



THERMINOL[®] 75

heat transfer fluid

Ultrahigh temperature
at low pressure

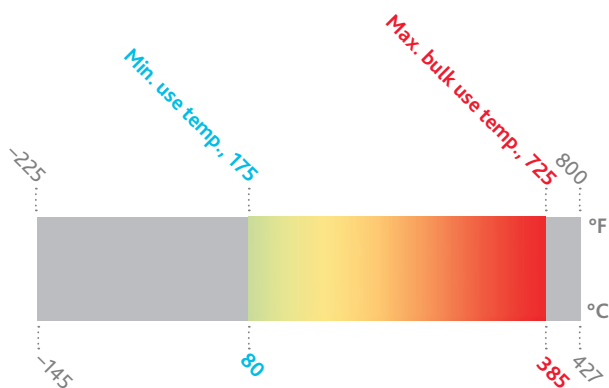
80° to 385°C
(175° to 725°F)

THERMINOL.
Heat transfer fluids by Eastman



THERMINOL® 75

heat transfer fluid



Eastman Therminol® 75 heat transfer fluid offers excellent thermal stability. It was developed for use at temperatures up to 385°C (725°F) in typical liquid phase heat transfer systems which operate at low pressure. Static pressure of about 1½ atmospheres should maintain the liquid phase at high temperatures.

Therminol 75 is available globally. Contact your local Eastman Therminol sales representative for more information.

Physical and chemical characteristics

Therminol 75 fluid has heat transfer coefficients that are equivalent to or higher than other natural or synthetic liquids in the same boiling range. Because of its high boiling point (343°C/649°F), Therminol 75 generates very little vapor pressure above ambient pressure at 385°C (725°F) and can be used in low-pressure systems. Under ambient conditions, Therminol 75 is a soft solid material with a slurry point of about 75°–80°C (165°–175°F). It has low odor and low mammalian toxicity.

The recommended maximum bulk and film temperatures for Therminol 75 are based on industry-standard thermal studies. Operation at or below these temperature maximums can provide long service life under most operating conditions.

Actual fluid life is dependent on the total system design and operation and can vary by heat transfer fluid chemistry. As fluid ages, the formation of low- and high-boiling compounds may result. Low-boiling compounds should be vented from the system as necessary to a safe location away from personnel and sources of ignition and in compliance with applicable regulations and laws. The high-boiling compounds can be very soluble in the fluid. Significant overheating or fluid contamination will accelerate decomposition and may result in increased high-boiler and solids concentrations. Excess solids can typically be filtered for removal.

Eastman recommends that systems utilizing Therminol 75 fluid should be blanketed with an atmosphere of inert gas to protect against the effects of fluid oxidation on its performance and life expectancy. Pressure relief device(s) should be installed where required.

Therminol 75 is noncorrosive to metals commonly used in the construction of heat transfer systems.

While Therminol 75 has a relatively high flash point, it is not classified as a fire-resistant heat transfer fluid. Consequently, the use of protective devices may be required to minimize fire risk, and users of Therminol 75 should check with their safety and risk management experts for specific instructions.

Typical properties^a

Appearance	Soft solid melting to yellow liquid
Composition	Terphenyl/quaterphenyl
Maximum bulk temperature	385°C (725°F)
Maximum film temperature	410°C (770°F)
Normal boiling point	343°C (649°F)
Pumpability, at 300 mm ² /s (cSt)	80°C (175°F)
Pumpability, at 2000 mm ² /s (cSt)	80°C (175°F)
Slurry point	75°–80°C (165°–175°F)
Flash point, COC (ASTM D-92)	185°C (365°F)
Autoignition temperature (ASTM E-659)	567°C (1052°F)
Coefficient of thermal expansion at 200°C	0.000803/°C (0.000446/°F)
Heat of vaporization at maximum use temperature	236 kJ/kg (101 Btu/lb)
Total acidity (ASTM D-664)	<0.2 mg KOH/g
Average molecular weight	230
Pseudocritical temperature	579°C (1074°F)
Pseudocritical pressure	25.3 bar (367 psia)
Pseudocritical density	323 kg/m ³ (20.2 lb/ft ³)
Moisture content, maximum (ASTM E-203)	200 ppm
Dielectric constant @ 23°C (ASTM D-924)	2.32

^aThese data are based on samples tested in the laboratory and are not guaranteed for all samples. Contact us for complete sales specifications for Therminol 75 fluid. Does not constitute an express warranty. See disclaimer on the back page of this bulletin.

Heat transfer fluid calculators

Product comparison calculator
Property by temperature table
Property by temperature plot
View fluid chart

THERMINOL
THE HEAT TRANSFER FLUID

TLC
Total Lifecycle Care

www.therminol.com

To create your own customized table
with preferred properties, units of measure,
and temperature intervals, visit
Therminol.com/resources
and download the Therminol heat transfer fluid calculator.

For technical service, visit the contact page of our website, **Therminol.com**.

Liquid properties of Therminol® 75 heat transfer fluid by temperature^a (SI UNITS)

Temperature		Liquid density	Liquid heat capacity	Heat of vaporization	Liquid enthalpy ^b	Liquid thermal conductivity	Liquid viscosity ^c		Vapor pressure ^d
°C	°F	kg/m ³	kJ/(kg-K)	kJ/kg	kJ/kg	W/(m-K)	cP (mPa-s)	cSt (mm ² /s)	kPa
71	160	1050	1.68	393.9	-14.3	0.1314	5.07	4.84	0.014
80	176	1040	1.71	388.9	0.9	0.1307	4.29	4.12	0.022
90	194	1030	1.74	383.3	18.2	0.1300	3.60	3.48	0.038
100	212	1030	1.77	377.8	35.8	0.1292	3.04	2.96	0.063
110	230	1020	1.80	372.3	53.6	0.1285	2.60	2.55	0.101
120	248	1010	1.83	366.9	71.8	0.1277	2.24	2.21	0.159
130	266	1000	1.86	361.5	90.2	0.1269	1.94	1.93	0.244
140	284	998	1.89	356.2	108.9	0.1262	1.69	1.70	0.369
150	302	991	1.92	350.9	128.0	0.1254	1.49	1.50	0.548
160	320	983	1.94	345.6	147.2	0.1246	1.32	1.34	0.800
170	338	976	1.97	340.4	166.8	0.1238	1.17	1.20	1.15
180	356	968	2.00	335.3	186.6	0.1230	1.05	1.08	1.62
190	374	961	2.02	330.2	206.7	0.1221	0.939	0.977	2.27
200	392	953	2.05	325.1	227.1	0.1213	0.847	0.889	3.12
210	410	945	2.07	320.1	247.7	0.1204	0.767	0.812	4.24
220	428	938	2.10	315.1	268.5	0.1196	0.698	0.744	5.69
230	446	930	2.12	310.1	289.6	0.1187	0.637	0.685	7.56
240	464	922	2.15	305.2	311.0	0.1179	0.584	0.633	9.94
250	482	914	2.17	300.3	332.5	0.1170	0.537	0.587	12.9
260	500	906	2.19	295.5	354.3	0.1161	0.495	0.546	16.7
270	518	898	2.21	290.7	376.4	0.1151	0.458	0.510	21.3
280	536	889	2.24	285.9	398.6	0.1142	0.425	0.478	27.0
290	554	881	2.26	281.1	421.1	0.1133	0.395	0.448	34.0
300	572	872	2.28	276.4	443.7	0.1123	0.368	0.422	42.4
310	590	864	2.30	271.6	466.6	0.1113	0.344	0.398	52.6
320	608	855	2.32	266.9	489.7	0.1103	0.322	0.377	64.7
330	626	846	2.34	262.1	513.0	0.1093	0.303	0.358	79.0
340	644	837	2.36	257.4	536.5	0.1082	0.285	0.340	96.0
350	662	828	2.38	252.6	560.2	0.1072	0.268	0.324	116
360	680	818	2.40	247.9	584.1	0.1061	0.254	0.310	139
370	698	809	2.42	243.0	608.1	0.1049	0.240	0.297	166
380	716	799	2.43	238.2	632.4	0.1038	0.227	0.285	197
385	725	794	2.44	235.8	644.6	0.1032	0.221	0.279	215

^aMaximum recommended bulk temperature 385°C (725°F). These data are based on samples tested in the laboratory and are not guaranteed for all samples. Contact us for complete sales specifications for Therminol 75 fluid. ^bLiquid enthalpy basis is 79.4°C (175°F). ^c1 cSt = 1 mm²/s and 1 mPa-s = 1 cP. ^d100 kPa = 1 bar

Liquid properties of Therminol® 75 heat transfer fluid by temperature^a (ENGLISH UNITS)

Temperature		Liquid density		Liquid heat capacity	Heat of vaporization	Liquid enthalpy ^b	Liquid thermal conductivity	Liquid viscosity ^c		Vapor pressure ^d
°F	°C	lb/gal	lb/ft ³	Btu/(lb·°F)	Btu/lb	Btu/lb	Btu/(ft·h·°F)	lb/(ft·h)	cSt (mm ² /s)	psia
160	71	8.74	65.4	0.402	169.4	-6.1	0.0760	12.2	4.83	—
180	82	8.68	64.9	0.410	166.8	2.0	0.0755	9.97	3.96	—
200	93	8.61	64.4	0.418	164.1	10.3	0.0750	8.22	3.29	0.007
220	104	8.54	63.9	0.426	161.5	18.8	0.0745	6.86	2.77	0.011
240	116	8.48	63.4	0.434	158.9	27.4	0.0740	5.78	2.35	0.019
260	127	8.41	62.9	0.442	156.3	36.1	0.0735	4.92	2.02	0.031
280	138	8.34	62.4	0.450	153.7	45.1	0.0730	4.22	1.75	0.049
300	149	8.27	61.9	0.457	151.2	54.1	0.0725	3.65	1.52	0.076
320	160	8.21	61.4	0.464	148.7	63.3	0.0720	3.18	1.34	0.116
340	171	8.14	60.9	0.471	146.2	72.7	0.0715	2.80	1.19	0.173
360	182	8.07	60.3	0.478	143.8	82.2	0.0710	2.47	1.06	0.254
380	193	8.00	59.8	0.485	141.3	91.8	0.0705	2.19	0.946	0.366
400	204	7.93	59.3	0.492	138.9	101.6	0.0699	1.96	0.853	0.519
420	216	7.85	58.8	0.499	136.5	111.5	0.0694	1.76	0.773	0.725
440	227	7.78	58.2	0.505	134.1	121.6	0.0688	1.59	0.704	0.999
460	238	7.71	57.7	0.511	131.8	131.7	0.0683	1.44	0.644	1.36
480	249	7.63	57.1	0.518	129.4	142.0	0.0677	1.31	0.592	1.82
500	260	7.56	56.6	0.524	127.1	152.4	0.0671	1.20	0.546	2.42
520	271	7.48	56.0	0.530	124.8	163.0	0.0665	1.10	0.506	3.18
540	282	7.41	55.4	0.535	122.5	173.6	0.0659	1.01	0.471	4.13
560	293	7.33	54.8	0.541	120.3	184.4	0.0653	0.933	0.439	5.31
580	304	7.25	54.2	0.547	118.0	195.3	0.0647	0.864	0.411	6.77
600	316	7.17	53.6	0.552	115.7	206.3	0.0640	0.803	0.386	8.56
620	327	7.09	53.0	0.557	113.5	217.4	0.0634	0.748	0.364	10.7
640	338	7.00	52.4	0.563	111.2	228.6	0.0627	0.698	0.344	13.3
660	349	6.92	51.7	0.568	108.9	239.9	0.0620	0.654	0.326	16.5
680	360	6.83	51.1	0.573	106.6	251.3	0.0613	0.613	0.310	20.2
700	371	6.74	50.4	0.578	104.3	262.8	0.0606	0.577	0.295	24.6
720	382	6.65	49.7	0.583	102.0	274.4	0.0598	0.543	0.282	29.7
725	385	6.62	49.6	0.584	101.4	277.3	0.0596	0.536	0.279	31.1