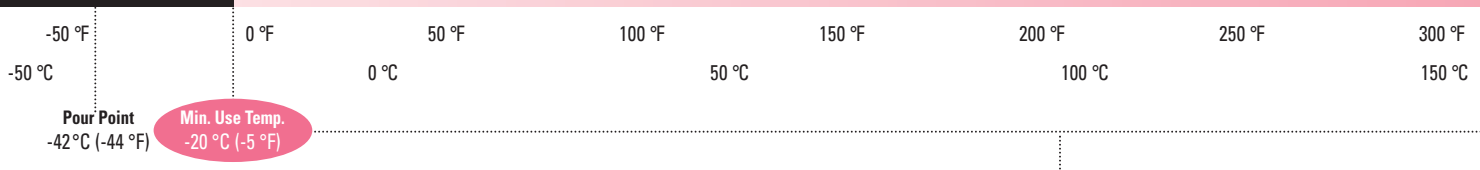
THERMINOL® 62

Heat Transfer Fluid by **Solutia**

High Performance, Low-pressure Heat Transfer Fluid

-5 °F to 620 °F

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



OPTIMUM USE RANGE*

-20 °C TO 325 °C (-5 °F TO 620 °F)

Therminol® 62 synthetic heat transfer fluid offers outstanding performance to 325 °C (620 °F), including excellent thermal stability and low vapor pressure. These properties result in reliable, consistent performance of heat transfer systems over long periods of time. The performance of Therminol heat trans-fer fluids has been proven through many years of industrial experience under a wide range of operating conditions.

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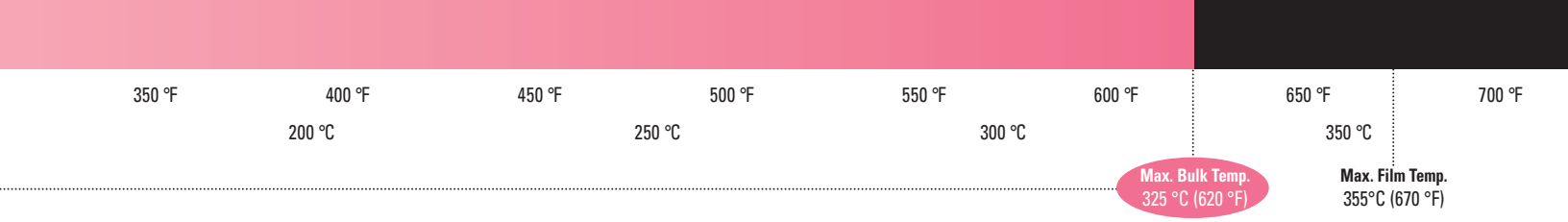
62



TYPICAL PROPERTIES*†

Appearance	Water-white liquid
Composition	Isopropyl biphenyl mixture
Moisture Content, Maximum (ASTM E203-75)	200 ppm
Total Acidity (ASTM D664-81)	<0.2 mg KOH/g
Chlorine Content	<10 ppm
Copper Corrosion, Maximum (ASTM D-130)	<<1 a
Flash Point, PMCC (ASTM D-93)	160 °C (320 °F)
Flash Point, COC (ASTM D-92)	171 °C (340 °F)
Fire Point (ASTM D-92)	196 °C (385 °F)
Autoignition Temperature (ASTM E-659)	407 °C (765 °F)
Kinematic Viscosity, at 0 °C	103. mm^2/s (cSt)
at 40 °C	10.7 mm^2/s (cSt)
at 100 °C	2.52 mm^2/s (cSt)
Liquid density at 25 °C	951.1 kg/m^3 (7.94 lb/gal)
Coefficient of Thermal Expansion at 200 °C	0.00100/°C (0.000556/°F)
Average Molecular Weight	252
Pour Point (ASTM D-97)	-42 °C (-44 °F)
Pumpability, at 2000 mm^2/s	-23 °C (-10 °F)
at 300 mm^2/s	-11 °C (12 °F)
Minimum Temperatures for Fully Developed Turbulent Flow, (Re = 10000)	
10 ft/sec, 1-in tube (3.048 m/s, 2.54-cm tube)	50 °C (122 °F)
20 ft/sec, 1-in tube (6.096 m/s, 2.54-cm tube)	31 °C (88 °F)
Minimum Temperatures for Transition Region Flow (Re = 2000)	
10 ft/sec, 1-in tube (3.048 m/s, 2.54-cm tube)	11 °C (52 °F)
20 ft/sec, 1-in tube (6.096 m/s, 2.54-cm tube)	4 °C (39 °F)
Normal Boiling Point	333 °C (631 °F)
Heat of Vaporization at Maximum Use Temperature (325 °C / 620 °F)	263.9 kJ/kg (113.6 Btu/lb)
Optimum Use Range	-20 to 325 °C (-5 to 620 °F)
Maximum Bulk Temperature	325 °C (620 °F)
Maximum Film Temperature	355 °C (670 °F)
Pseudocritical Temperature	486.8 °C (908.3 °F)
Pseudocritical Pressure	15.0 bar (217.5 psia)
Pseudocritical Density	269.4 kg/m^3 (16.82 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 62 fluid.

† Does not constitute an express warranty. See NOTICE on the back page of this bulletin.

PROPERTIES OF THERMINOL® 62

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
-40	-40	8.32	62.2	997	0.424	1.77	0	0	217.3	505.1
-20	-29	8.25	61.7	989	0.432	1.81	8.56	19.9	212.7	494.5
0	-18	8.19	61.3	981	0.440	1.84	17.3	40.2	208.2	484.0
20	-7	8.12	60.8	973	0.447	1.87	26.1	60.8	203.8	473.8
40	4	8.06	60.3	966	0.454	1.90	35.2	81.7	199.5	463.7
60	16	7.99	59.8	958	0.462	1.93	44.3	103.0	195.3	453.9
80	27	7.93	59.3	950	0.469	1.96	53.6	124.7	191.2	444.3
100	38	7.86	58.8	942	0.476	1.99	63.1	146.6	187.1	434.9
120	49	7.80	58.3	934	0.483	2.02	72.7	168.9	183.2	425.7
140	60	7.73	57.8	926	0.489	2.05	82.4	191.5	179.3	416.8
160	71	7.66	57.3	918	0.496	2.08	92.2	214.4	175.6	408.1
180	82	7.59	56.8	910	0.503	2.10	102.2	237.6	171.9	399.6
200	93	7.53	56.3	902	0.509	2.13	112.3	261.1	168.3	391.3
220	104	7.46	55.8	894	0.515	2.15	122.6	284.9	164.9	383.2
240	116	7.39	55.3	885	0.521	2.18	132.9	309.0	161.5	375.4
260	127	7.32	54.8	877	0.527	2.20	143.4	333.4	158.2	367.7
280	138	7.25	54.2	869	0.533	2.23	154.0	358.0	155.0	360.3
300	149	7.18	53.7	860	0.538	2.25	164.7	382.9	151.9	353.1
320	160	7.11	53.2	852	0.544	2.28	175.5	408.1	148.9	346.2
340	171	7.03	52.6	843	0.549	2.30	186.5	433.5	146.0	339.4
360	182	6.96	52.1	834	0.555	2.32	197.5	459.1	143.2	332.9
380	193	6.89	51.5	825	0.560	2.34	208.7	485.0	140.5	326.5
400	204	6.81	50.9	816	0.565	2.36	219.9	511.2	137.8	320.4
420	216	6.73	50.4	807	0.570	2.38	231.2	537.6	135.3	314.4
440	227	6.66	49.8	798	0.575	2.41	242.7	564.2	132.8	308.7
460	238	6.58	49.2	788	0.580	2.43	254.2	591.0	130.4	303.1
480	249	6.49	48.6	778	0.584	2.45	265.9	618.1	128.1	297.7
500	260	6.41	48.0	768	0.589	2.46	277.6	645.4	125.8	292.5
520	271	6.33	47.3	758	0.594	2.48	289.4	672.9	123.6	287.4
540	282	6.24	46.7	748	0.598	2.50	301.4	700.6	121.5	282.5
560	293	6.15	46.0	737	0.603	2.52	313.4	728.5	119.5	277.7
580	304	6.06	45.3	726	0.608	2.54	325.5	756.6	117.5	273.0
600	316	5.96	44.6	715	0.612	2.56	337.7	785.0	115.5	268.4
620	327	5.87	43.9	703	0.617	2.58	350.0	813.5	113.6	263.9
640	338	5.76	43.1	691	0.622	2.60	362.4	842.3	111.6	259.5

* Maximum recommended bulk temperature 327 °C (620 °F).

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‡ Enthalpy basis is liquid at (-40 °C) -40 °F.

HEAT TRANSFER FLUID*†

Liquid Thermal Conductivity			Liquid Viscosity			Vapor Pressure				Temperature	
Btu/ (ft·hr·°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
0.0739	0.1100	0.1279	-	-	-	-	-	-	-	-40	-40
0.0734	0.1093	0.1270	16500	6890	6820	-	-	-	-	-20	-29
0.0729	0.1085	0.1261	2000	843	827	-	-	-	-	0	-18
0.0724	0.1077	0.1252	467	198	193	-	-	-	-	20	-7
0.0718	0.1069	0.1242	165	70.7	68.2	-	-	-	-	40	4
0.0713	0.1061	0.1233	76.3	33.0	31.6	-	-	-	-	60	16
0.0707	0.1053	0.1224	42.2	18.4	17.5	-	-	-	-	80	27
0.0702	0.1045	0.1214	26.4	11.6	10.9	-	-	-	-	100	38
0.0696	0.1036	0.1204	18.0	7.96	7.43	0.0004	0.02	-	0.002	120	49
0.0691	0.1028	0.1195	13.0	5.81	5.38	0.0008	0.04	0.0001	0.005	140	60
0.0685	0.1020	0.1185	9.84	4.43	4.07	0.0015	0.08	0.0001	0.011	160	71
0.0679	0.1011	0.1175	7.69	3.49	3.18	0.0030	0.16	0.0002	0.021	180	82
0.0673	0.1002	0.1165	6.17	2.83	2.55	0.0056	0.29	0.0004	0.039	200	93
0.0667	0.0993	0.1154	5.05	2.34	2.09	0.010	0.53	0.0007	0.070	220	104
0.0661	0.0984	0.1144	4.20	1.96	1.74	0.018	0.92	0.0012	0.122	240	116
0.0655	0.0975	0.1133	3.54	1.67	1.46	0.030	1.54	0.0021	0.21	260	127
0.0649	0.0966	0.1123	3.02	1.44	1.25	0.049	2.5	0.0034	0.34	280	138
0.0643	0.0957	0.1112	2.60	1.25	1.07	0.078	4.0	0.0055	0.54	300	149
0.0636	0.0947	0.1101	2.25	1.09	0.931	0.122	6.3	0.0086	0.84	320	160
0.0630	0.0937	0.1089	1.97	0.964	0.813	0.186	9.6	0.0131	1.28	340	171
0.0623	0.0927	0.1078	1.73	0.857	0.715	0.277	14.3	0.0195	1.91	360	182
0.0617	0.0918	0.1066	1.53	0.766	0.632	0.406	21.0	0.0286	2.80	380	193
0.0610	0.0907	0.1054	1.36	0.688	0.561	0.584	30.2	0.0411	4.03	400	204
0.0603	0.0897	0.1042	1.21	0.621	0.501	0.83	42.7	0.0581	5.70	420	216
0.0595	0.0886	0.1030	1.09	0.564	0.450	1.15	59.5	0.0809	7.93	440	227
0.0588	0.0875	0.1017	0.98	0.514	0.405	1.58	81.6	0.111	10.9	460	238
0.0580	0.0864	0.1004	0.88	0.470	0.366	2.14	111	0.150	14.7	480	249
0.0573	0.0852	0.0990	0.802	0.432	0.332	2.86	148	0.201	19.7	500	260
0.0564	0.0840	0.0976	0.730	0.398	0.302	3.77	195	0.265	26.0	520	271
0.0556	0.0827	0.0962	0.666	0.368	0.275	4.92	255	0.346	34.0	540	282
0.0547	0.0814	0.0947	0.609	0.342	0.252	6.36	329	0.447	43.9	560	293
0.0538	0.0801	0.0931	0.559	0.318	0.231	8.14	421	0.572	56.1	580	304
0.0528	0.0786	0.0914	0.514	0.297	0.212	10.3	534	0.725	71.1	600	316
0.0518	0.0771	0.0896	0.474	0.279	0.196	13.0	670	0.911	89.4	620	327
0.0507	0.0755	0.0877	0.438	0.262	0.181	16.1	835	1.13	111	640	338

PHYSICAL AND CHEMICAL CHARACTERISTICS

Therminol 62 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 62 helps reduce the volatility and fluid leakage problems associated with other fluids.

While Therminol 62 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 maximum bulk (325 °C/620 °F) and film (355 °C/670 °F) temperatures are based on detailed thermal studies. Operation at or below these temperature maximums provides long service life under most operating conditions.

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Solutia recommends that systems utilizing Therminol 62 fluid should be blanketed with an inert atmosphere. Inert gas blanketing minimizes fluid oxidation and helps maximize fluid life. A system pressure relief device also should be provided.

Therminol 62 is non-corrosive to metals commonly used in the design of heat transfer systems.

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 and sources of ignition. The high-boiling compounds are generally soluble in the fluid. Significant 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.

SAFETY AND HANDLING

Material Safety Data Sheets may be obtained through www.Therminol.com or from Environmental Operations, 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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Visit our Web site at
www.therminol.com.

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 form 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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