DURATHERM
Heat Transfer Fluids

DURATHERM FG

Rated for use up to 327°C (620°F) it's engineered and manufactured to comply with the demands of food grade applications ranging from food processing and packaging to pharmaceutical and more.

APPLICATION

Duratherm FG is rated for use up to 327°C (620°F) and is amongst the highest temperature rated food grade fluids available. It is ideal for the oxidation rich environments often found in food processing and food packaging operations.

Duratherm FG meets USDA requirements for incidental food contact (H1) and meets the requirements of 21CFR1783570 and is NSF registered.

THE DIFFERENCE

Our exclusive additive package, including a proprietary dual stage anti-oxidant, ensures long trouble free operation. **Duratherm FG** also incorporates metal deactivators, a seal and gasket extender, defoaming and particle suspension agents.

LASTS LONGER

In the heat transfer fluid industry cost is always a concern, however fluid longevity and resistance to harmful fouling are of equal importance.

Air contact is normally detrimental to a fluid. Oxidation can cripple your system and if left unchecked will ultimately cause catastrophic failure. Unscheduled downtime due to oil failure has a high cost and negative effect on production.

The **Duratherm** product line was developed with this in mind. Most other fluids fall short in their protection from oxidation and can quickly foul a system. **Duratherm FG** is engineered to give unsurpassed levels of protection and service life.

ENVIRONMENTAL

Duratherm FG is environmentally friendly, non-toxic, non-hazardous and non-reportable. Worker health and safety is of great concern, **Duratherm FG** poses no ill effect to worker safety. After its long service life it can easily be disposed of with other waste oils.

SYSTEM CLEANING

If your existing fluid has let you down and left you with a system full of sludge or carbon, we've developed a full line of heat transfer system cleaners to get your system back to like-new condition. Contact us for complete details.

www.DurathermCanada.ca

DURATHERM FG

- Maximum temperature: 327°C / 620°F
- Flash point 440°F /227°C
- NFS HT1 rated food grade
- Rated for use to 327°C (620°F)
- Non-toxic/non-hazardous
- Includes free fluid analysis and tech support

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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

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

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

PHYSICAL PROPERTIES

Appearance: colorless, clear and bright liquid		
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/m3	lb/ft3
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	

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

DURATHERM FG

PROPERTY VS. TEMPERATURE CHART
METRIC

TEMPERATURE (Celsius)	DENSITY (kg/m^3)	KINEMATIC VISCOSITY (Centistoke)	DYNAMIC VISCOSITY (Centipoise)	THERMAL CONDUCTIVITY (W/m-K)	HEAT CAPACITY (kJ/kg-K)	VAPOR PRESSURE (kPa)
-5	873.50	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	3.20	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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PROPERTY VS. TEMPERATURE CHART
STANDARD

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)
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	0.490	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	3.20	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	2.10	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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