Pub. No. 7239157E
(Supersedes 7239157D)

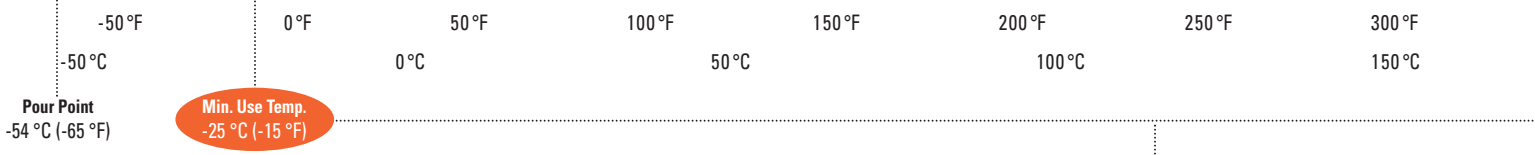
THERMINOL® 55

Heat Transfer Fluid by Solutia

Efficient, Reliable, Synthetic Heat Transfer Fluid

-15 °F to 550 °F

+400 °C
+700 °F
+350 °C
+600 °F
+300 °C
+500 °F
+250 °C
+400 °F
+200 °C
+150 °C +300 °F
+100 °C
+200 °F
+50 °C
+100 °F
0 °C
0 °F
-50 °C
-100 °F



OPTIMUM USE RANGE*

-25 °C TO 290 °C (-15 °F TO 550 °F)

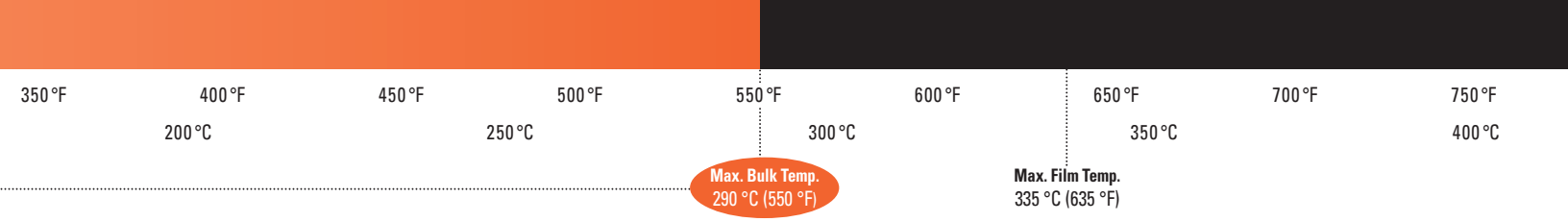
Therminol® 55 is a unique, synthetic heat transfer fluid designed to provide reliable, consistent heat transfer performance over a long life.

This heat transfer fluid delivers superior cost-performance compared to common mineral oil-based heat transfer fluids.

THERMINOL® 55

Heat Transfer Fluid by **Solutia**

55



TYPICAL PROPERTIES*†

Appearance	Clear, yellow liquid
Composition	Synthetic hydrocarbon mixture
Moisture Content, Maximum	250 ppm
Flash Point (ASTM D-92)	177 °C (350 °F)
Fire Point (ASTM D-92)	218 °C (425 °F)
Autoignition Temperature (ASTM E-659)	343 °C (650 °F)
Kinematic Viscosity, at 40 °C	19.0 mm^2/s (cSt)
at 100 °C	3.5 mm^2/s (cSt)
Density at 25 °C	868 kg/m^3 (7.25 lb/gal)
Specific Gravity (60 °F/60 °F)	0.876
Coefficient of Thermal Expansion at 200 °C	0.000961/ °C (0.000534/ °F)
Average Molecular Weight	320
Pour Point	-54 °C (-65 °F)
Pumpability, at 2000 mm^2/s (cSt)	-28 °C (-19 °F)
at 300 mm^2/s (cSt)	-8 °C (17 °F)
Minimum Temperatures for Fully Developed Turbulent Flow (Re = 10000)	
10 ft/sec, 1-in tube	67 °C (152 °F)
20 ft/sec, 1-in tube	45 °C (114 °F)
Transition Region Flow (Re = 2000)	
10 ft/sec, 1-in tube	24 °C (75 °F)
20 ft/sec, 1-in tube	11 °C (52 °F)
Boiling Range, 10%	340 °C (644 °F)
90%	390 °C (734 °F)
Heat of Vaporization at Maximum Use Temperature 290 °C	228 kJ/kg (98.1 Btu/lb)
Optimum Use Range	-25 °C to 290 °C (-15 °F to 550 °F)
Extended Maximum Use Temperature	315 °C (600 °F)
Maximum Film Temperature	335 °C (635 °F)
Pseudocritical Temperature	512 °C (953 °F)
Pseudocritical Pressure	13.2 bar (191 psia)
Pseudocritical Density	258 kg/m^3 (16.1 lb/ft^3)

* These data are based upon samples tested in the laboratory and are not guaranteed for all samples. Write us for complete sales specifications for Therminol 55 fluid.

† Does not constitute an express warranty. See NOTICE on inside back cover of this brochure.

PROPERTIES OF THERMINOL® 55

Temperature		Liquid Density			Liquid Heat Capacity		Liquid Enthalpy**		Heat of Vaporization	
°F	°C	lb/gal	lb/ft³	kg/m³	Btu/(lb·°F) [cal/(g·°C)]	kJ/(kg·K)	Btu/lb	kJ/kg	Btu/lb	kJ/kg
-20	-29	7.55	56.5	905	0.414	1.73	-8.4	-19.4	180.0	418.3
-15	-26	7.53	56.4	903	0.416	1.74	-6.3	-14.6	179.1	416.3
0	-18	7.49	56.0	897	0.423	1.77	0.0	0.0	176.6	410.5
20	-7	7.42	55.5	890	0.433	1.81	8.6	19.9	173.2	402.7
40	4	7.36	55.1	882	0.442	1.85	17.3	40.3	170.0	395.1
60	16	7.30	54.6	875	0.453	1.89	26.3	61.0	166.7	387.5
80	27	7.24	54.1	867	0.461	1.93	35.4	82.3	163.5	380.1
100	38	7.17	53.7	860	0.471	1.97	44.7	103.9	160.4	372.8
120	49	7.11	53.2	852	0.480	2.01	54.2	126.0	157.3	365.6
140	60	7.05	52.7	845	0.490	2.05	63.9	148.6	154.2	358.5
160	71	6.99	52.3	837	0.499	2.09	73.8	171.6	151.2	351.5
180	82	6.93	51.8	830	0.509	2.13	83.9	195.0	148.2	344.6
200	93	6.86	51.3	822	0.518	2.17	94.1	218.9	145.3	337.8
220	104	6.80	50.9	815	0.528	2.21	104.6	243.2	142.4	331.1
240	116	6.74	50.4	807	0.537	2.25	115.2	267.9	139.6	324.5
260	127	6.67	49.9	800	0.546	2.29	126.1	293.1	136.8	317.9
280	138	6.61	49.4	792	0.556	2.32	137.1	318.7	134.0	311.5
300	149	6.54	49.0	784	0.565	2.36	148.3	344.7	131.3	305.1
320	160	6.48	48.5	777	0.574	2.40	159.7	371.2	128.6	298.8
340	171	6.42	48.0	769	0.584	2.44	171.3	398.1	125.9	292.6
360	182	6.35	47.5	761	0.593	2.48	183.0	425.5	123.2	286.5
380	193	6.28	47.0	753	0.602	2.52	195.0	453.3	120.6	280.3
400	204	6.22	46.5	745	0.612	2.56	207.1	481.5	118.0	274.3
420	216	6.15	46.0	737	0.621	2.60	219.5	510.2	115.4	268.3
440	227	6.08	45.5	729	0.630	2.64	232.0	539.3	112.8	262.3
460	238	6.01	45.0	721	0.640	2.68	244.7	568.8	110.2	256.3
480	249	5.94	44.5	712	0.649	2.72	257.6	598.7	107.7	250.3
500	260	5.87	43.9	704	0.658	2.75	270.6	629.1	105.1	244.3
520	271	5.80	43.4	695	0.668	2.79	283.9	660.0	102.5	238.3
540	282	5.73	42.8	686	0.677	2.83	297.4	691.2	99.9	232.3
550	288	5.69	42.6	682	0.682	2.85	304.2	707.0	98.6	229.3
560	293	5.65	42.3	677	0.686	2.87	311.0	722.9	97.3	226.3
580	304	5.58	41.7	668	0.696	2.91	324.8	755.0	94.7	220.1
600***	316	5.50	41.1	659	0.705	2.95	338.8	787.6	92.0	214.0

* Optimum bulk temperature 290°C (550°F).

† These data are based upon samples tested in the laboratory and are not guaranteed for all samples. Write us for complete sales specifications for Therminol 55 fluid. Does not constitute an express warranty. See NOTICE on inside back cover of this brochure.

** The liquid enthalpy basis is zero at -18°C (0°F).

*** Extended bulk temperature 315°C (600°F).

HEAT TRANSFER FLUID*†

Liquid Thermal Conductivity			Liquid Viscosity			Vapor Pressure				Temperature	
Btu/ (ft·h·°F)	kcal/ (m·h·°C)	W/(m·K)	lb/(ft·h)	cSt [mm²/s]	cP [mPa·s]	psia	mm Hg	kgf/cm²	kPa	°F	°C
0.0775	0.1153	0.1341	4600	2100	1900					-20	-29
0.0773	0.1151	0.1337	3400	1560	1405					-15	-26
0.0768	0.1143	0.1328	1480	683	612					0	-18
0.0760	0.1131	0.1315	571	265	236					20	-7
0.0753	0.1120	0.1302	255	119.5	105.4					40	4
0.0746	0.1110	0.1289	128.5	60.7	53.1					60	16
0.0738	0.1098	0.1276	71.5	34.1	29.6					80	27
0.0731	0.1087	0.1264	43.2	20.8	17.87					100	38
0.0723	0.1076	0.1251	28.0	13.57	11.57					120	49
0.0716	0.1065	0.1238	19.19	9.39	7.93					140	60
0.0708	0.1054	0.1225	13.80	6.82	5.71					160	71
0.0701	0.1043	0.1212	10.34	5.15	4.27	0.0018	0.091	0.00012	0.012	180	82
0.0693	0.1032	0.1199	8.01	4.03	3.31	0.0033	0.17	0.00023	0.023	200	93
0.0686	0.1021	0.1186	6.39	3.24	2.64	0.0059	0.31	0.00042	0.041	220	104
0.0678	0.1009	0.1173	5.22	2.67	2.16	0.010	0.53	0.00073	0.071	240	116
0.0671	0.0998	0.1160	4.35	2.25	1.797	0.017	0.90	0.0012	0.12	260	127
0.0663	0.0987	0.1147	3.69	1.924	1.524	0.029	1.5	0.0020	0.20	280	138
0.0656	0.0976	0.1134	3.17	1.672	1.311	0.046	2.4	0.0033	0.32	300	149
0.0648	0.0965	0.1121	2.76	1.471	1.142	0.073	3.8	0.0051	0.50	320	160
0.0641	0.0954	0.1108	2.43	1.307	1.005	0.112	5.8	0.0079	0.77	340	171
0.0633	0.0942	0.1095	2.16	1.173	0.892	0.168	8.7	0.0118	1.16	360	182
0.0626	0.0931	0.1082	1.931	1.060	0.798	0.248	12.8	0.0175	1.71	380	193
0.0618	0.0920	0.1069	1.737	0.964	0.718	0.360	18.6	0.0253	2.49	400	204
0.0610	0.0909	0.1056	1.572	0.882	0.650	0.515	26.6	0.0362	3.55	420	216
0.0603	0.0897	0.1043	1.428	0.810	0.590	0.724	37.4	0.0509	4.99	440	227
0.0595	0.0886	0.1030	1.302	0.747	0.538	1.00	51.9	0.0706	6.92	460	238
0.0588	0.0875	0.1017	1.190	0.691	0.492	1.37	71.0	0.0965	9.47	480	249
0.0580	0.0863	0.1003	1.091	0.641	0.451	1.85	95.9	0.130	12.8	500	260
0.0573	0.0852	0.0990	1.002	0.596	0.414	2.47	128	0.174	17.1	520	271
0.0565	0.0841	0.0977	0.922	0.555	0.381	3.27	169	0.230	22.5	540	282
0.0561	0.0835	0.0971	0.885	0.536	0.366	3.74	193	0.263	25.8	550	288
0.0557	0.0829	0.0964	0.849	0.518	0.351	4.27	221	0.300	29.4	560	293
0.0550	0.0818	0.0951	0.783	0.484	0.324	5.52	285	0.388	38.0	580	304
0.0542	0.0807	0.0938	0.722	0.453	0.298	7.07	365	0.497	48.7	600	316

PHYSICAL AND CHEMICAL CHARACTERISTICS

Therminol 55 has an optimum economic operating range of -25 °C to 290 °C (-15 °F to 550 °F). It can be used to an extended bulk temperature of 315 °C (600 °F).

Therminol 55 fluid is designed for use in non-pressurized/low-pressure indirect heating systems. It delivers efficient, dependable, uniform process heat with no need for high pressures. The high boiling point of Therminol 55 helps reduce the volatility and fluid leakage problems associated with other fluids.

While Therminol 55 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. The insurer of your property should be consulted relative to this matter.

The recommended optimum economic bulk temperature (290 °C/550 °F) is based on detailed thermal studies. Operation at or below this temperature provides long service life under most operating conditions. Therminol 55 can be utilized up to the extended maximum use temperature of 315 °C (600 °F).

Actual fluid life is quite dependent on system design and operation. As fluid ages, the formation of volatile (low-boiling) products and high-boiling compounds may result. Volatile products should be vented from the system to a non-hazardous area away from personnel

THERMINOL® 55

Heat Transfer Fluid by Solutia

Therminol 55 has been shown to be significantly less sensitive than mineral oils to the negative consequences (sludging, fouling) of thermal oxidation. However, to further minimize the potential for fluid oxidation, systems utilizing heat transfer fluids should be blanketed with an inert atmosphere. A system pressure relief device should also be provided.

Therminol 55 is non-corrosive to metals commonly used in the design of heat transfer systems.

and sources of ignition. The high-boiling compounds are generally soluble in the fluid. Overheating or fluid contamination will accelerate this decomposition and may result in separation of the high-boiling compounds as solids (tar, coke, etc.). These solids could be detrimental to the operation of the system and, when detected, should be removed.

TO PROVIDE FURTHER INFORMATION ON THE PROPER USE AND APPLICATIONS OF THERMINOL HEAT TRANSFER FLUIDS, SOLUTIA PRODUCES A NUMBER OF TECHNICAL BULLETINS AND DESIGN GUIDES THAT CAN BE OBTAINED FROM YOUR LOCAL THERMINOL SALES REPRESENTATIVE OR THROUGH OUR WEB SITE AT

www.therminol.com

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Visit our Web site at
www.therminol.com.

SAFETY AND HANDLING: Material Safety Data Sheets may be obtained from Environmental Operations, Industrial Products, Solutia Inc. Heat transfer fluids are intended only for indirect heating purposes. Under no circumstances should this product contact or in any way contaminate food, animal feed, food products, food packaging materials, food chemicals, pharmaceuticals or any items which may directly or indirectly be ultimately ingested by humans. Any contact may contaminate these items to the extent that their destruction may be required. Precautions against ignitions and fires should be taken with this product.

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THERMINOL® TLC
TOTAL LIFECYCLE CARE®

FOR YOUR PEOPLE
- Start-Up Assistance
- Operational Training
- Technical Service Hotline

FOR YOUR FACILITY
- System Design
- Quality Therminol Products
- Sample Analysis
- Flush Fluid & Refill
- Fluid Trade-in Program*

Therminol TLC Total Lifecycle Care is a complete program of products and services from Solutia designed to keep your heat transfer system in top operating condition through its entire lifecycle.

*Available only in North America

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Solutions for a better life.®

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