



THERMINOL® 62

heat transfer fluid

High performance under
low-pressure applications

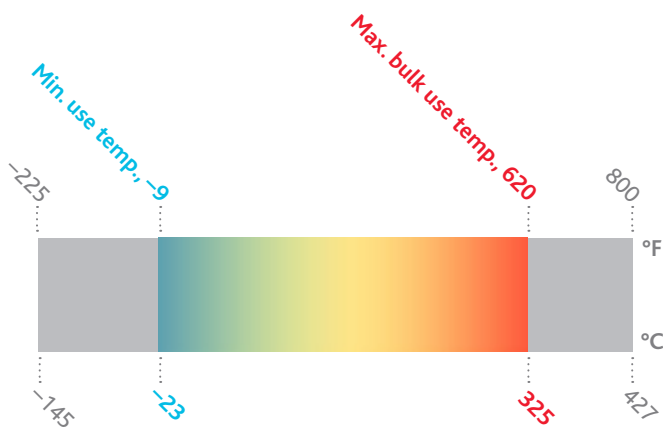
-23° to 325°C
(-9° to 620°F)

THERMINOL.

Heat Transfer Fluids by Eastman

THERMINOL® 62

heat transfer fluid



Eastman Therminol® 62 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 transfer fluids has been proven through many years of industrial experience under a wide range of operating conditions.

Therminol 62 is available globally. Contact your local Eastman Therminol sales representative for more information.

Physical and chemical characteristics

Therminol 62 fluid is designed for use in nonpressurized/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.

The recommended maximum bulk (325°C/620°F) and film (355°C/670°F) temperatures for Therminol 62 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 62 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 62 is noncorrosive to metals commonly used in the construction of heat transfer systems.

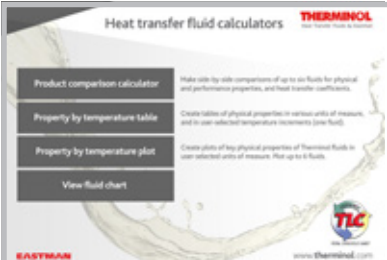
While Therminol 62 has a relatively high flash point, it is not classified as a fire-resistant heat transfer fluid. Consequently, the use of protective devices may be required to minimize fire risk, and users of Therminol 62 should check with their safety and risk management experts for specific instructions.



Typical properties^a

Appearance	Water-white liquid
Composition	Isopropyl biphenyl mixture
Maximum bulk temperature	325°C (620°F)
Maximum film temperature	355°C (670°F)
Normal boiling point	333°C (631°F)
Pumpability, at 300 mm ² /s (cSt)	-11°C (12°F)
Pumpability, at 2000 mm ² /s (cSt)	-23°C (-9°F)
Flash point, COC (ASTM D-92)	171°C (340°F)
Flash point, PMCC (ASTM D-93)	160°C (320°F)
Autoignition temperature (ASTM E-659)	407°C (765°F)
Autoignition temperature (DIN 51794)	433°C (813°F)
Pour point (ASTM D-97)	-42°C (-44°F)
Minimum liquid temperatures for fully developed turbulent flow ($N_{Re} > 10,000$)	
10 ft/s, 1-in. tube (3.048 m/s, 2.54-cm tube)	50°C (122°F)
20 ft/s, 1-in. tube (6.096 m/s, 2.54-cm tube)	31°C (88°F)
Minimum liquid temperatures for transitional region flow ($N_{Re} > 2000$)	
10 ft/s, 1-in. tube (3.048 m/s, 2.54-cm tube)	11°C (52°F)
20 ft/s, 1-in. tube (6.096 m/s, 2.54-cm tube)	4°C (39°F)
Coefficient of thermal expansion at 200°C	0.00100/°C (0.000556/°F)
Heat of vaporization at maximum use temperature	263.9 kJ/kg (113.6 Btu/lb)
Total acidity (ASTM D-664)	<0.2 mg KOH/g
Average molecular weight	252
Pseudocritical temperature	487°C (908°F)
Pseudocritical pressure	15.0 bar (217.5 psia)
Pseudocritical density	269.4 kg/m ³ (16.82 lb/ft ³)
Chlorine content, ppm (DIN 51577)	<10 ppm
Copper corrosion (ASTM D-130)	<< 1a
Moisture content, maximum (ASTM E-203)	200 ppm
Dielectric constant @ 23°C (ASTM D-924)	2.53

^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 62 fluid. Does not constitute an express warranty. See disclaimer on the back page of this bulletin.



To create your own customized table

with preferred properties, units of measure,
and temperature intervals, visit
www.therminol.com/resources
and download the Therminol heat transfer fluid calculator.

**For the technical service contact in your region,
visit the CONTACT US page on our website, www.therminol.com.**

Liquid properties of Therminol® 62 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
-23	-9	985	1.82	488.8	30.8	0.1265	1980	2000	—
-20	-4	983	1.83	486.1	36.1	0.1263	1180	1210	—
-10	14	976	1.86	476.8	54.5	0.1254	284	291	—
0	32	969	1.89	467.7	73.3	0.1246	99.5	103	—
10	50	962	1.92	458.8	92.3	0.1238	45.2	47.0	—
20	68	955	1.94	450.1	111.6	0.1229	24.5	25.6	—
30	86	948	1.97	441.5	131.2	0.1221	15.0	15.8	—
40	104	940	2.00	433.1	151.0	0.1212	10.1	10.7	—
50	122	933	2.02	424.8	171.1	0.1203	7.18	7.69	0.003
60	140	926	2.05	416.8	191.5	0.1195	5.38	5.81	0.005
70	158	919	2.07	408.9	212.1	0.1186	4.17	4.54	0.010
80	176	912	2.10	401.2	232.9	0.1177	3.33	3.66	0.018
90	194	904	2.12	393.7	254.0	0.1168	2.72	3.01	0.032
100	212	897	2.14	386.4	275.3	0.1158	2.26	2.52	0.056
110	230	890	2.17	379.3	296.9	0.1149	1.90	2.14	0.093
120	248	882	2.19	372.3	318.7	0.1140	1.62	1.84	0.151
130	266	875	2.21	365.5	340.7	0.1130	1.39	1.59	0.240
140	284	867	2.23	358.9	362.9	0.1120	1.21	1.39	0.372
150	302	859	2.26	352.4	385.4	0.1111	1.06	1.23	0.564
160	320	852	2.28	346.2	408.0	0.1101	0.931	1.09	0.841
170	338	844	2.30	340.1	430.9	0.1091	0.824	0.976	1.23
180	356	836	2.32	334.2	453.9	0.1080	0.733	0.877	1.77
190	374	828	2.34	328.4	477.2	0.1070	0.655	0.791	2.50
200	392	820	2.36	322.8	500.7	0.1059	0.588	0.718	3.49
210	410	812	2.37	317.4	524.3	0.1048	0.530	0.653	4.80
220	428	803	2.39	312.1	548.2	0.1037	0.480	0.597	6.51
230	446	795	2.41	307.0	572.2	0.1026	0.435	0.548	8.73
240	464	786	2.43	302.0	596.4	0.1014	0.396	0.504	11.6
250	482	777	2.45	297.2	620.8	0.1002	0.362	0.466	15.2
260	500	768	2.46	292.5	645.3	0.0990	0.332	0.432	19.7
270	518	759	2.48	287.9	670.1	0.0978	0.304	0.401	25.3
280	536	750	2.50	283.5	695.0	0.0965	0.280	0.374	32.2
290	554	740	2.52	279.1	720.0	0.0951	0.258	0.349	40.7
300	572	730	2.53	274.9	745.3	0.0937	0.239	0.327	50.9
310	590	720	2.55	270.7	770.7	0.0922	0.221	0.307	63.3
320	608	710	2.57	266.6	796.3	0.0907	0.206	0.289	78.0
330	626	699	2.59	262.6	822.1	0.0890	0.191	0.273	95.5
340	644	688	2.61	258.6	848.1	0.0873	0.178	0.259	116

^aMaximum recommended bulk temperature 325°C (620°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 62 fluid. ^bLiquid enthalpy basis is -40°C (-40°F). ^c1 cSt = 1 mm²/s and 1 mPa·s = 1 cP. ^d100 kPa = 1 bar.

Liquid properties of Therminol® 62 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
-9	-23	8.22	61.5	0.436	210.3	13.2	0.0731	4770	2000	—
0	-18	8.19	61.3	0.439	208.2	17.3	0.0729	2000	843	—
20	-7	8.12	60.8	0.447	203.8	26.1	0.0724	467	198	—
40	4	8.06	60.3	0.454	199.5	35.1	0.0718	165	70.7	—
60	16	7.99	59.8	0.462	195.3	44.3	0.0713	76.3	33.0	—
80	27	7.93	59.3	0.469	191.1	53.6	0.0707	42.2	18.4	—
100	38	7.86	58.8	0.476	187.1	63.1	0.0702	26.4	11.6	—
120	49	7.80	58.3	0.483	183.2	72.6	0.0696	18.0	7.96	0.0004
140	60	7.73	57.8	0.489	179.3	82.4	0.0691	13.0	5.81	0.0008
160	71	7.66	57.3	0.496	175.6	92.2	0.0685	9.84	4.43	0.0015
180	82	7.59	56.8	0.502	171.9	102.2	0.0679	7.69	3.49	0.0030
200	93	7.53	56.3	0.509	168.3	112.3	0.0673	6.17	2.83	0.0056
220	104	7.46	55.8	0.515	164.9	122.6	0.0667	5.05	2.34	0.010
240	116	7.39	55.3	0.521	161.5	132.9	0.0661	4.20	1.96	0.018
260	127	7.32	54.8	0.527	158.2	143.4	0.0655	3.54	1.67	0.030
280	138	7.25	54.2	0.533	155.0	154.0	0.0649	3.02	1.44	0.049
300	149	7.18	53.7	0.538	151.9	164.7	0.0643	2.60	1.25	0.078
320	160	7.11	53.2	0.544	148.9	175.5	0.0636	2.25	1.09	0.122
340	171	7.03	52.6	0.549	146.0	186.5	0.0630	1.97	0.964	0.186
360	182	6.96	52.1	0.555	143.2	197.5	0.0623	1.73	0.857	0.277
380	193	6.89	51.5	0.560	140.5	208.7	0.0617	1.53	0.766	0.406
400	204	6.81	50.9	0.565	137.8	219.9	0.0610	1.36	0.688	0.584
420	216	6.73	50.4	0.570	135.3	231.3	0.0603	1.21	0.621	0.826
440	227	6.66	49.8	0.575	132.8	242.7	0.0595	1.09	0.564	1.15
460	238	6.58	49.2	0.580	130.4	254.2	0.0588	0.979	0.514	1.58
480	249	6.49	48.6	0.584	128.1	265.9	0.0580	0.885	0.470	2.14
500	260	6.41	48.0	0.589	125.8	277.6	0.0572	0.802	0.432	2.86
520	271	6.33	47.3	0.594	123.6	289.5	0.0564	0.730	0.398	3.77
540	282	6.24	46.7	0.598	121.5	301.4	0.0556	0.666	0.368	4.92
560	293	6.15	46.0	0.603	119.5	313.4	0.0547	0.609	0.342	6.36
580	304	6.06	45.3	0.608	117.5	325.5	0.0538	0.559	0.318	8.14
600	316	5.96	44.6	0.612	115.5	337.7	0.0528	0.514	0.297	10.3
620	327	5.87	43.9	0.617	113.6	350.0	0.0518	0.474	0.279	13.0
640	338	5.76	43.1	0.622	111.6	362.4	0.0507	0.438	0.262	16.1

TLC Total Lifecycle Care[®]

In-service heat transfer fluid sample analysis

When Therminol heat transfer fluids are used within suggested temperature limits, they may provide years of trouble-free service. To help users get maximum life, Eastman offers testing of in-service heat transfer fluids to detect contamination, moisture, thermal degradation, and other conditions that may impact system performance. This comprehensive analysis includes acid number, kinematic viscosity, insoluble solids, low boilers, high boilers, and moisture content. Additional special analyses are available on request. Sample analysis includes sample collection kits that are easy to use. Most systems should be sampled annually. Users should also sample anytime a fluid-related problem is suspected.

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Results of the test are presented in a detailed report that provides suggestions for corrective action. Test results are stored in a database for future reference. Customers can access their specific test information via my.therminol.com.

Technical service hotline

Experienced technical service specialists can help answer your questions regarding heat transfer fluid selection, system start-ups, system design, and operational issues.

System design support

Eastman regularly assists some of the world's largest engineering, chemical, and equipment manufacturing companies on the design and operation of heat transfer systems. Our liquid phase and vapor phase design guide information and system design data have been field tested in numerous installations. Eastman also conducts engineering seminars for customers, engineering firms, and equipment manufacturers to cover a wide range of heat transfer fluid system design and operation issues. Customers can request a technical service visit to audit heat transfer systems for fluid loss and leak prevention opportunities.

Operational training

Eastman believes that by sharing our experience with customers, we can help improve system design, promote safety, and reduce overall cost. Customers can take advantage of Eastman's heat transfer system operation and product training programs. These programs are customized to suit the varied needs of frontline technicians, operations supervisors, and maintenance technicians to design engineers. Customers can also receive training assistance for dealing with important topics like fluid safety and handling.

Safety awareness training

At Eastman, we're "All in for Safety." We provide our customers safety awareness training that focuses on the design, start-up, operation, and maintenance of heat transfer fluid systems.

Start-up assistance

Eastman provides start-up assistance by reviewing procedures and offering suggestions to reduce typical problems. Customers can also receive help by calling their local Eastman technical specialist or through on-site assistance.

Flush fluid and fluid refill

Liquid phase heat transfer systems can be cleaned with Therminol[®] FF flushing fluid. After the system is flushed, the appropriate liquid phase Therminol heat transfer fluid can be added.

Fluid trade-in program*

As part of our commitment to sustainability and the environment, Eastman offers a trade-in program for used Therminol and competitive heat transfer fluids. Depending on the fluid and its condition, it may be turned in for potential credit towards the purchase of new Therminol heat transfer fluid.



*Available in North America. Contact your local sales representative for more information.



Eastman's TLC Total Lifecycle Care[®] program is designed to support Therminol customers throughout their systems' life cycle. This comprehensive program includes system design support, start-up assistance, training, sample analysis, flush and refill fluids, and our fluid trade-in program. In North America, call our hotline at 1-800-433-6997 or contact your local sales or technical representative.

For more information or to find the sales or technical contact nearest you, visit the "Contact us" page on our website:
www.therminol.com.

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