K	BTU/hr F ft
38°C / 100°F	0.143	0.083
260°C / 500°F	0.130	0.075
316°C / 600°F	0.127	0.074
Heat Capacity	kJ/kg K	BTU/lb F
38°C / 100°F	1.972	0.470
260°C / 500°F	2.699	0.644
316°C / 600°F	2.878	0.688

## SAFETY DATA

Flash Point ASTM D92	227°C	440°F
Fire Point ASTM D92	241°C	466°F
Autoignition ASTM E-659-78	361°C	682°F

## PHYSICAL PROPERTIES

Viscosity ASTM D445		
cSt at 40°C / 104°F	40.29	
cSt at 100°C / 212°F	6.50	
cSt at 316°C / 600°F	0.76	
Density ASTM D1298	kg/m <sup>3</sup>	lb/ft <sup>3</sup>
38°C / 100°F	844.56	52.73
260°C / 500°F	695.18	43.40
316°C / 600°F	657.50	41.07
Vapor Pressure ASTM D2879	kPa	psi
38°C / 100°F	0.00	0.00
260°C / 500°F	2.41	0.35
316°C / 600°F	10.33	1.48
Distillation Range ASTM D2887	10%	383°C (721°F)
	90%	494°C (921°F)
Average Molecular Weight	395	



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## Physical Properties - Metric Units

TEMPERATURE (Celsius)	DENSITY (kg/m <sup>3</sup> )	KINEMATIC VISCOSITY (Centistoke)	DYNAMIC VISCOSITY (Centipoise)	THERMAL CONDUCTIVITY (W/m-K)	HEAT CAPACITY (kJ/kg-K)	VAPOR PRESSURE (kPa)
-5	873.5	661.34	577.68	0.146	1.832	0.00
5	866.77	295.88	256.46	0.145	1.862	0.00
15	860.04	149.49	128.56	0.145	1.892	0.00
25	853.31	83.40	71.16	0.144	1.933	0.00
35	846.58	50.47	42.73	0.144	1.963	0.00
45	839.85	32.66	27.43	0.143	1.993	0.00
55	833.12	22.34	18.61	0.142	2.023	0.00
65	826.39	16.00	13.22	0.142	2.063	0.00
75	819.67	11.91	9.76	0.141	2.093	0.00
85	812.94	9.16	7.45	0.141	2.123	0.00
95	806.21	7.24	5.84	0.140	2.153	0.00
105	799.48	5.86	4.69	0.139	2.193	0.00
115	792.75	4.84	3.84	0.139	2.223	0.01
125	786.02	4.07	3.2	0.138	2.253	0.01
135	779.29	3.47	2.71	0.138	2.283	0.02
145	772.56	3.00	2.32	0.137	2.323	0.04
155	765.83	2.63	2.01	0.136	2.353	0.05
165	759.11	2.32	1.76	0.136	2.383	0.08
175	752.38	2.07	1.56	0.135	2.423	0.13
185	745.65	1.87	1.39	0.135	2.453	0.19
195	738.92	1.69	1.25	0.134	2.483	0.28
205	732.19	1.54	1.13	0.134	2.513	0.41
215	725.46	1.42	1.03	0.133	2.553	0.58
225	718.73	1.31	0.94	0.132	2.583	0.81
235	712.00	1.21	0.86	0.132	2.613	1.13
245	705.28	1.13	0.80	0.131	2.643	1.53
255	698.55	1.06	0.74	0.131	2.684	2.07
265	691.82	0.99	0.69	0.130	2.714	2.76
275	685.09	0.94	0.64	0.130	2.744	3.64
285	678.36	0.89	0.60	0.129	2.784	4.76
295	671.63	0.84	0.57	0.129	2.814	6.16
305	664.90	0.80	0.53	0.128	2.844	7.91
315	658.17	0.77	0.50	0.127	2.874	10.07
325	651.45	0.73	0.48	0.127	2.914	12.71
327	648.08	0.72	0.47	0.127	2.929	14.31

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## Physical Properties - Standard Units

TEMPERATURE (Fahrenheit)	DENSITY (lb/ft <sup>3</sup> )	KINEMATIC VISCOSITY (Centistoke)	DYNAMIC VISCOSITY (Centipoise)	THERMAL CONDUCTIVITY (BTU/hr-F-ft)	HEAT CAPACITY (BTU/lb-F)	VAPOR PRESSURE (Psia)
15	54.72	990.22	868.44	0.084	0.433	0.00
25	54.48	600.69	524.57	0.084	0.438	0.00
35	54.25	381.18	331.45	0.084	0.442	0.00
45	54.02	251.79	218.00	0.084	0.446	0.00
55	53.78	172.37	148.59	0.084	0.451	0.00
65	53.55	121.83	104.57	0.084	0.455	0.00
75	53.32	88.60	75.72	0.083	0.459	0.00
85	53.08	66.11	56.25	0.083	0.464	0.00
95	52.85	50.47	42.75	0.083	0.468	0.00
105	52.62	39.33	33.17	0.083	0.473	0.00
115	52.38	31.23	26.22	0.083	0.477	0.00
125	52.15	25.21	21.07	0.082	0.481	0.00
135	51.92	20.66	17.19	0.082	0.486	0.00
145	51.68	17.17	14.22	0.082	0.49	0.00
155	51.45	14.44	11.91	0.082	0.494	0.00
165	51.22	12.29	10.09	0.082	0.499	0.00
175	50.98	10.56	8.63	0.081	0.503	0.00
185	50.75	9.16	7.45	0.081	0.507	0.00
195	50.52	8.02	6.49	0.081	0.512	0.00
205	50.28	7.07	5.70	0.081	0.516	0.00
215	50.05	6.28	5.04	0.081	0.520	0.00
225	49.82	5.61	4.48	0.081	0.525	0.00
235	49.58	5.05	4.01	0.080	0.529	0.00
245	49.35	4.56	3.61	0.080	0.533	0.00
255	49.12	4.15	3.27	0.080	0.538	0.00
265	48.88	3.79	2.97	0.080	0.542	0.00
275	48.65	3.47	2.71	0.080	0.546	0.00
285	48.42	3.2	2.48	0.079	0.551	0.00
295	48.18	2.96	2.29	0.079	0.555	0.01
305	47.95	2.75	2.11	0.079	0.559	0.01
315	47.72	2.56	1.95	0.079	0.564	0.01
325	47.48	2.39	1.82	0.079	0.568	0.01
335	47.25	2.24	1.69	0.079	0.572	0.02
345	47.02	2.1	1.58	0.078	0.577	0.02
355	46.78	1.98	1.48	0.078	0.581	0.02
365	46.55	1.87	1.39	0.078	0.586	0.03
375	46.32	1.76	1.31	0.078	0.590	0.04
385	46.08	1.67	1.24	0.078	0.594	0.04
395	45.85	1.59	1.17	0.077	0.599	0.05
405	45.62	1.51	1.11	0.077	0.603	0.06
415	45.38	1.44	1.05	0.077	0.607	0.08
425	45.15	1.38	1.00	0.077	0.612	0.09
435	44.92	1.32	0.95	0.077	0.616	0.12
445	44.68	1.26	0.91	0.076	0.620	0.14
455	44.45	1.21	0.86	0.076	0.625	0.16
465	44.22	1.17	0.83	0.076	0.629	0.20
475	43.98	1.12	0.79	0.076	0.633	0.23
485	43.75	1.08	0.76	0.076	0.638	0.27
495	43.52	1.04	0.73	0.076	0.642	0.32
505	43.28	1.01	0.70	0.075	0.646	0.38
515	43.05	0.98	0.67	0.075	0.651	0.44
525	42.82	0.94	0.65	0.075	0.655	0.51
535	42.58	0.92	0.62	0.075	0.659	0.60
545	42.35	0.89	0.60	0.075	0.664	0.69
555	42.12	0.86	0.58	0.074	0.668	0.80
565	41.88	0.84	0.56	0.074	0.672	0.92
575	41.65	0.82	0.54	0.074	0.677	1.05
585	41.42	0.79	0.53	0.074	0.681	1.21
595	41.18	0.77	0.51	0.074	0.685	1.39
605	40.95	0.76	0.50	0.074	0.690	1.58
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

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