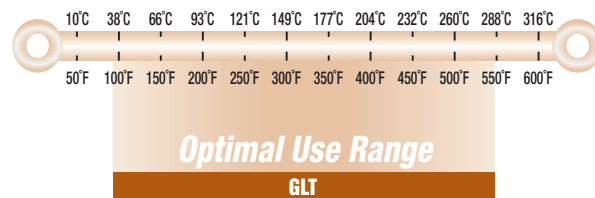


Paratherm-GLT™

Heat Transfer Fluid



ENGINEERING BULLETIN GLT 309

Paratherm GLT Heat Transfer Fluid

Paratherm GLT™ Heat Transfer Fluid is an alkylated aromatic based heat transfer fluid formulated for closed loop liquid phase heating systems to 550°F using fired heaters and to 575°F in waste-heat recovery systems.

Applications include:

- Gas processing
- Liquid terminal tank heating
- Asphalt plants
- Plastic production

Thermally Stable

Paratherm GLT Heat Transfer Fluid exhibited almost 40% less degradation when exposed to 600°F (316°C) for 500 hours than a widely used competitive fluid. Although very few heaters expose the fluid to the maximum film temperature for extended periods, this level of stability helps insure that your system operates trouble free during operating upsets.

Low Temperature Capability

Minimum startup temperature is a realistic measure of a fluid's low temperature capability since 300 cps is the maximum viscosity that a centrifugal pump can handle. Paratherm GLT Heat Transfer Fluid has a lower minimum start-up temperature 18°F (-6°C) than any mineral-oil based fluids that cover a similar temperature range.

Fluid Storage

Drums should be stored inside to prevent water from getting into the heat transfer fluid. If sealed drums must be left outdoors, they should be stored on their sides. While unopened totes are weatherproof, they should not be stacked if left outdoors. If the fluid is to be stored outside below its minimum pumpable temperature, the containers should be moved indoors to warm up before charging the fluid into the system.

Typical Properties*

Base	Alkylated Aromatic
Appearance	Clear Amber Colored
Odor	Sweet
Maximum Recommended Film Temperature	600°F/316°C
Maximum Recommended Operating Temperature-Fired Heaters	550°F/288°C
Maximum Recommended Operating Temperature-All Others	575°F/302°C
Minimum Operating Temperature 20 cPs (20 mPa-s)	95°F/35°C
Minimum Start-up Temperature 300 cPs (300mPa-s)	18°F/-6°C
Viscosity at 60°F/15.5°C cSt (mm ² /sec)	61 (61)
Density at 60°F/15.5°C lb/gal (kg/m ³)	7.4 (881)
Flash Point Open Cup (D92)	>360°F/182°C
Flash Point Closed Cup (D93)	>340°F/171°C
Vapor Pressure@Max Operating Temp. 550°F/258°C psia (kPa)	3.7 (25)
% Average Volume Expansion per 100°F (100°C)	5.5 (9.9)
Average Molecular Weight	330
Pour point D97	<-30°F/-34°C

* These are typical laboratory values, and are not guaranteed for all samples

Replacing Existing Fluid

In many cases, changing fluid involves a straightforward drain and fill. There are very few fluids that are so incompatible that 10-15% residue will affect the new Paratherm. If you have any questions, contact us.

Charging New Systems

Unless required for product quality reasons, new systems do not need to be cleaned before Paratherm is charged. The amount of chemical coatings, oils, and other manufacturing residues are usually not enough to affect the fluid life. All that is necessary is to install a Y-strainer with a minimum 60 mesh screen up stream of the pump to catch any metal or welding residue. The screen can be removed once the system has been cycled twice through its operating temperature.

Fluid Analysis

The fluid in new systems should be tested within 9 to 12 months of start-up. New fluid in existing systems should be tested within the first month of operation to establish a base line for future testing.



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Physical Properties

Temperature		Viscosity			Density			Thermal Conductivity BTU/(hr-ft-°F)	Specific Heat BTU/lb-°F	Vapor Pressure	
°F	°C	cSt	cPs	lb/ft-hr	lb/ft³	lb/gal	g/cc			psia	mm HG
0	-18	797	720	1742	56	7.5	0.90	0.078	0.43		
20	-7	284	254	615	56	7.5	0.90	0.077	0.44		
40	4	119	106	257	55	7.4	0.89	0.076	0.45		
60	16	61	54	131	55	7.4	0.88	0.075	0.46		
80	27	34	30	72	55	7.3	0.87	0.074	0.47		
100	38	21	18	43	54	7.2	0.86	0.074	0.48		
120	49	14	12	28	54	7.2	0.86	0.073	0.48		
140	60	9.2	7.8	19	53	7.1	0.85	0.072	0.49		
160	71	6.8	5.7	14	53	7.0	0.84	0.071	0.50		
180	82	5.0	4.2	10	52	7.0	0.83	0.070	0.51		
200	93	3.9	3.2	7.7	52	6.9	0.83	0.069	0.52		
220	104	3.2	2.6	6.3	51	6.8	0.82	0.068	0.53		
240	116	2.7	2.2	5.3	51	6.8	0.81	0.067	0.54		
260	127	2.2	1.8	4.4	50	6.7	0.80	0.066	0.54		1.1
280	138	1.9	1.5	3.7	50	6.6	0.80	0.065	0.55		1.8
300	149	1.7	1.3	3.2	49	6.6	0.79	0.065	0.56		2.9
320	160	1.5	1.1	2.8	49	6.5	0.78	0.064	0.57		4.5
340	171	1.3	1.0	2.4	48	6.4	0.77	0.063	0.58	0.13	6.9
360	182	1.2	0.89	2.2	48	6.4	0.76	0.062	0.59	0.20	10
380	193	1.1	0.80	1.9	47	6.3	0.76	0.061	0.60	0.29	15
400	204	0.95	0.71	1.7	47	6.3	0.75	0.060	0.61	0.41	21
420	216	0.85	0.63	1.5	46	6.2	0.74	0.059	0.61	0.57	30
440	227	0.79	0.58	1.4	46	6.1	0.73	0.058	0.62	0.79	41
460	238	0.73	0.53	1.3	45	6.1	0.73	0.057	0.63	1.1	55
480	249	0.67	0.48	1.2	45	6.0	0.72	0.056	0.64	1.4	74
500	260	0.63	0.45	1.1	44	5.9	0.71	0.056	0.65	1.9	98
520	271	0.58	0.41	0.99	44	5.9	0.70	0.055	0.66	2.5	129
540	282	0.55	0.38	0.92	43	5.8	0.69	0.054	0.67	3.2	167
560	293	0.51	0.35	0.85	43	5.7	0.69	0.053	0.67	4.1	214
580	304	0.46	0.31	0.75	42	5.7	0.68	0.052	0.68	5.3	273
600	316	0.43	0.29	0.70	42	5.6	0.67	0.051	0.69	6.7	345

Note: The information and recommendations in this literature are made in good faith and are believed to be correct as of the below date. You, the user or specifier, should independently determine the suitability and fitness of Paratherm heat transfer fluids for use in your specific application. We warrant that the fluids conform to the specifications in Paratherm literature. Because our assistance is furnished without charge, and because we have no control over the fluid's end use or the conditions under which it will be used, we make no other warranties—expressed or implied, including the warranties of merchantability or fitness for a particular use or purpose (recommendations in this bulletin are not intended nor should be construed as approval to infringe on any existing patent). The user's exclusive remedy, and Paratherm's sole liability is limited to refund of the purchase price or replacement of any product proven to be otherwise than as warranted. Paratherm Corporation will not be liable for incidental or consequential damages of any kind.