



Selection guide

*High-performance fluids
for precise temperature control*

Heat transfer fluids by Eastman

THERMINOL
Heat transfer fluids by Eastman

MARLOTHERM
Heat transfer fluids by Eastman

Heat transfer fluids by Eastman

Eastman offers a family of heat-stable fluids developed specifically for indirect transfer of process heat. Eastman's heat transfer fluids can meet the operating needs of virtually any single- or multiple-station heat-using system. In properly designed systems, our fluids will perform within their expected temperature ranges to provide excellent thermal stability.

Available in various formulations and operating ranges, our heat transfer fluids provide outstanding benefits—economy, efficient operation, minimum maintenance, and precise temperature control. Contact Eastman for detailed performance information on specific heat transfer fluids.

Liquid phase heat transfer fluids

Eastman's liquid phase heat transfer fluids operate over a broad temperature range of -175° to 750°F (-115° to 400°C), and most can be used in nonpressurized systems. A major advantage of liquid heat transfer is lower-cost installation and operation. Capital cost is reduced by elimination of large-diameter piping, safety valves, steam traps and water treatment facilities. Operating cost is reduced by low maintenance requirements and reduced makeup. Eastman's heat transfer fluids can provide effective operations in liquid phase. When above their normal boiling points, Eastman Therminol® D-12, LT, 59, 68, 72, 75, VP-1, and VP-3 and Marlotherm® LH heat transfer fluids require system pressures greater than their vapor pressures for liquid phase operation to their recommended bulk temperature ratings.

Liquid/vapor phase heat transfer fluids

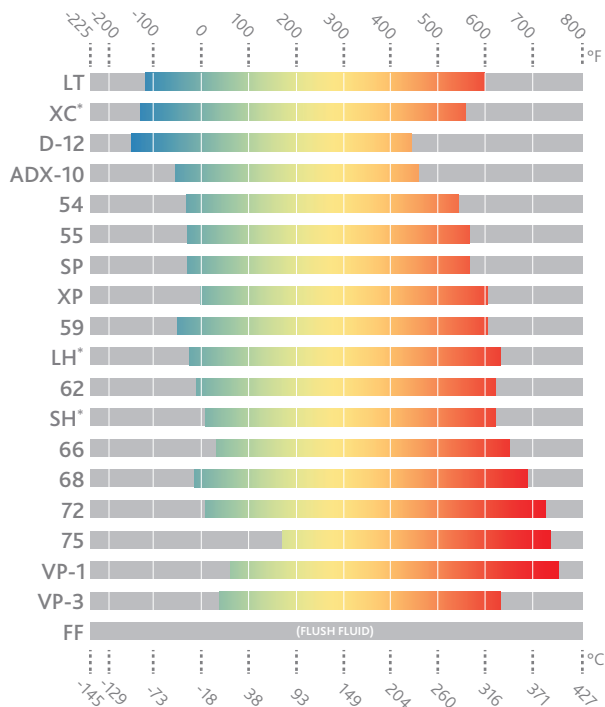
Therminol LT, VP-1, and VP-3 and Marlotherm LH are Eastman's liquid/vapor phase heat transfer fluids. They offer a broad operating temperature range and uniform heat transfer. Other major benefits include precise temperature control and low mechanical maintenance costs. A heat transfer system that utilizes a vapor phase medium requires less fluid than a comparable liquid phase system because the equipment fills with vapor instead of liquid.

Specialty and customized heat transfer fluids

In addition to our basic liquid phase and liquid/vapor phase heat transfer fluids, Eastman offers several specialty fluids. We are happy to work with you in developing a customized fluid for your application.



Product temperature scales at a glance



* Denotes a Marlotherm product

Global footprint

Eastman's heat transfer fluids are the top-selling synthetic fluids in the world, with manufacturing facilities and product supply on four continents. As one of the largest heat transfer fluid producers, Eastman has the infrastructure to deliver sizable quantities of synthetic fluids.

Strong foundations

With a long, robust history of thermal fluid innovation, our high-performance fluids have a strong foundation of more than 50 years in the industry.

Expert technical support

Our TLC Total Lifecycle Care® program is designed to support customers throughout a system's life cycle. This comprehensive program includes sample analysis, system design support, operational training, safety awareness training, start-up assistance, and flush and refill fluids.

High-performance portfolio

Designed to provide precise temperature control in a variety of applications, Eastman heat transfer fluids provide proven performance, superior product life, and worry-free fluid maintenance.



SI units

Liquid phase heat transfer

THERMINOL D-12

Low-temperature coolant/heat transfer fluid that is NSF HT1 certified^d

MARLOTHERM XC

High-performance, wide-temperature-range heat transfer fluid^d

Typical properties^a

Appearance	Clear, water-white liquid		Clear liquid	
Composition	Synthetic hydrocarbons		Cumene	
Recommended bulk temperature	230°C		300°C	
Maximum film temperature	245°C		320°C	
Normal boiling point	192°C		152°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-82°C ^e -94°C ^e		<-90°C —	
Pour point	-100°C		<-90°C	
Flash point, CC	62°C		38.8°C	
Fire point, COC	71°C		50°C	
Autoignition temperature ^b	277°C (DIN 51794)		~420°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	-37°C		-84°C	
Kinematic viscosity, cSt (mm ² /s)	-50°C	14.8	-50°C	3.11
	100°C	0.649	0°C	1.28
	200°C	0.316	150°C	0.34
	230°C	0.266	300°C	0.228
Density at 25°C (kg/m ³)	759		857	
Density, kg/m ³	-50°C	811	-50°C	918
	100°C	703	0°C	878
	200°C	616	150°C	745
	230°C	584	300°C	554
Heat capacity, kJ/(kg•K)	-50°C	1.82	-50°C	1.44
	100°C	2.41	0°C	1.65
	200°C	2.84	150°C	2.28
	230°C	2.98	300°C	3.17
Thermal conductivity, W/(m•K)	-50°C	0.120	-50°C	0.144
	100°C	0.097	0°C	0.133
	200°C	0.077	150°C	0.098
	230°C	0.071	300°C	0.065
Vapor pressure, kPa	50°C	0.48	100°C	20.7
	150°C	33.2	200°C	301
	230°C	229	300°C	1528

Geographic availability^c

Globally

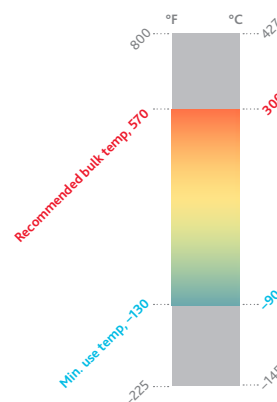
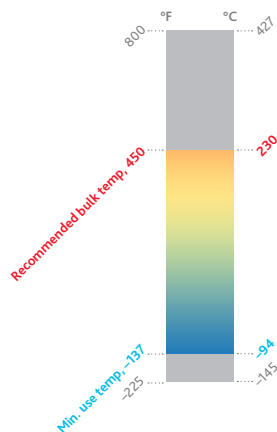
^a These data are based on samples tested in the laboratory and are not guaranteed for all samples. Contact us for complete sales specifications.

^b Visit www.therminol.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

^d Therminol D-12 outperforms FDA specifications for use in food contact applications.

^e -45°C for efficient heat transfer



SI units

Liquid phase heat transfer

THERMINOL LT

Wide-range liquid/
vapor heat transfer fluid

Typical properties^a

Appearance	Clear, light yellow liquid	
Composition	Alkyl substituted aromatic	
Recommended bulk temperature	315°C	
Maximum film temperature	345°C	
Normal boiling point	181°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-75°C (crystallizing point) —	
Pour point	NA	
Flash point, CC	58°C	
Fire point, COC	66°C	
Autoignition temperature ^b	429°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	-66°C	
Kinematic viscosity, cSt (mm ² /s)	-50°C	4.17
	100°C	0.48
	200°C	0.27
	315°C	0.19
Density at 25°C (kg/m ³)	862	
Density, kg/m ³	-50°C	920
	100°C	800
	200°C	707
	315°C	559
Heat capacity, kJ/(kg•K)	-50°C	1.53
	100°C	2.09
	200°C	2.45
	315°C	3.00
Thermal conductivity, W/(m•K)	-50°C	0.138
	100°C	0.109
	200°C	0.089
	315°C	0.065
Vapor pressure, kPa	100°C	7.1
	200°C	164
	315°C	1,560

Geographic availability^c

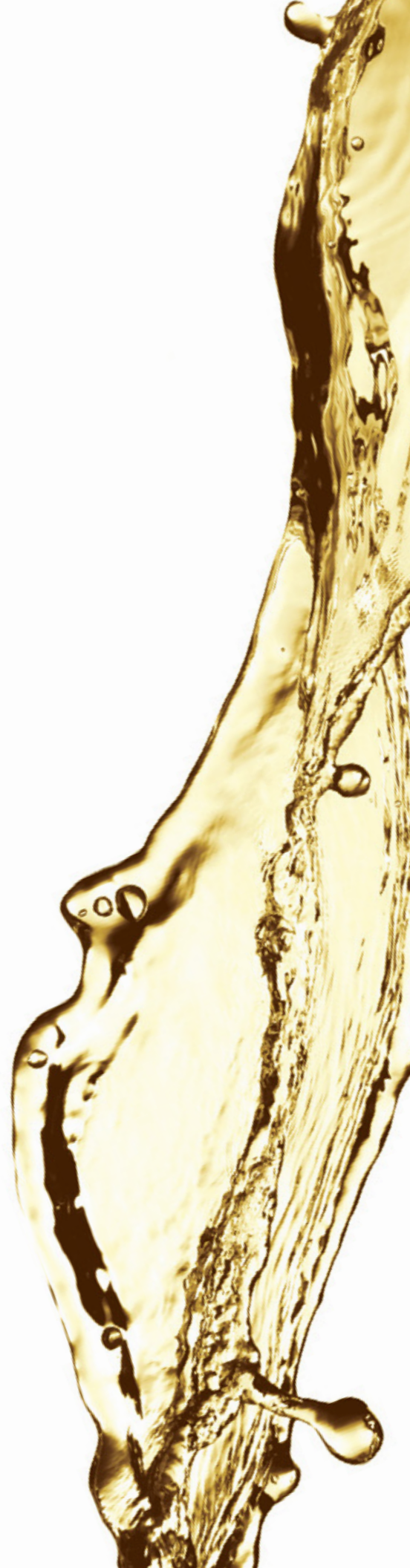
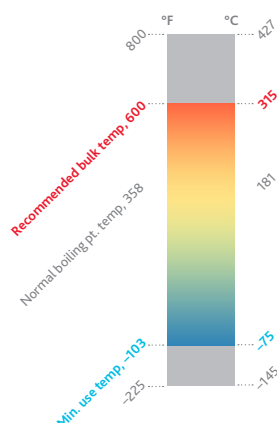
Globally

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^c Check with your local sales office to determine exact availability by country.

^d Marlotherm XC is a high-performance, wide-temperature-range heat transfer fluid for heating and cooling in the most varied fields of applications.



SI units

Liquid phase heat transfer

THERMINOL ADX-10

Low-temperature pumpability,
medium-temperature fluid

THERMINOL XP

High-purity heat transfer fluid
with NSF HT1 incidental food
contact registration

Typical properties^a

Appearance	Clear, pale yellow liquid		Colorless, odorless liquid	
Composition	Synthetic, aromatic hydrocarbon mixture		White mineral oil	
Recommended bulk temperature	250°C		315°C	
Maximum film temperature	280°C		345°C	
Normal boiling point	293°C		358°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-41°C -56°C		-1°C -20°C	
Pour point	-80°C		-29°C	
Flash point, COC	136°C		199°C	
Fire point, COC	140°C		232°C	
Autoignition temperature ^b	327°C (DIN 51794)		363°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	19°C		72°C	
Kinematic viscosity, cSt (mm ² /s)	-25°C	75	-25°C	3860
	100°C	1.36	0°C	267
	200°C	0.55	200°C	1.10
	250°C	0.40	250°C	0.746
Density at 25°C (kg/m ³)	853		875	
Density, kg/m ³	-25°C	887	0°C	891
	100°C	801	100°C	827
	200°C	727	200°C	761
	250°C	686	315°C	678
Heat capacity, kJ/(kg•K)	-25°C	1.74	0°C	1.72
	100°C	2.21	100°C	2.18
	200°C	2.56	200°C	2.60
	250°C	2.72	315°C	3.00
Thermal conductivity, W/(m•K)	-25°C	0.130	0°C	0.117
	100°C	0.113	100°C	0.109
	200°C	0.099	200°C	0.099
	250°C	0.090	315°C	0.085
Vapor pressure, kPa	100°C	0.07	100°C	0.018
	200°C	8.31	200°C	1.7
	250°C	36.6	315°C	42

Geographic availability^c

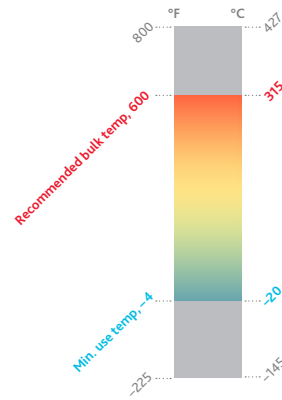
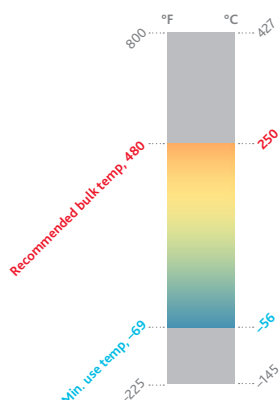
Europe/Middle East/Africa/Americas

Globally

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^c Check with your local sales office to determine exact availability by country.



SI units

Liquid phase heat transfer

THERMINOL

54

Economical medium-temperature-range fluid

THERMINOL

55

Trusted medium-temperature-range fluid

Typical properties^a

Appearance	Clear, yellow liquid		Clear, yellow liquid	
Composition	Synthetic hydrocarbon mixture		Synthetic hydrocarbon mixture	
Recommended bulk temperature	280°C		300°C ^d	
Maximum film temperature	310°C		335°C	
Normal boiling point	351°C		351°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-8°C -28°C		-8°C -28°C	
Pour point	<-45°C		-54°C	
Flash point, COC	>170°C		193°C	
Fire point, COC	>210°C		218°C	
Autoignition temperature ^b	>330°C		382°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	67°C		67°C	
Kinematic viscosity, cSt (mm ² /s)	-25°C	1390	-25°C	1390
	100°C	3.52	100°C	3.52
	200°C	1.00	200°C	1.00
	280°C	0.56	290°C	0.53
Density at 25°C (kg/m ³)	868		868	
Density, kg/m ³	-25°C	902	-25°C	902
	100°C	818	100°C	818
	200°C	748	200°C	748
	280°C	688	290°C	680
Heat capacity, kJ/(kg•K)	-25°C	1.74	-25°C	1.74
	100°C	2.19	100°C	2.19
	200°C	2.54	200°C	2.54
	280°C	2.83	290°C	2.86
Thermal conductivity, W/(m•K)	-25°C	0.134	-25°C	0.134
	100°C	0.119	100°C	0.119
	200°C	0.107	200°C	0.107
	280°C	0.098	290°C	0.097
Vapor pressure, kPa	100°C	0.03	100°C	0.032
	200°C	2.15	200°C	2.15
	280°C	21.3	290°C	27.2

Geographic availability^c

Europe/Middle East/Africa

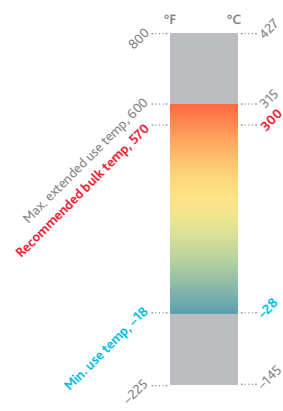
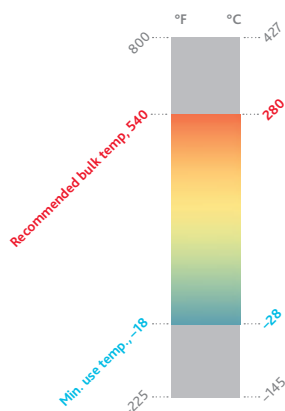
Americas/Middle East/Africa

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^c Check with your local sales office to determine exact availability by country.

^d Maximum extended use temperature = 315°C



SI units

Liquid phase heat transfer

THERMINOL SP

Trusted medium-temperature-range fluid

THERMINOL 59

Wide-operating-range fluid with excellent low-temperature pumpability

Typical properties^a

Appearance	Clear, yellow liquid		Clear, yellow to dark amber liquid	
Composition	Synthetic hydrocarbon mixture		Alkyl substituted aromatic	
Recommended bulk temperature	300°C ^d		315°C	
Maximum film temperature	335°C		345°C	
Normal boiling point	351°C		289°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-8°C -28°C		-37°C -49°C	
Pour point	-54°C		-68°C (ISO 3016)	
Flash point, COC	193°C		146°C	
Fire point, COC	218°C		154°C	
Autoignition temperature ^b	382°C (DIN 51794)		404°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	67°C		17°C	
Kinematic viscosity, cSt (mm ² /s)	-25°C	1390	-25°C	80.9
	100°C	3.52	100°C	1.44
	200°C	1.00	200°C	0.57
	290°C	0.53	315°C	0.31
Density at 25°C (kg/m ³)	868		971	
Density, kg/m ³	-25°C	902	-25°C	1,007
	100°C	818	100°C	916
	200°C	748	200°C	840
	290°C	680	315°C	741
Heat capacity, kJ/(kg•K)	-25°C	1.74	-25°C	1.54
	100°C	2.19	100°C	1.94
	200°C	2.54	200°C	2.27
	290°C	2.862	315°C	2.67
Thermal conductivity, W/(m•K)	-25°C	0.134	-25°C	0.124
	100°C	0.119	100°C	0.115
	200°C	0.107	200°C	0.104
	290°C	0.097	315°C	0.089
Vapor pressure, kPa	100°C	0.032	100°C	0.35
	200°C	2.15	200°C	13.1
	290°C	27.2	315°C	161

Geographic availability^c

Europe/Middle East

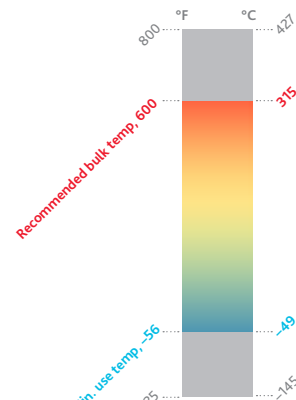
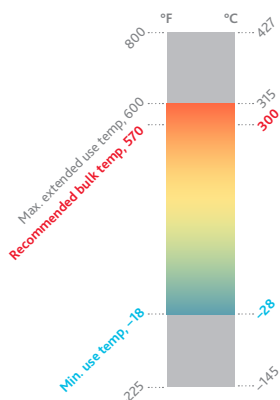
Globally

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^b Visit www.therminol.com or www.marlotherm.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

^d Maximum extended use temperature = 360°C



SI units

Liquid phase heat transfer

MARLOTHERM LH

Wide-temperature-range fluid
for heating and cooling

THERMINOL 62

High-performance,
low-pressure fluid

Typical properties^a

Appearance	Clear liquid	Water-white liquid
Composition	Benzyltoluene	Isopropyl biphenyl mixture
Recommended bulk temperature	330°C ^d	325°C
Maximum film temperature	380°C	355°C
Normal boiling point	278°C	333°C
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	–67°C ^e <–70°C ^e	–11°C –23°C
Pour point	–79°C	–42°C
Flash point, COC	132°C	171°C
Fire point, COC	157°C	196°C
Autoignition temperature ^b	510°C (DIN 51794)	433°C (DIN 51794)
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	1°C	50°C
Kinematic viscosity, cSt (mm ² /s)	–20°C 17.0 100°C 1.08 200°C 0.47 300°C 0.30	0°C 103 100°C 2.52 200°C 0.72 325°C 0.28
Density at 25°C (kg/m ³)	992	951
Density, kg/m ³	–20°C 1025 100°C 936 200°C 856 300°C 767	0°C 968 100°C 897 200°C 820 325°C 705
Heat capacity, kJ/(kg•K)	–20°C 1.47 100°C 1.88 200°C 2.22 300°C 2.552	0°C 1.89 100°C 2.14 200°C 2.36 325°C 2.58
Thermal conductivity, W/(m•K)	–20°C 0.136 100°C 0.122 200°C 0.111 300°C 0.099	0°C 0.125 100°C 0.116 200°C 0.106 325°C 0.090
Vapor pressure, kPa	100°C 0.22 200°C 13.1 300°C 162	100°C 0.056 200°C 3.5 325°C 86

Geographic availability^c

Globally

Contact your Eastman representative.

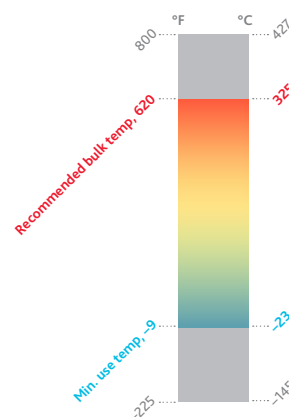
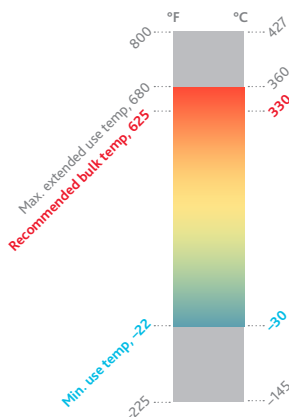
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^d Maximum extended use temperature = 360°C

^e Operation at temperatures < –30°C (–22°F) is not advised due to potential formation and effects of crystals at lower temperatures.



SI units

Liquid phase heat transfer

MARLOTHERM SH

High-boiling-point, low-viscosity,
low-pressure heat transfer fluid

THERMINOL 66

High-temperature, high-stability,
low-pressure fluid

Typical properties^a

Appearance	Clear liquid		Clear, pale yellow liquid	
Composition	Dibenzyltoluene		Modified terphenyl	
Recommended bulk temperature	325°C ^d		345°C	
Maximum film temperature	380°C		375°C	
Normal boiling point	392°C		359°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-1°C -15°C		11°C -3°C	
Pour point	-34°C		-32°C	
Flash point, COC	219°C		184°C	
Fire point, COC	250°C		212°C	
Autoignition temperature ^b	500°C (DIN 51794)		399°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	61°C		72°C	
Kinematic viscosity, cSt (mm ² /s)	0°C	261	0°C	1300
	100°C	3.18	100°C	3.77
	200°C	0.92	200°C	0.97
	320°C	0.39	345°C	0.43
Density at 25°C (kg/m ³)	1,039		1,005	
Density, kg/m ³	0°C	1055	0°C	1,021
	100°C	989	100°C	955
	200°C	919	200°C	885
	320°C	827	345°C	770
Heat capacity, kJ/(kg•K)	0°C	1.49	0°C	1.49
	100°C	1.85	100°C	1.84
	200°C	2.22	200°C	2.19
	320°C	2.67	345°C	2.75
Thermal conductivity, W/(m•K)	0°C	0.1331	0°C	0.118
	100°C	0.1201	100°C	0.114
	200°C	0.1070	200°C	0.106
	320°C	0.0910	345°C	0.089
Vapor pressure, kPa	100°C	—	100°C	0.048
	200°C	0.723	200°C	2.2
	320°C	21.1	345°C	78

Geographic availability^c

Globally

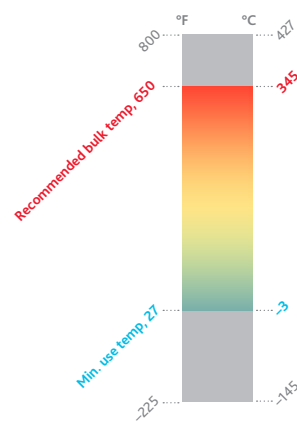
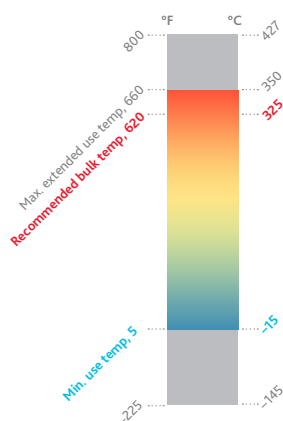
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^d Maximum extended temperature = 350°C



SI units

Liquid phase heat transfer

THERMINOL

68

High-temperature,
low-viscosity fluid

THERMINOL

72

High-temperature,
medium-pressure fluid

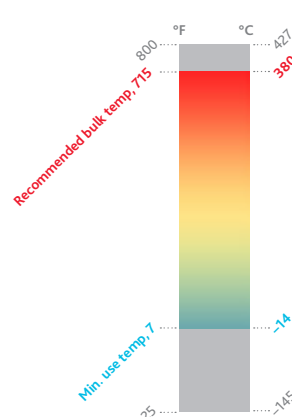
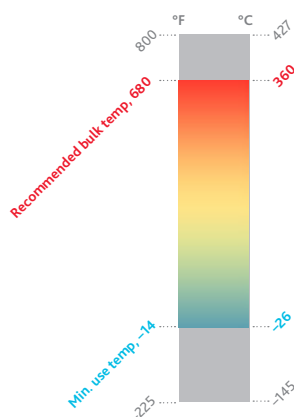
Typical properties^a

Appearance	Clear, pale yellow liquid		Clear, amber liquid	
Composition	Mixture of synthetic aromatics		Mixture of synthetic aromatics	
Recommended bulk temperature	360°C		380°C	
Maximum film temperature	390°C		400°C	
Normal boiling point	308°C		271°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-10°C -26°C		-10°C -14°C	
Pour point	-33°C		-18°C	
Flash point, COC	155°C		132°C	
Fire point, COC	174°C		143°C	
Autoignition temperature ^b	400°C (DIN 51794)		603°C (ASTM E659)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54-cm tube)	57°C		32°C	
Kinematic viscosity, cSt (mm ² /s)	0°C	125	0°C	54
	100°C	2.69	100°C	1.6
	200°C	0.78	250°C	0.38
	360°C	0.33	380°C	0.19
Density at 25°C (kg/m ³)	1,020		1,075	
Density, kg/m ³	0°C	1,040	0°C	1,100
	100°C	969	100°C	1,007
	200°C	898	250°C	871
	360°C	782	380°C	753
Heat capacity, kJ/(kg•K)	0°C	1.56	0°C	1.50
	100°C	1.88	100°C	1.77
	200°C	2.20	250°C	2.18
	360°C	2.72	380°C	2.53
Thermal conductivity, W/(m•K)	0°C	0.125	0°C	0.142
	100°C	0.117	100°C	0.130
	200°C	0.109	250°C	0.112
	360°C	0.096	380°C	0.096
Vapor pressure, kPa	100°C	0.237	100°C	0.33
	200°C	8.15	250°C	61.6
	360°C	251	380°C	623

Geographic availability^c

Europe/Middle East/Africa

Globally



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^b Visit www.therminol.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

SI units

Liquid phase heat transfer

THERMINOL

75

Ultrahigh-temperature,
low-pressure fluid

THERMINOL

VP-3

High-temperature,
liquid/vapor phase fluid

Typical properties^a

Appearance	Soft solid melting to yellow liquid		Above 2.4°C (36°F) clear, sediment-free liquid	
Composition	Terphenyl/quaterphenyl		Phenylcyclohexane + bicyclohexyl	
Recommended bulk temperature	385°C		330°C	
Maximum film temperature	410°C		360°C	
Normal boiling point	343°C		243°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	80°C (slurry point) —		2.4°C (crystallizing point) —	
Pour point	NA		NA	
Flash point, COC	185°C		104°C	
Fire point, COC	227°C		113°C	
Autoignition temperature ^b	567°C (ASTM E659)		360°C (ASTM E659)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54 cm tube)	98°C		2.4°C	
Kinematic viscosity, cSt (mm ² /s)	80°C	4.12	25°C	2.79
	200°C	0.89	150°C	0.64
	300°C	0.42	250°C	0.37
	385°C	0.27	330°C	0.25
Density at 25°C (kg/m ³)	1,041 (80°C)		930	
Density, kg/m ³	80°C	1,040	25°C	930
	200°C	953	150°C	847
	300°C	873	250°C	750
	385°C	794	330°C	641
Heat capacity, kJ/(kg•K)	80°C	1.71	25°C	1.63
	200°C	2.05	150°C	2.16
	300°C	2.28	250°C	2.52
	385°C	2.44	330°C	3.00
Thermal conductivity, W/(m•K)	80°C	0.131	25°C	0.117
	200°C	0.121	150°C	0.101
	300°C	0.112	250°C	0.087
	385°C	0.103	330°C	0.076
Vapor pressure, kPa	150°C	0.55	150°C	5.3
	250°C	12.9	250°C	121
	385°C	215	330°C	693

Geographic availability^c

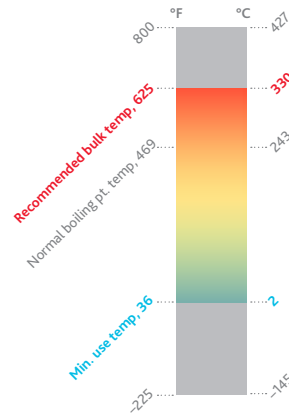
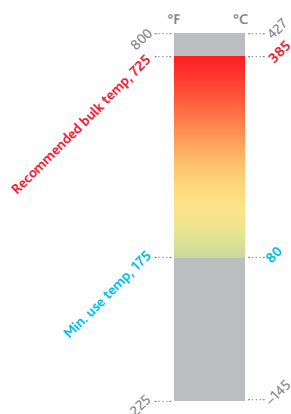
Globally

Globally

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^c Check with your local sales office to determine exact availability by country.



SI units

Liquid phase heat transfer

THERMINOL VP-1

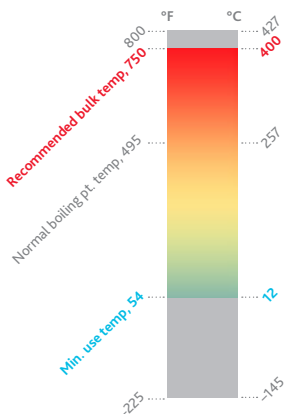
Ultrahigh-temperature,
liquid/vapor phase fluid

Typical properties^a

Appearance	Clear, water-white liquid	
Composition	Biphenyl/diphenyl oxide (DPO) eutectic mixture	
Recommended bulk temperature	400°C	
Maximum film temperature	430°C	
Normal boiling point	257°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	12°C (crystallizing point) —	
Pour point	NA	
Flash point, COC	124°C	
Fire point, COC	127°C	
Autoignition temperature ^b	621°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54 cm tube)	12°C	
Kinematic viscosity, cSt (mm ² /s)	25°C	3.52
	150°C	0.61
	250°C	0.33
	400°C	0.21
Density at 25°C (kg/m ³)	1,060	
Density, kg/m ³	25°C	1,060
	150°C	957
	250°C	867
	400°C	694
Heat capacity, kJ/(kg•K)	25°C	1.56
	150°C	1.91
	250°C	2.18
	400°C	2.63
Thermal conductivity, W/(m•K)	25°C	0.136
	150°C	0.121
	250°C	0.106
	400°C	0.076
Vapor pressure, kPa	150°C	4.5
	250°C	86
	400°C	1,090

Geographic availability^c

Globally



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English units

Liquid phase heat transfer

THERMINOL D-12

Low-temperature coolant/heat transfer fluid that is NSF HT1 certified^d

MARLOTHERM XC

High-performance, wide-temperature-range heat transfer fluid^d

Typical properties^a

Appearance	Clear, water-white liquid			Clear liquid		
Composition	Synthetic hydrocarbons			Cumene		
Recommended bulk temperature	450°F			570°F		
Maximum film temperature	475°F			608°F		
Normal boiling point	378°F			306°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-116°F ^e -137°F ^e			<-130°F —		
Pour point	-148°F			<-130°F		
Flash point, CC	144°F			102°F		
Fire point, COC	175°F			122°F		
Autoignition temperature ^b	531°F (DIN 51794)			~788°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	-35°F			-119°F		
Kinematic viscosity, cSt (mm ² /s)	-50°F	11.5		-100°F	5.54	
	100°F	1.26		200°F	0.486	
	300°F	0.44		400°F	0.273	
	450°F	0.26		570°F	0.228	
Density at 75°F (lb/gal)	6.34			7.16 lb/gal		
Density, various temperatures	-50°F	6.75 lb/gal	50.5 lb/ft ³	-100°F	7.82 lb/gal	58.5 lb/ft ³
	100°F	6.26 lb/gal	46.8 lb/ft ³	200°F	6.66 lb/gal	49.8 lb/ft ³
	300°F	5.53 lb/gal	41.4 lb/ft ³	400°F	5.74 lb/gal	42.9 lb/ft ³
	450°F	4.86 lb/gal	36.3 lb/ft ³	570°F	4.62 lb/gal	34.6 lb/ft ³
Heat capacity, Btu/(lb•°F)	-50°F	0.440		-100°F	0.321	
	100°F	0.517		200°F	0.488	
	300°F	0.626		400°F	0.605	
	450°F	0.715		570°F	0.757	
Thermal conductivity, Btu/(h•ft•°F)	-50°F	0.0690		-100°F	0.0866	
	100°F	0.0620		200°F	0.0643	
	300°F	0.0505		400°F	0.0499	
	450°F	0.0404		570°F	0.0377	
Vapor pressure	200°F	32.7 mmHg	0.632 psia	200°F	121.5 mmHg	2.35 psia
	300°F	241 mmHg	4.66 psia	400°F	2,472 mmHg	47.8 psia
	450°F	1,800 mmHg	34.8 psia	570°F	11,480 mmHg	222 psia

Geographic availability^c

Globally

Globally

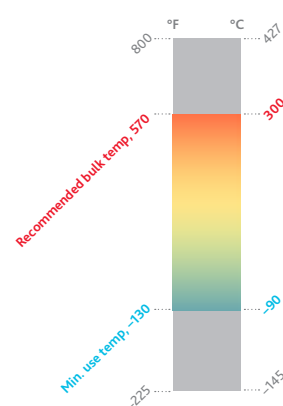
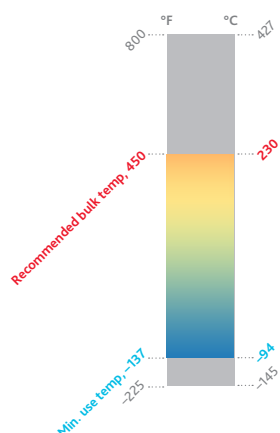
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^b Visit www.therminol.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

^d Therminol D-12 outperforms FDA specifications for use in food contact applications.

^e -50°F for efficient heat transfer



English units

Liquid phase heat transfer

THERMINOL LT

Wide-range liquid/
vapor heat transfer fluid

Typical properties^a

Appearance	Clear, light yellow liquid		
Composition	Alkyl substituted aromatic		
Recommended bulk temperature	600°F		
Maximum film temperature	650°F		
Normal boiling point	358°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-103°F (crystallizing point) —		
Pour point	NA		
Flash point, CC	134°F		
Fire point, COC	150°F		
Autoignition temperature ^b	804°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	-87°F		
Kinematic viscosity, cSt (mm ² /s)	-100°F 100°F 300°F 600°F	10.8 0.83 0.35 0.19	
Density at 75°F (lb/gal)	7.20		
Density, various temperatures	-100°F 100°F 300°F 600°F	7.83 lb/gal 7.11 lb/gal 6.31 lb/gal 4.66 lb/gal	58.6 lb/ft ³ 53.2 lb/ft ³ 47.2 lb/ft ³ 34.8 lb/ft ³
Heat capacity, Btu/(lb•°F)	-100°F 100°F 300°F 600°F	0.344 0.446 0.542 0.719	
Thermal conductivity, Btu/(h•ft•°F)	-100°F 100°F 300°F 600°F	0.0825 0.0701 0.0573 0.0374	
Vapor pressure	200°F 400°F 600°F	41 mmHg 1,370 mmHg 11,800 mmHg	0.79 psia 26.5 psia 228 psia

Geographic availability^c

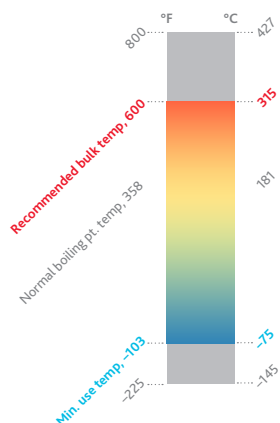
Globally

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^b Visit www.therminol.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

^d Marlotherm XC is a high-performance, wide-temperature-range heat transfer fluid for heating and cooling in the most varied fields of applications.



English units

Liquid phase heat transfer

THERMINOL ADX-10

Low-temperature pumpability,
medium-temperature fluid

THERMINOL XP

High-purity heat transfer fluid
with NSF HT1 incidental food
contact registration

Typical properties^a

Appearance	Clear, pale yellow liquid			Colorless, odorless liquid		
Composition	Synthetic aromatic hydrocarbon mixture			White mineral oil		
Recommended bulk temperature	480°F			600°F		
Maximum film temperature	535°F			650°F		
Normal boiling point	559°F			676°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-41°F -69°F			30°F -4°F		
Pour point	-112°F			-20°F		
Flash point, COC	277°F			390°F		
Fire point, COC	284°F			450°F		
Autoignition temperature ^b	621°F (DIN 51794)			685°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	66°F			162°F		
Kinematic viscosity, cSt (mm ² /s)	-50°F	508		0°F	1,560	
	200°F	1.49		200°F	4.7	
	400°F	0.531		400°F	1.06	
	480°F	0.403		600°F	0.50	
Density at 75°F (lb/gal)	7.13			7.31		
Density, various temperatures	-50°F	7.53 lb/gal	56.3 lb/ft ³	0°F	7.53 lb/gal	56.3 lb/ft ³
	200°F	6.72 lb/gal	50.3 lb/ft ³	200°F	6.94 lb/gal	51.9 lb/ft ³
	400°F	6.04 lb/gal	45.2 lb/ft ³	400°F	6.33 lb/gal	47.3 lb/ft ³
	480°F	5.73 lb/gal	42.9 lb/ft ³	600°F	5.66 lb/gal	42.3 lb/ft ³
Heat capacity, Btu/(lb•°F)	-50°F	0.395		0°F	0.389	
	200°F	0.523		200°F	0.515	
	400°F	0.615		400°F	0.625	
	480°F	0.649		600°F	0.718	
Thermal conductivity, Btu/(h•ft•°F)	-50°F	0.0764		0°F	0.0681	
	200°F	0.0660		200°F	0.0635	
	400°F	0.0565		400°F	0.0571	
	480°F	0.0523		600°F	0.0490	
Vapor pressure	200°F	0.36 mmHg	0.007 psia	200°F	0.09 mmHg	0.002 psia
	400°F	72.4 mmHg	1.40 psia	400°F	15.0 mmHg	0.289 psia
	480°F	266 mmHg	5.15 psia	600°F	318 mmHg	6.16 psia

Geographic availability^c

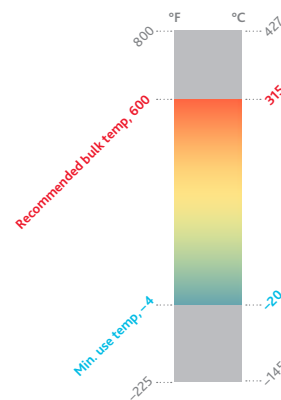
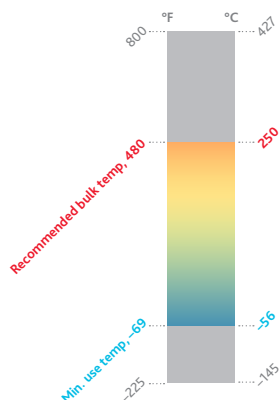
Europe/Middle East/Africa/Americas

Globally

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^b Visit www.therminol.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.



English units

Liquid phase heat transfer

THERMINOL

54

Economical medium-temperature-range fluid

THERMINOL

55

Trusted medium-temperature-range fluid

Typical properties^a

Appearance	Clear, yellow liquid			Clear, yellow liquid		
Composition	Synthetic hydrocarbon mixture			Synthetic hydrocarbon mixture		
Recommended bulk temperature	540°F			570°F ^d		
Maximum film temperature	590°F			635°F		
Normal boiling point	664°F			664°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	17°F –18°F			17°F –18°F		
Pour point	<–50°F			–65°F		
Flash point, COC	>340°F			379°F		
Fire point, COC	>410°F			425°F		
Autoignition temperature ^b	>625°F			719°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	152°F			152°F		
Kinematic viscosity, cSt (mm ² /s)	0°F	683		0°F	683	
	200°F	4.03		200°F	4.03	
	400°F	0.96		400°F	0.964	
	540°F	0.56		550°F	0.536	
Density at 75°F (lb/gal)	7.25			7.26		
Density, various temperatures	0°F	7.49 lb/gal	56.0 lb/ft ³	0°F	7.49 lb/gal	56.0 lb/ft ³
	200°F	6.86 lb/gal	51.3 lb/ft ³	200°F	6.86 lb/gal	51.3 lb/ft ³
	400°F	6.22 lb/gal	46.5 lb/ft ³	400°F	6.22 lb/gal	46.5 lb/ft ³
	540°F	5.73 lb/gal	42.8 lb/ft ³	550°F	5.69 lb/gal	42.6 lb/ft ³
Heat capacity, Btu/(lb•°F)	0°F	0.42		0°F	0.423	
	200°F	0.52		200°F	0.518	
	400°F	0.61		400°F	0.612	
	540°F	0.68		550°F	0.682	
Thermal conductivity, Btu/(h•ft•°F)	0°F	0.077		0°F	0.0768	
	200°F	0.069		200°F	0.0693	
	400°F	0.062		400°F	0.0618	
	540°F	0.057		550°F	0.0561	
Vapor pressure	200°F	—	—	200°F	0.16 mmHg	0.003 psia
	400°F	18.6 mmHg	0.36 psia	400°F	18.6 mmHg	0.360 psia
	540°F	169 mmHg	3.27 psia	550°F	193 mmHg	3.74 psia

Geographic availability^c

Europe/Middle East/Africa

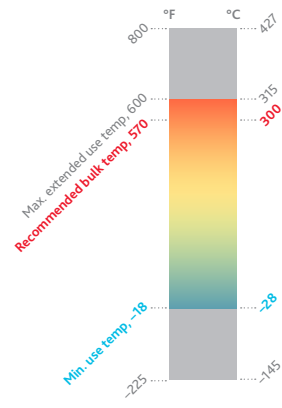
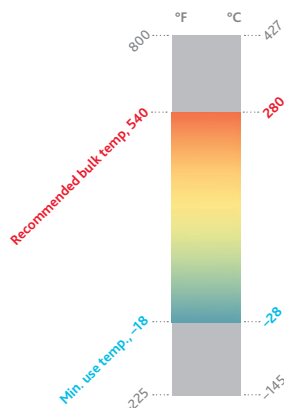
Americas/Middle East/Africa

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^b Visit www.therminol.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

^d Maximum extended use temperature = 600°F



English units

Liquid phase heat transfer

THERMINOL

SP

Trusted medium-temperature-range fluid

THERMINOL

59

Wide-operating-range fluid with excellent low-temperature pumpability

Typical properties^a

Appearance	Clear, yellow liquid			Clear, yellow to dark amber liquid		
Composition	Synthetic hydrocarbon mixture			Alkyl substituted aromatic		
Recommended bulk temperature	570°F ^d			600°F		
Maximum film temperature	635°F			650°F		
Normal boiling point	664°F			553°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	17°F -18°F			-35°F -56°F		
Pour point	-65°F			-90°F (ISO 3016)		
Flash point, COC	379°F			295°F		
Fire point, COC	425°F			310°F		
Autoignition temperature ^b	719°F (DIN 51794)			760°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	152°F			63°F		
Kinematic viscosity, cSt (mm ² /s)	0°F	683		0°F	45	
	200°F	4.03		200°F	1.57	
	400°F	0.964		400°F	0.55	
	550°F	0.536		600°F	0.31	
Density at 75°F (lb/gal)	7.26			8.11		
Density, various temperatures	0°F	7.49 lb/gal	56.0 lb/ft ³	0°F	8.36 lb/gal	62.5 lb/ft ³
	200°F	6.86 lb/gal	51.3 lb/ft ³	200°F	7.68 lb/gal	57.5 lb/ft ³
	400°F	6.22 lb/gal	46.5 lb/ft ³	400°F	6.98 lb/gal	52.2 lb/ft ³
	550°F	5.69 lb/gal	42.6 lb/ft ³	600°F	6.18 lb/gal	46.2 lb/ft ³
Heat capacity, Btu/(lb•°F)	0°F	0.423		0°F	0.373	
	200°F	0.518		200°F	0.459	
	400°F	0.612		400°F	0.547	
	550°F	0.682		600°F	0.640	
Thermal conductivity, Btu/(h•ft•°F)	0°F	0.0768		0°F	0.0716	
	200°F	0.0693		200°F	0.0668	
	400°F	0.0618		400°F	0.0600	
	550°F	0.0561		600°F	0.0513	
Vapor pressure	200°F	0.16 mmHg	0.003 psia	200°F	19.5 mmHg	0.036 psia
	400°F	18.6 mmHg	0.360 psia	400°F	111 mmHg	2.14 psia
	550°F	193 mmHg	3.74 psia	600°F	1,220 mmHg	23.6 psia

Geographic availability^c

Europe/Middle East

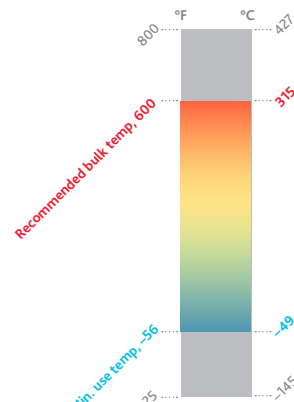
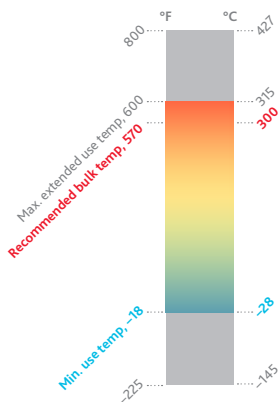
Globally

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^b Visit www.therminol.com or www.marlotherm.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

^d Maximum extended use temperature = 680°F



English units

Liquid phase heat transfer

MARLOTHERM LH

Wide-temperature-range fluid
for heating and cooling

THERMINOL 62

High-performance,
low-pressure fluid

Typical properties^a

Appearance	Clear liquid			Water-white liquid		
Composition	Benzyltoluene			Isopropyl biphenyl mixture		
Recommended bulk temperature	625°F ^d			620°F		
Maximum film temperature	715°F			670°F		
Normal boiling point	532°F			631°F		
Pumpability: at 300 cSt (mm²/s) at 2000 cSt (mm²/s)	−88°F ^e <−94°F ^e			12°F −9°F		
Pour point	−110°F			−44°F		
Flash point, COC	270°F			340°F		
Fire point, COC	315°F			385°F		
Autoignition temperature ^b	950°F (DIN 51794)			813°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	34°F			122°F		
Kinematic viscosity, cSt (mm²/s)	0°F	15.5		0°F	843	
	200°F	1.17		200°F	2.83	
	400°F	0.46		400°F	0.69	
	600°F	0.29		620°F	0.28	
Density at 75°F (lb/gal)	8.29			7.96		
Density, various temperatures	0°F	8.54 lb/gal	63.9 lb/ft³	0°F	8.19 lb/gal	61.3 lb/ft³
	200°F	7.85 lb/gal	58.7 lb/ft³	200°F	7.53 lb/gal	56.3 lb/ft³
	400°F	7.11 lb/gal	53.2 lb/ft³	400°F	6.81 lb/gal	50.9 lb/ft³
	600°F	6.27 lb/gal	46.9 lb/ft³	620°F	5.87 lb/gal	43.9 lb/ft³
Heat capacity, Btu/(lb•°F)	0°F	0.353		0°F	0.440	
	200°F	0.445		200°F	0.509	
	400°F	0.534		400°F	0.565	
	600°F	0.622		620°F	0.617	
Thermal conductivity, Btu/(h•ft•°F)	0°F	0.0785		0°F	0.0729	
	200°F	0.0712		200°F	0.0673	
	400°F	0.0638		400°F	0.0610	
	600°F	0.0564		620°F	0.0518	
Vapor pressure	200°F	1.14 mmHg	0.022 psia	200°F	0.29 mmHg	0.006 psia
	400°F	113.3 mmHg	2.19 psia	400°F	30.2 mmHg	0.584 psia
	600°F	1649.7 mmHg	31.9 psia	620°F	670 mmHg	13.0 psia

Geographic availability^c

Globally

Contact your Eastman representative.

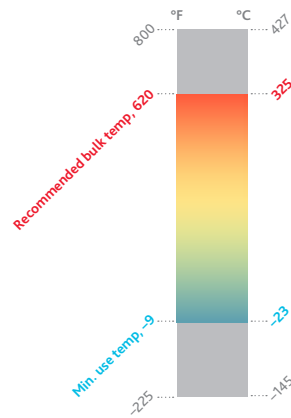
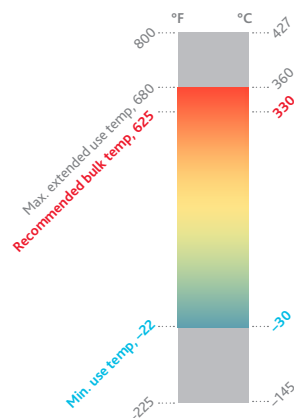
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^b Visit www.therminol.com or www.marlotharm.com for additional typical properties and test values.

^c Check with your local sales office to determine exact availability by country.

^d Maximum extended use temperature = 680°F

^e Operation at temperatures < -30°C (-22°F) is not advised due to potential formation and effects of crystals at lower temperatures.



English units

Liquid phase heat transfer

MARLOTHERM SH

High-boiling-point, low-viscosity,
low-pressure heat transfer fluid

THERMINOL 66

High-temperature, high-stability,
low-pressure fluid

Typical properties^a

Appearance	Clear liquid			Clear, pale yellow liquid		
Composition	Dibenzyltoluene			Modified terphenyl		
Recommended bulk temperature	620°F ^d			650°F		
Maximum film temperature	715°F			705°F		
Normal boiling point	738°F			678°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	30°F 5°F			52°F 27°F		
Pour point	-29.2°F			-25°F		
Flash point, COC	426°F			363°F		
Fire point, COC	482°F			414°F		
Autoignition temperature ^b	932°F (DIN 51794)			750°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	142°F			162°F		
Kinematic viscosity, cSt (mm ² /s)	20°F	588		50°F	339	
	200°F	3.60		300°F	1.68	
	400°F	0.882		500°F	0.63	
	620°F	0.384		650°F	0.43	
Density at 75°F (lb/gal)	8.67			8.39		
Density, various temperatures	20°F	8.84 lb/gal	66.1 lb/ft ³	50°F	8.47 lb/gal	63.4 lb/ft ³
	200°F	8.29 lb/gal	62.0 lb/ft ³	300°F	7.69 lb/gal	57.5 lb/ft ³
	400°F	7.64 lb/gal	57.2 lb/ft ³	500°F	7.01 lb/gal	52.5 lb/ft ³
	620°F	6.85 lb/gal	51.3 lb/ft ³	650°F	6.44 lb/gal	48.2 lb/ft ³
Heat capacity, Btu/(lb•°F)	20°F	0.351		50°F	0.365	
	200°F	0.436		300°F	0.480	
	400°F	0.534		500°F	0.578	
	620°F	0.644		650°F	0.655	
Thermal conductivity, Btu/(h•ft•°F)	20°F	0.0774		50°F	0.0682	
	200°F	0.0700		300°F	0.0636	
	400°F	0.0615		500°F	0.0574	
	620°F	0.0521		650°F	0.0514	
Vapor pressure	200°F	0.05 mmHg	0.001 psia	300°F	2.9 mmHg	0.056 psia
	400°F	6.36 mmHg	0.123 psia	500°F	90 mmHg	1.7 psia
	620°F	184.1 mmHg	3.56 psia	650°F	570 mmHg	11 psia

Geographic availability^c

Globally

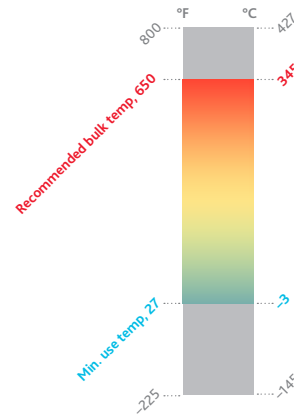
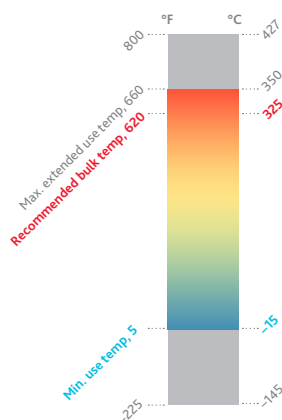
Globally

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^c Check with your local sales office to determine exact availability by country.

^d Maximum extended temperature = 660°F



English units

Liquid phase heat transfer

THERMINOL

68

High-temperature,
low-viscosity fluid

THERMINOL

72

High-temperature,
medium-pressure fluid

Typical properties^a

Appearance	Clear, pale yellow liquid			Clear, amber liquid		
Composition	Mixture of synthetic aromatics			Mixture of synthetic aromatics		
Recommended bulk temperature	680°F			715°F		
Maximum film temperature	735°F			750°F		
Normal boiling point	586°F			520°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	14°F –14°F			16°F 7°F		
Pour point	–27°F			0°F		
Flash point, COC	311°F			270°F		
Fire point, COC	345°F			290°F		
Autoignition temperature ^b	752°F (DIN 51794)			1,117°F (ASTM E659)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	135°F			89°F		
Kinematic viscosity, cSt (mm ² /s)	20°F	219		15°F	291	
	300°F	1.29		300°F	0.868	
	500°F	0.516		500°F	0.355	
	680°F	0.332		715°F	0.19	
Density at 75°F (lb/gal)	8.56			8.98		
Density, various temperatures	20°F	8.73 lb/gal	65.3 lb/ft ³	15°F	9.23 lb/gal	69.0 lb/ft ³
	300°F	7.79 lb/gal	58.3 lb/ft ³	300°F	8.03 lb/gal	60.1 lb/ft ³
	500°F	7.13 lb/gal	53.3 lb/ft ³	500°F	7.19 lb/gal	53.8 lb/ft ³
	680°F	6.52 lb/gal	48.8 lb/ft ³	715°F	6.29 lb/gal	47.0 lb/ft ³
Heat capacity, Btu/(lb•°F)	20°F	0.368		15°F	0.352	
	300°F	0.487		300°F	0.454	
	500°F	0.573		500°F	0.526	
	680°F	0.650		715°F	0.604	
Thermal conductivity, Btu/(h•ft•°F)	20°F	0.0727		15°F	0.0828	
	300°F	0.0654		300°F	0.0717	
	500°F	0.0602		500°F	0.0639	
	680°F	0.0556		715°F	0.0555	
Vapor pressure	300°F	12.2 mmHg	0.236 psia	300°F	22.4 mmHg	0.43 psia
	500°F	278 mmHg	5.38 psia	500°F	579 mmHg	11.2 psia
	680°F	1,888 mmHg	36.5 psia	715°F	4,640 mmHg	89.8 psia

Geographic availability^c

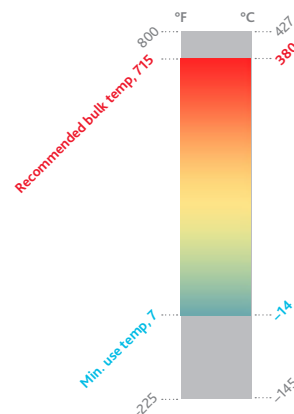
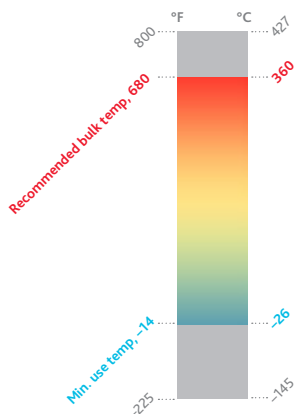
Europe/Middle East/Africa

Globally

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English units

Liquid phase heat transfer

THERMINOL 75

Ultrahigh-temperature,
low-pressure fluid

THERMINOL VP-3

High-temperature,
liquid/vapor phase fluid

Typical properties^a

Appearance	Soft solid melting to yellow liquid			Above 2.4°C (36°F) clear, sediment-free liquid		
Composition	Terphenyl/quaterphenyl			Phenylcyclohexane + bicyclohexyl		
Recommended bulk temperature	725°F			625°F		
Maximum film temperature	770°F			675°F		
Normal boiling point	649°F			469°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	175°F (slurry point) —			36°F (crystallizing point) —		
Pour point	NA			NA		
Flash point, COC	365°F			219°F		
Fire point, COC	440°F			235°F		
Autoignition temperature ^b	1,052°F (ASTM E659)			680°F (ASTM E659)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	209°F			36°F		
Kinematic viscosity, cSt (mm ² /s)	175°F 400°F 600°F 725°F	4.16 0.85 0.39 0.28		100°F 300°F 500°F 625°F	2.12 0.64 0.35 0.25	
Density at 75°F (lb/gal)	8.69 (175°F)			7.77		
Density, various temperatures	175°F 400°F 600°F 725°F	8.69 lb/gal 7.93 lb/gal 7.17 lb/gal 6.62 lb/gal	65.0 lb/ft ³ 59.3 lb/ft ³ 53.6 lb/ft ³ 49.6 lb/ft ³	100°F 300°F 500°F 625°F	7.71 lb/gal 7.08 lb/gal 6.16 lb/gal 5.36 lb/gal	57.7 lb/ft ³ 52.9 lb/ft ³ 46.1 lb/ft ³ 40.1 lb/ft ³
Heat capacity, Btu/(lb•°F)	175°F 400°F 600°F 725°F	0.408 0.492 0.552 0.584		100°F 300°F 500°F 625°F	0.403 0.514 0.611 0.715	
Thermal conductivity, Btu/(h•ft•°F)	175°F 400°F 600°F 725°F	0.0756 0.0699 0.0640 0.0596		100°F 300°F 500°F 625°F	0.0666 0.0582 0.0494 0.0437	
Vapor pressure	300°F 500°F 725°F	3.9 mmHg 125 mmHg 1,610 mmHg	0.075 psia 2.42 psia 31.1 psia	300°F 500°F 625°F	38 mmHg 1,170 mmHg 5,140 mmHg	0.73 psia 22.6 psia 99.4 psia

Geographic availability^c

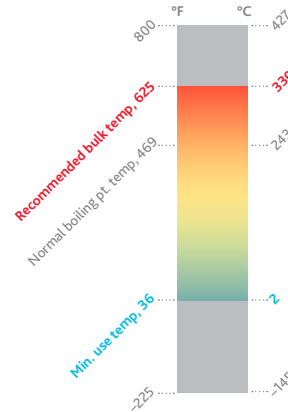
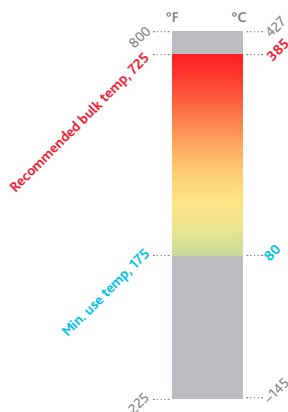
Globally

Globally

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English units

Liquid phase heat transfer

THERMINOL VP-1

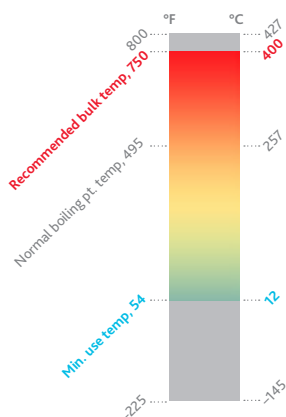
Ultrahigh-temperature,
liquid/vapor phase fluid

Typical properties^a

Appearance	Clear, water-white liquid		
Composition	Biphenyl/diphenyl oxide (DPO) eutectic mixture		
Recommended bulk temperature	750°F		
Maximum film temperature	800°F		
Normal boiling point	495°F		
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	54°F (crystallizing point) —		
Pour point	NA		
Flash point, COC	255°F		
Fire point, COC	260°F		
Autoignition temperature ^b	1,150°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	54°F		
Kinematic viscosity, cSt (mm ² /s)	100°F 300°F 500°F 750°F	2.60 0.62 0.32 0.21	
Density at 75°F (lb/gal)	8.85		
Density, various temperatures	100°F 300°F 500°F 750°F	8.76 lb/gal 7.99 lb/gal 7.16 lb/gal 5.81 lb/gal	65.5 lb/ft ³ 59.8 lb/ft ³ 53.5 lb/ft ³ 43.4 lb/ft ³
Heat capacity, Btu/(lb•°F)	100°F 300°F 500°F 750°F	0.382 0.457 0.528 0.627	
Thermal conductivity, Btu/(h•ft•°F)	100°F 300°F 500°F 750°F	0.0778 0.0701 0.0600 0.0439	
Vapor pressure	300°F 500°F 750°F	32 mmHg 810 mmHg 8,060 mmHg	0.62 psia 15.7 psia 156 psia

Geographic availability^c

Globally



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TLC Total Lifecycle Care® program

The TLC Total Lifecycle Care® program is designed to support all Eastman heat transfer fluid 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.



In-service heat transfer fluid sample analysis

When heat transfer fluids are used within suggested temperature limits, they can 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 analysis may be 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.

FLUID GENIUS

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 also access their specific test information via our new, advanced heat transfer fluid management platform, Fluid Genius™. It's a revolutionary patent-pending digital service that gives engineers and operations managers predictive insights to optimize heat transfer fluid performance—providing the ultimate edge. From sampling kits to expert guidance, our comprehensive service keeps you on track. Contact your account manager to get started on Fluid Genius—and keep your system up and running. To conduct your sample analysis, you will be provided with an all-inclusive, easy-to-use sample kit. Kit design may vary depending on fluid and shipping and lab requirements within the region. To learn more and request access to Fluid Genius, visit fluidgenius.net.

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. For questions in North America, call our hotline 800-433-6997. For questions in other regions, contact your local technical support representative.

System design support

Eastman regularly assists 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 operational 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, maintenance technicians, and 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 Eastman's special cleaning fluids. After the system is flushed, the appropriate liquid phase Therminol or Marlotherm heat transfer fluid can be added.

Eastman's fluid sustainability support*

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

*Therminol fluid trade-in program is only available in North America. Marlotherm fluid trade-in program is only available in Germany. Contact your local sales representative for more information.

For more information, visit **Therminol.com** and **Marlotherm.com**.



Eastman Corporate Headquarters

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

U.S.A. and Canada, 800-EASTMAN (800-327-8626)
Other locations, +(1) 423-229-2000

www.eastman.com/locations

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