



THERMINOL

Heat Transfer Fluids by Eastman

Selection guide

*High performance fluids
for precise temperature control*

EASTMAN

Eastman Therminol[®] heat transfer fluids

Eastman offers a family of Therminol heat-stable fluids developed specifically for indirect transfer of process heat. Therminol 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 and provide excellent thermal stability.

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

Liquid phase heat transfer fluids

Therminol 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. All Eastman Therminol heat transfer fluids can provide effective operations in liquid phase. When above their normal boiling points, Therminol D-12, LT, 59, 68, 72, 75, VP-1, and VP-3 fluids require system pressures to be greater than their vapor pressures for liquid phase operation to their maximum bulk temperature ratings.

Liquid/vapor phase heat transfer fluids

Therminol LT, VP-1, and VP-3 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. Also, 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 a number of specialty fluids. We also would be happy to work with you in developing a customized fluid for your application.



TLC Total Lifecycle Care[®] program

Our TLC Total Lifecycle Care program is designed to support Therminol heat transfer fluid customers throughout their systems' lifecycle. This comprehensive program includes system design support, start-up assistance, training, sample analysis, flush and refill fluids, and more. In North America, call our hotline at 1-800-433-6997 or contact your local sales or technical representative found in the "Contact us" section of our website.

In-service heat transfer fluid sample analysis

To help users get maximum fluid life, Eastman offers testing of in-service heat transfer fluids to detect contamination, moisture, thermal degradation, and other conditions that may impact system performance. Customers can access their specific test information via the myTherminol site portal. Sample analysis includes all-inclusive sample kits that are easy to use.

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.

Operational training

Eastman customers can take advantage of our heat transfer system operation and product training programs. These programs are customized to suit the varied needs of front-line technicians, operations supervisors, and maintenance technicians to design engineers.

Safety awareness training

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 flush fluid. Therminol FF can be circulated at temperatures up to 350°F (177°C) and is compatible with mechanical system components and perfluoroelastomer O-rings found in heat transfer systems.

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.

**Fluid trade-in program available in North America.*

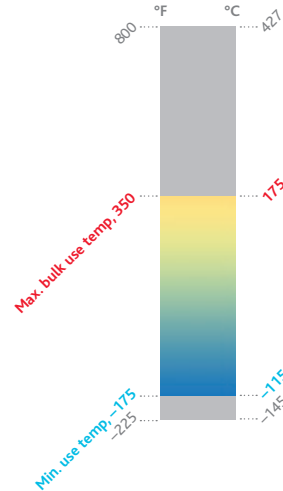
English units

Liquid phase heat transfer

THERMINOL

VLT

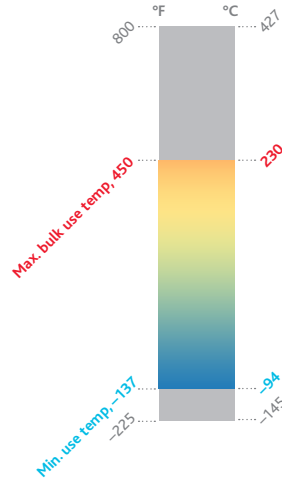
Very low-temperature coolant/heat transfer fluid



THERMINOL

D-12

Low-temperature coolant/heat transfer fluid



Typical properties^a

Appearance	Water-white liquid		Clear, water-white liquid			
Composition	Methylcyclohexane/trimethylpentane mixture		Synthetic hydrocarbons			
Maximum bulk temperature	350°F		450°F			
Maximum film temperature	410°F		475°F			
Normal boiling point	211°F		378°F			
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-195°F		-116°F ^d -137°F ^d			
Pour point	-211°F		-148°F			
Flash point, COC	20°F (Tag closed cup)		144°F (Pensky-Martens)			
Fire point, COC	20°F (ASTM D-1310)		175°F			
Autoignition temperature ^b	562°F (DIN 51794)		531°F (DIN 51794)			
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	-105°F		-35°F			
Kinematic viscosity, cSt (mm ² /s)	-175°F	53	-50°F	11.5		
	-100°F	5.7	100°F	1.26		
	100°F	0.72	300°F	0.44		
	350°F	0.24	450°F	0.26		
Density at 75°F (lb/gal)	6.22		6.34			
Density, various temperatures	-175°F	7.19 lb/gal	53.8 lb/ft ³	-50°F	6.75 lb/gal	50.5 lb/ft ³
	-100°F	6.90 lb/gal	51.6 lb/ft ³	100°F	6.26 lb/gal	46.8 lb/ft ³
	100°F	6.12 lb/gal	45.8 lb/ft ³	300°F	5.53 lb/gal	41.4 lb/ft ³
	350°F	4.97 lb/gal	37.2 lb/ft ³	450°F	4.86 lb/gal	36.3 lb/ft ³
Heat capacity, Btu/(lb•°F)	-175°F	0.328	-50°F	0.440		
	-100°F	0.372	100°F	0.517		
	100°F	0.485	300°F	0.626		
	350°F	0.626	450°F	0.715		
Thermal conductivity, Btu/(h•ft•°F)	-175°F	0.0754	-50°F	0.0690		
	-100°F	0.0708	100°F	0.0620		
	100°F	0.0577	300°F	0.0505		
	350°F	0.0382	450°F	0.0404		
Vapor pressure	100°F	91.5 mmHg	1.77 psia	200°F	32.7 mmHg	0.632 psia
	200°F	643 mmHg	12.4 psia	300°F	241 mmHg	4.66 psia
	350°F	4,430 mmHg	85.7 psia	450°F	1,800 mmHg	34.8 psia
Geographic availability ^c	Globally		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.

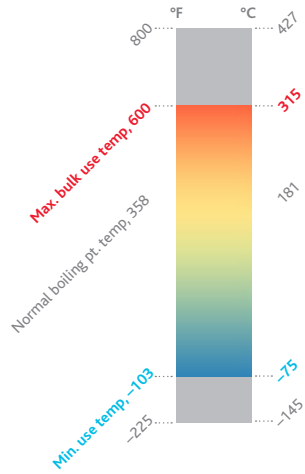
^c Check with your local sales office to determine exact availability by country.

^d -50°F for efficient heat transfer

THERMINOL

LT

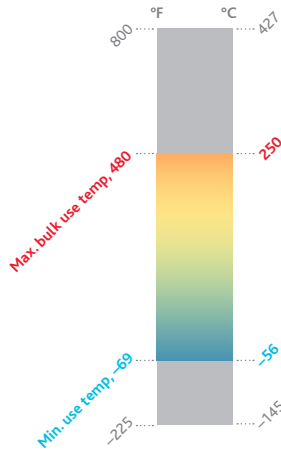
Wide-range liquid/
vapor heat transfer fluid



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ADX-10

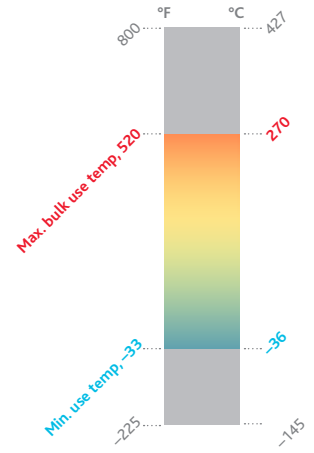
Low-temperature pumpability,
medium-temperature fluid



THERMINOL

RD

Low-viscosity,
medium-temperature fluid



Clear, light yellow liquid

Alkyl substituted aromatic

600°F

650°F

358°F

-103°F (crystallizing point)

n/a

134°F (Pensky-Martens)

150°F

804°F (DIN 51794)

193°F

-100°F	10.8
100°F	0.83
300°F	0.35
600°F	0.19

7.20

-100°F	7.83 lb/gal	58.6 lb/ft ³
100°F	7.11 lb/gal	53.2 lb/ft ³
300°F	6.31 lb/gal	47.2 lb/ft ³
600°F	4.66 lb/gal	34.8 lb/ft ³

-100°F	0.344
100°F	0.446
300°F	0.542
600°F	0.719

-100°F	0.0825
100°F	0.0701
300°F	0.0573
600°F	0.0374

200°F	41 mmHg	0.79 psia
400°F	1,370 mmHg	26.5 psia
600°F	11,800 mmHg	228 psia

Globally

Clear, pale yellow liquid

Synthetic aromatic hydrocarbon mixture

480°F

535°F

559°F

-41°F

-69°F

-112°F

277°F

284°F

621°F (DIN 51794)

66°F

-50°F	508
200°F	1.49
400°F	0.531
480°F	0.403

7.13

-50°F	7.53 lb/gal	56.3 lb/ft ³
200°F	6.72 lb/gal	50.3 lb/ft ³
400°F	6.04 lb/gal	45.2 lb/ft ³
480°F	5.73 lb/gal	42.9 lb/ft ³

-50°F	0.395
200°F	0.523
400°F	0.615
480°F	0.649

-50°F	0.0764
200°F	0.0660
400°F	0.0565
480°F	0.0523

200°F	0.36 mmHg	0.007 psia
400°F	72.4 mmHg	1.40 psia
480°F	266 mmHg	5.15 psia

Europe/Middle East/Africa

Clear liquid

Synthetic hydrocarbon mixture

520°F

570°F

541°F

-12°F

-33°F

-67°F

248°F

257°F

743°F (DIN 51794)

90°F

0°F	141
200°F	1.90
400°F	0.673
520°F	0.492

7.23

0°F	7.47 lb/gal	55.9 lb/ft ³
200°F	6.82 lb/gal	51.0 lb/ft ³
400°F	6.11 lb/gal	45.7 lb/ft ³
520°F	5.64 lb/gal	42.2 lb/ft ³

0°F	0.397
200°F	0.507
400°F	0.626
520°F	0.701

0°F	0.0710
200°F	0.0645
400°F	0.0576
520°F	0.0534

200°F	0.62 mmHg	0.012 psia
400°F	78.6 mmHg	1.52 psia
520°F	564 mmHg	10.9 psia

Europe/Middle East/Africa

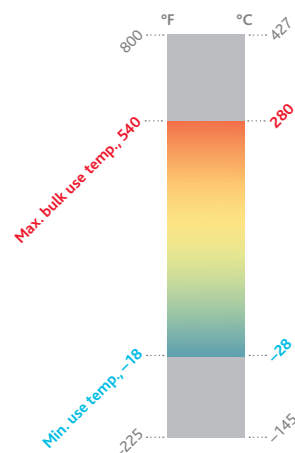
English units

Liquid phase heat transfer

THERMINOL

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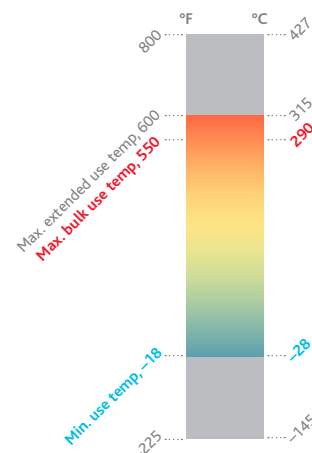
Economical, medium-temperature-range fluid



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55

Economical, medium-temperature-range fluid



Typical properties^a

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

Geographic availability^c

Europe/Middle East/Africa

Americas/Asia Pacific

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

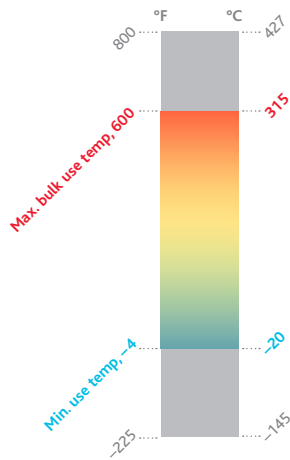
^b Visit www.therminol.com for additional typical properties and test values.

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THERMINOL

XP

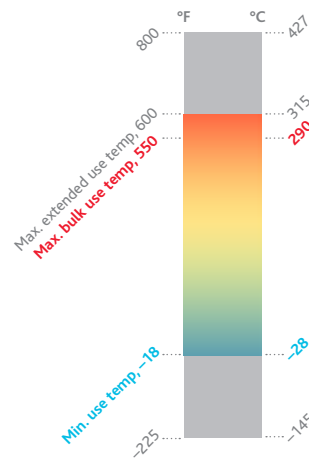
Heat transfer fluid with FDA/NF status



THERMINOL

SP

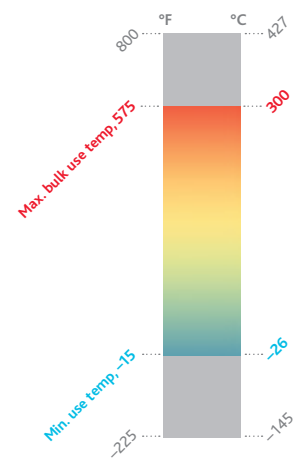
Economical, medium-temperature-range fluid



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Economical, medium-temperature-range fluid



Colorless, odorless liquid

White mineral oil

600°F

625°F

676°F

30°F

-4°F

-20°F

390°F

450°F

685°F (DIN 51794)

162°F

0°F	1,560
200°F	4.7
400°F	1.06
600°F	0.50

7.31

0°F	7.53 lb/gal	56.3 lb/ft ³
200°F	6.94 lb/gal	51.9 lb/ft ³
400°F	6.33 lb/gal	47.3 lb/ft ³
600°F	5.66 lb/gal	42.3 lb/ft ³

0°F	0.389
200°F	0.515
400°F	0.625
600°F	0.718

0°F	0.0681
200°F	0.0635
400°F	0.0571
600°F	0.0490

200°F	0.09 mmHg	0.002 psia
300°F	15.0 mmHg	0.289 psia
600°F	318 mmHg	6.16 psia

Globally

Clear, yellow liquid

Synthetic hydrocarbon mixture

550°F

635°F

664°F

17°F

-18°F

-65°F

350°F

425°F

719°F (DIN 51794)

152°F

0°F	683
200°F	4.03
400°F	0.964
550°F	0.536

7.26

0°F	7.49 lb/gal	56.0 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
550°F	5.69 lb/gal	42.6 lb/ft ³

0°F	0.423
200°F	0.518
400°F	0.612
550°F	0.682

0°F	0.0768
200°F	0.0693
400°F	0.0618
550°F	0.0561

200°F	0.16 mmHg	0.003 psia
400°F	18.6 mmHg	0.360 psia
550°F	193 mmHg	3.74 psia

Europe/Middle East/Africa

Clear, yellow liquid

Synthetic hydrocarbon mixture

575°F

642°F

665°F

21°F

-15°F

-65°F

383°F

430°F

664°F

156°F

0°F	888
200°F	4.27
400°F	1.00
580°F	0.459

7.34

0°F	7.57 lb/gal	56.6 lb/ft ³
200°F	6.96 lb/gal	52.1 lb/ft ³
400°F	6.31 lb/gal	47.2 lb/ft ³
580°F	5.63 lb/gal	42.1 lb/ft ³

0°F	0.440
200°F	0.542
400°F	0.647
580°F	0.746

0°F	0.0753
200°F	0.0700
400°F	0.0635
580°F	0.0566

200°F	0.83 mmHg	0.016 psia
400°F	23.1 mmHg	0.446 psia
580°F	270 mmHg	5.23 psia

Europe/Middle East/Africa

English units

Liquid phase heat transfer

THERMINOL

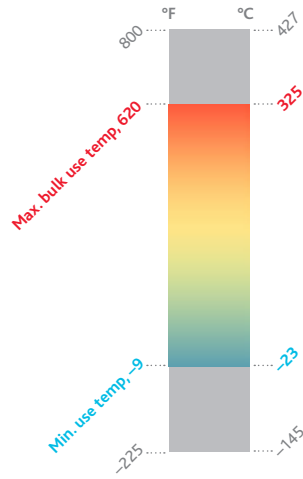
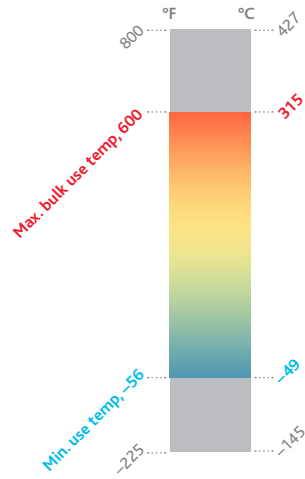
59

Economical, wide-temperature-range fluid

THERMINOL

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High-performance, low-pressure fluid



Typical properties^a

Appearance	Clear, yellow to dark amber liquid			Water-white liquid		
Composition	Alkyl substituted aromatic			Isopropyl biphenyl mixture		
Maximum bulk temperature	600°F			620°F		
Maximum film temperature	650°F			670°F		
Normal boiling point	553°F			631°F		
Pumpability:						
at 300 cSt (mm ² /s)	-35°F			12°F		
at 2000 cSt (mm ² /s)	-56°F			-9°F		
Pour point	-90°F (ISO 3016)			-44°F		
Flash point, COC	295°F			340°F		
Fire point, COC	310°F			385°F		
Autoignition temperature ^b	760°F (DIN 51794)			813°F (DIN 51794)		
Fully developed turbulent flow (Re = 10,000, 10 ft/s, 1-in. tube)	63°F			122°F		
Kinematic viscosity, cSt (mm ² /s)	0°F	45		0°F	843	
	200°F	1.57		200°F	2.83	
	400°F	0.55		400°F	0.69	
	600°F	0.31		620°F	0.28	
Density at 75°F (lb/gal)	8.11			7.96		
Density, various temperatures	0°F	8.36 lb/gal	62.5 lb/ft ³	0°F	8.19 lb/gal	61.3 lb/ft ³
	200°F	7.68 lb/gal	57.5 lb/ft ³	200°F	7.53 lb/gal	56.3 lb/ft ³
	400°F	6.98 lb/gal	52.2 lb/ft ³	400°F	6.81 lb/gal	50.9 lb/ft ³
	600°F	6.18 lb/gal	46.2 lb/ft ³	620°F	5.87 lb/gal	43.9 lb/ft ³
Heat capacity, Btu/(lb•°F)	0°F	0.373		0°F	0.440	
	200°F	0.459		200°F	0.509	
	400°F	0.547		400°F	0.565	
	600°F	0.640		620°F	0.617	
Thermal conductivity, Btu/(h•ft•°F)	0°F	0.0716		0°F	0.0729	
	200°F	0.0668		200°F	0.0673	
	400°F	0.0600		400°F	0.0610	
	600°F	0.0513		620°F	0.0518	
Vapor pressure	200°F	19.5 mmHg	0.036 psia	200°F	0.29 mmHg	0.006 psia
	400°F	111 mmHg	2.14 psia	400°F	30.2 mmHg	0.584 psia
	600°F	1,220 mmHg	23.6 psia	620°F	670 mmHg	13.0 psia

Geographic availability^c

Globally

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.

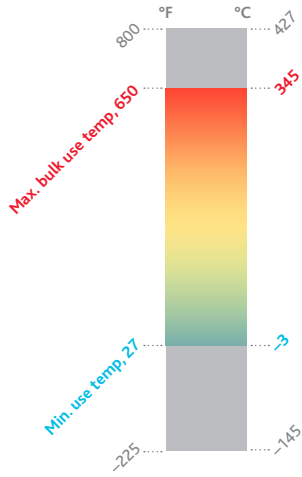
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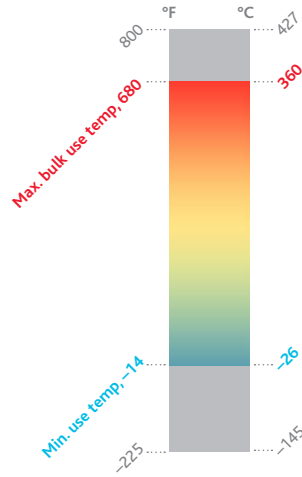
High-temperature,
low-pressure fluid



THERMINOL

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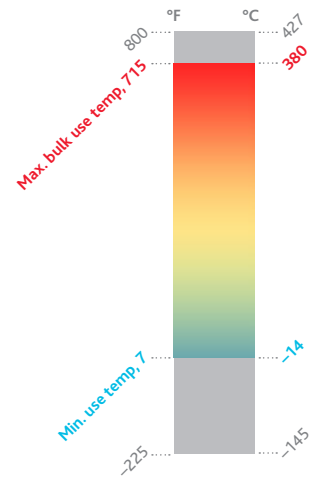
High-temperature,
low-viscosity fluid



THERMINOL

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High-temperature,
medium-pressure fluid



Clear, pale yellow liquid

Modified terphenyl

650°F

705°F

678°F

52°F

27°F

-25°F

363°F

414°F

750°F (DIN 51794)

162°F

50°F

339

300°F

1.68

500°F

0.63

650°F

0.43

8.39

50°F

8.47 lb/gal

63.4 lb/ft³

300°F

7.69 lb/gal

57.5 lb/ft³

500°F

7.01 lb/gal

52.5 lb/ft³

650°F

6.44 lb/gal

48.2 lb/ft³

50°F

0.365

300°F

0.480

500°F

0.578

650°F

0.655

50°F

0.0682

300°F

0.0636

500°F

0.0574

650°F

0.0514

300°F

2.9 mmHg

0.056 psia

500°F

90 mmHg

1.7 psia

650°F

570 mmHg

11 psia

Globally

Clear, pale yellow liquid

Mixture of synthetic aromatics

680°F

735°F

586°F

14°F

-14°F

-27°F

311°F

345°F

752°F (DIN 51794)

135°F

20°F

219

300°F

1.29

500°F

0.516

680°F

0.332

8.56

20°F

8.73 lb/gal

65.3 lb/ft³

300°F

7.79 lb/gal

58.3 lb/ft³

500°F

7.13 lb/gal

53.3 lb/ft³

680°F

6.52 lb/gal

48.8 lb/ft³

20°F

0.368

300°F

0.487

500°F

0.573

680°F

0.650

20°F

0.0727

300°F

0.0654

500°F

0.0602

680°F

0.0556

300°F

12.2 mmHg

0.236 psia

500°F

278 mmHg

5.38 psia

680°F

1,888 mmHg

36.5 psia

Europe/Middle East/Africa

Clear, amber liquid

Mixture of synthetic aromatics

715°F

750°F

520°F

16°F

7°F

0°F

270°F

290°F

1,117°F (ASTM E-659)

86°F

15°F

291

300°F

0.868

500°F

0.355

715°F

0.19

8.98

15°F

9.23 lb/gal

69.0 lb/ft³

300°F

8.03 lb/gal

60.1 lb/ft³

500°F

7.19 lb/gal

53.8 lb/ft³

715°F

6.29 lb/gal

47.0 lb/ft³

15°F

0.352

300°F

0.454

500°F

0.526

715°F

0.604

15°F

0.0828

300°F

0.0717

500°F

0.0639

715°F

0.0555

300°F

22.4 mmHg

0.43 psia

500°F

579 mmHg

11.2 psia

715°F

4,640 mmHg

89.8 psia

Globally

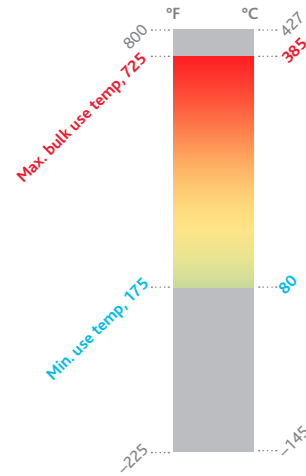
English units

Liquid phase heat transfer

THERMINOL

75

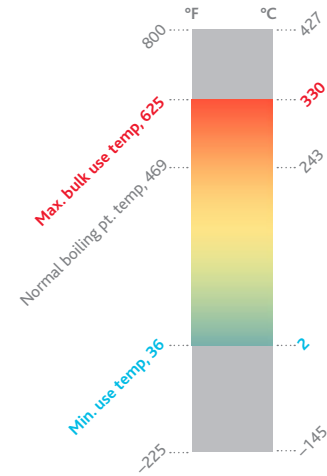
Ultra-high-temperature, low-pressure fluid



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			
Maximum 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	n/a		n/a			
Flash point, COC	365°F		219°F			
Fire point, COC	440°F		235°F			
Autoignition temperature ^b	1,052°F (ASTM E-659)		680°F (ASTM E-659)			
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	4.16	100°F	2.12		
	400°F	0.85	300°F	0.64		
	600°F	0.39	500°F	0.35		
	725°F	0.28	625°F	0.25		
Density at 75°F (lb/gal)	8.69 (175°F)		7.77			
Density, various temperatures	175°F	8.69 lb/gal	65.0 lb/ft ³	100°F	7.71 lb/gal	57.7 lb/ft ³
	400°F	7.93 lb/gal	59.3 lb/ft ³	300°F	7.08 lb/gal	52.9 lb/ft ³
	600°F	7.17 lb/gal	53.6 lb/ft ³	500°F	6.16 lb/gal	46.1 lb/ft ³
	725°F	6.62 lb/gal	49.6 lb/ft ³	625°F	5.36 lb/gal	40.1 lb/ft ³
Heat capacity, Btu/(lb•°F)	175°F	0.408	100°F	0.403		
	400°F	0.492	300°F	0.514		
	600°F	0.552	500°F	0.611		
	725°F	0.584	625°F	0.715		
Thermal conductivity, Btu/(h•ft•°F)	175°F	0.0756	100°F	0.0666		
	400°F	0.0699	300°F	0.0582		
	600°F	0.0640	500°F	0.0494		
	725°F	0.0596	625°F	0.0437		
Vapor pressure	300°F	3.9 mmHg	0.075 psia	300°F	38 mmHg	0.73 psia
	500°F	125 mmHg	2.42 psia	500°F	1,170 mmHg	22.6 psia
	725°F	1,610 mmHg	31.1 psia	625°F	5,140 mmHg	99.4 psia

Geographic availability^c

Globally

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.

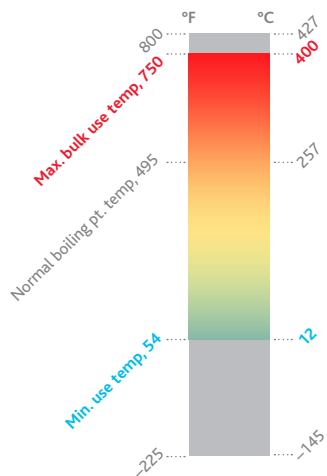
^b Visit www.therminol.com for additional typical properties and test values.

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

THERMINOL

VP-1

Ultra-high-temperature,
liquid/vapor phase fluid



Clear, water-white liquid

Biphenyl/diphenyl oxide (DPO) eutectic mixture

750°F

800°F

495°F

54°F (crystallizing point)

n/a

255°F

260°F

1,150°F (DIN 51794)

54°F

100°F	2.60
300°F	0.62
500°F	0.32
750°F	0.21

8.85

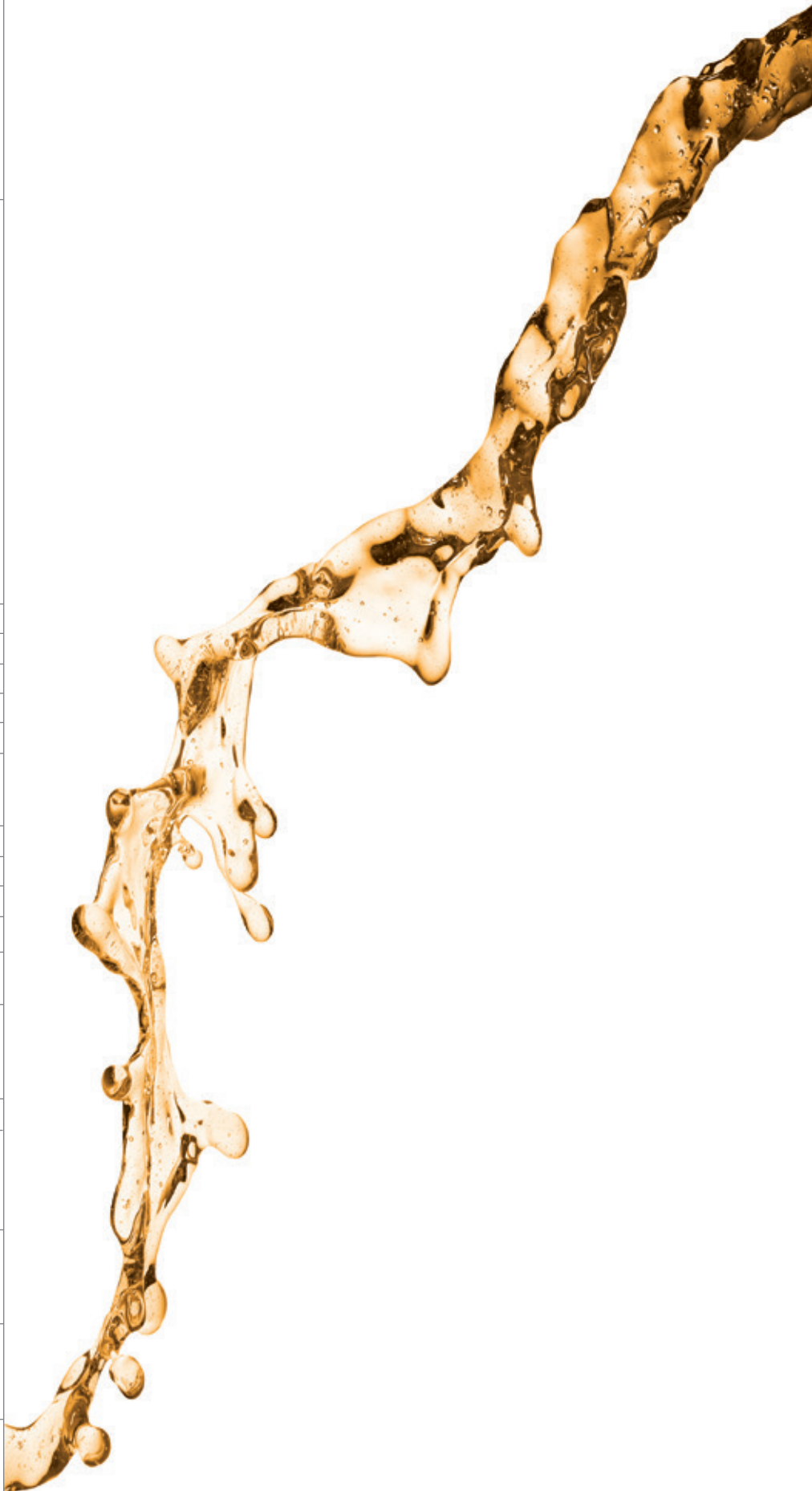
100°F	8.76 lb/gal	65.5 lb/ft ³
300°F	7.99 lb/gal	59.8 lb/ft ³
500°F	7.16 lb/gal	53.5 lb/ft ³
750°F	5.81 lb/gal	43.4 lb/ft ³

100°F	0.382
300°F	0.457
500°F	0.528
750°F	0.627

100°F	0.0778
300°F	0.0701
500°F	0.0600
750°F	0.0439

300°F	32 mmHg	0.62 psia
500°F	810 mmHg	15.7 psia
750°F	8,060 mmHg	156 psia

Globally



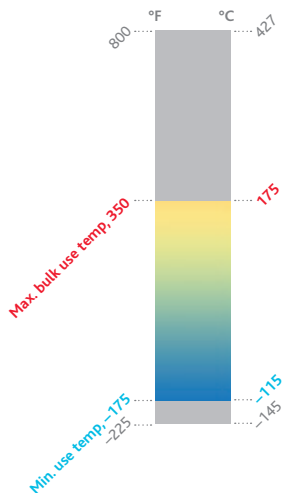
SI units

Liquid phase heat transfer

THERMINOL

VLT

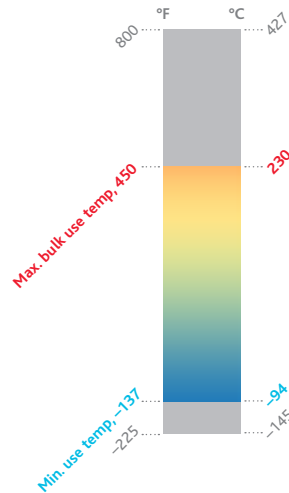
Very low-temperature coolant/heat transfer fluid



THERMINOL

D-12

Low-temperature coolant/heat transfer fluid



Typical properties^a

Appearance	Water-white liquid		Clear, water-white liquid	
Composition	Methylcyclohexane/trimethylpentane mixture		Synthetic hydrocarbons	
Maximum bulk temperature	175°C		230°C	
Maximum film temperature	210°C		245°C	
Normal boiling point	99°C		192°C	
Pumpability: at 300 cSt (mm ² /s) at 2000 cSt (mm ² /s)	-126°C		-82°C ^d -94°C ^d	
Pour point	-135°C		-100°C	
Flash point, COC	-7°C (Tag closed cup)		62°C (Pensky-Martens)	
Fire point, COC	71°C		71°C	
Autoignition temperature ^b	294°C (DIN 51794)		277°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54 cm tube)	-76°C		-37°C	
Viscosity, mPa·s (cP)	-115°C	45	-50°C	12.0
	0°C	0.88	100°C	0.46
	100°C	0.28	200°C	0.19
	175°C	0.14	230°C	0.16
Density at 25°C (kg/m ³)	744		759	
Density, kg/m ³	-115°C	862	-50°C	811
	0°C	766	100°C	703
	100°C	676	200°C	616
	175°C	598	230°C	584
Heat capacity, kJ/(kg·K)	-115°C	1.37	-50°C	1.82
	0°C	1.87	100°C	2.41
	100°C	2.29	200°C	2.84
	175°C	2.61	230°C	2.98
Thermal conductivity, W/(m·K)	-115°C	0.130	-50°C	0.120
	0°C	0.108	100°C	0.097
	100°C	0.086	200°C	0.077
	175°C	0.067	230°C	0.071
Vapor pressure, kPa	0°C	1.9	50°C	0.48
	100°C	104	150°C	33.2
	175°C	573	230°C	229

Geographic availability^c

Globally

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.

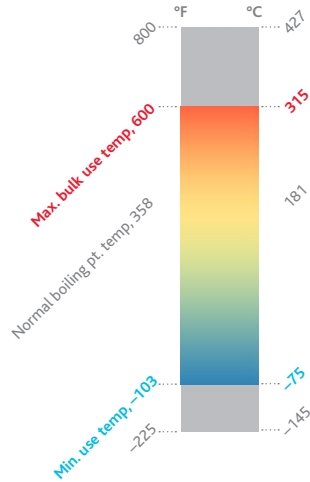
^c Check with your local sales office to determine exact availability by country.

^d -45°C for efficient heat transfer

THERMINOL

LT

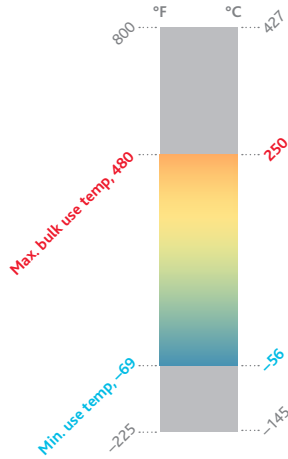
Wide-range liquid/
vapor heat transfer fluid



THERMINOL

ADX-10

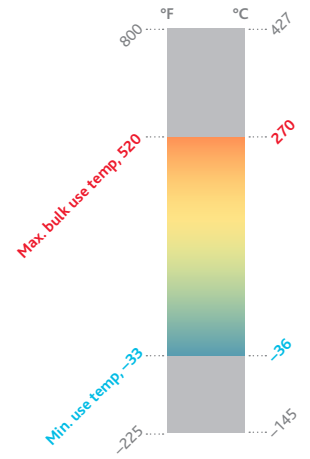
Low-temperature pumpability,
medium-temperature fluid



THERMINOL

RD

Low-viscosity,
medium-temperature fluid



SI units

Liquid phase heat transfer

THERMINOL

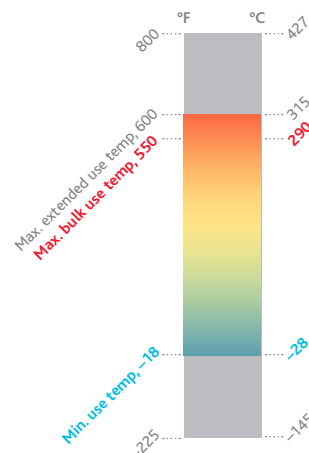
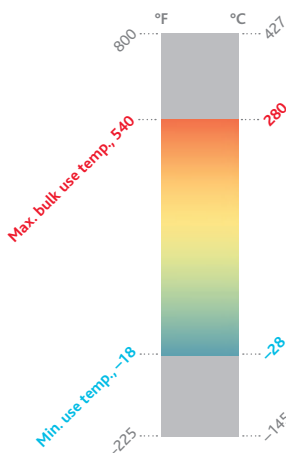
54

Economical, medium-temperature-range fluid

THERMINOL

55

Economical, medium-temperature-range fluid



Typical properties^a

Appearance	Clear, yellow liquid		Clear, yellow liquid	
Composition	Synthetic hydrocarbon mixture		Synthetic hydrocarbon mixture	
Maximum bulk temperature	280°C		290°C	
Maximum film temperature	310°C		335°C	
Normal boiling point	351°C		351°C	
Pumpability:				
at 300 cSt (mm ² /s)	-8°C		-8°C	
at 2000 cSt (mm ² /s)	-28°C		-28°C	
Pour point	< -45°C		-54°C	
Flash point, COC	>170°C		177°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	
Viscosity, mPa·s (cP)	-25°C	1,250	-25°C	1,250
	100°C	2.88	100°C	2.88
	200°C	0.75	200°C	0.75
	280°C	0.39	290°C	0.36
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

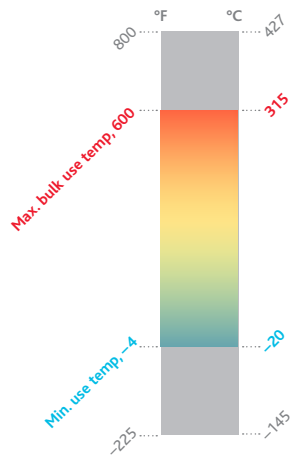
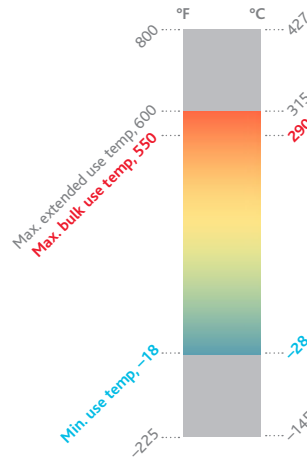
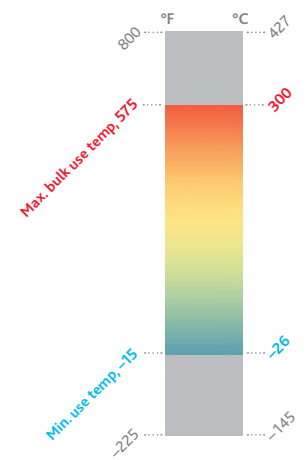
Europe/Middle East/Africa

Americas/Asia Pacific

^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.

THERMINOL**XP**Heat transfer fluid with
FDA/NF status**THERMINOL****SP**Economical, medium-temperature-
range fluid**THERMINOL****58**Economical, medium-temperature-
range fluid

Colorless, odorless liquid

White mineral oil

315°C

330°C

358°C

-1°C

-20°C

-29°C

199°C

232°C

363°C (DIN 51794)

72°C

0°C 238

100°C 3.4

200°C 0.84

315°C 0.34

875

0°C 891

100°C 827

200°C 761

315°C 678

0°C 1.72

100°C 2.18

200°C 2.60

315°C 3.00

0°C 0.117

100°C 0.109

200°C 0.099

315°C 0.085

100°C 0.018

200°C 1.7

315°C 42

Globally

Clear, yellow liquid

Synthetic hydrocarbon mixture

290°C

335°C

351°C

-8°C

-28°C

-54°C

177°C

218°C

382°C (DIN 51794)

67°C

-25°C 1,250

100°C 2.88

200°C 0.75

290°C 0.36

868

-25°C 902

100°C 818

200°C 748

290°C 680

-25°C 1.74

100°C 2.19

200°C 2.54

290°C 2.86

-25°C 0.134

100°C 0.119

200°C 0.107

290°C 0.097

100°C 0.032

200°C 2.15

290°C 27.2

Europe/Middle East/Africa

Clear, yellow liquid

Synthetic hydrocarbon mixture

300°C

339°C

352°C

-6°C

-26°C

-54°C

195°C

221°C

351°C

69°C

0°C 172

100°C 3.10

200°C 0.792

300°C 0.322

880

0°C 896

100°C 830

200°C 759

300°C 679

0°C 1.91

100°C 2.30

200°C 2.69

300°C 3.10

0°C 0.129

100°C 0.120

200°C 0.110

300°C 0.098

100°C 0.135

200°C 2.72

300°C 32.6

Europe/Middle East/Africa

SI units

Liquid phase heat transfer

THERMINOL

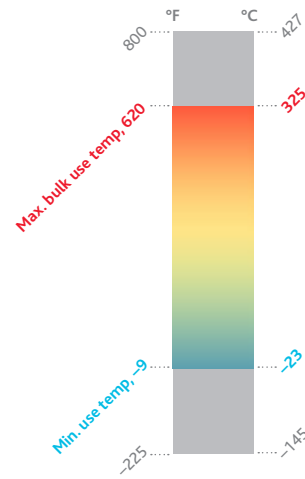
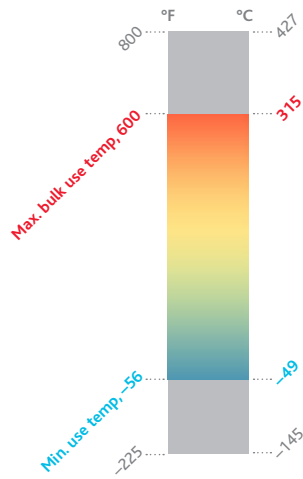
59

Economical, wide-temperature-range fluid

THERMINOL

62

High-performance, low-pressure fluid



Typical properties^a

Appearance	Clear, yellow to dark amber liquid		Water-white liquid	
Composition	Alkyl substituted aromatic		Isopropyl biphenyl mixture	
Maximum bulk temperature	315°C		325°C	
Maximum film temperature	345°C		355°C	
Normal boiling point	289°C		333°C	
Pumpability:				
at 300 cSt (mm ² /s)	-37°C		-11°C	
at 2000 cSt (mm ² /s)	-49°C		-23°C	
Pour point	-68°C (ISO 3016)		-42°C	
Flash point, COC	146°C		171°C	
Fire point, COC	154°C		196°C	
Autoignition temperature ^b	404°C (DIN 51794)		433°C (DIN 51794)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54 cm tube)	17°C		50°C	
Viscosity, mPa·s (cP)	-25°C	81.4	0°C	99.4
	100°C	1.32	100°C	2.26
	200°C	0.48	200°C	0.59
	315°C	0.23	325°C	0.20
Density at 25°C (kg/m ³)	971		951	
Density, kg/m ³	-25°C	1,007	0°C	968
	100°C	916	100°C	897
	200°C	840	200°C	820
	315°C	741	325°C	705
Heat capacity, kJ/(kg·K)	-25°C	1.54	0°C	1.89
	100°C	1.94	100°C	2.14
	200°C	2.27	200°C	2.36
	315°C	2.67	325°C	2.58
Thermal conductivity, W/(m·K)	-25°C	0.124	0°C	0.125
	100°C	0.115	100°C	0.116
	200°C	0.104	200°C	0.106
	315°C	0.089	325°C	0.090
Vapor pressure, kPa	100°C	0.35	100°C	0.056
	200°C	13.1	200°C	3.5
	315°C	161	325°C	86

Geographic availability^c

Globally

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.

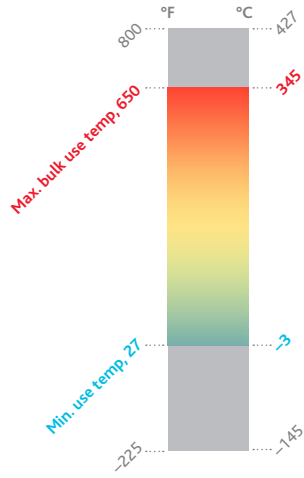
^b Visit www.therminol.com for additional typical properties and test values.

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

THERMINOL

66

High-temperature,
low-pressure fluid



Clear, pale yellow liquid

Modified terphenyl

345°C

375°C

359°C

11°C

-3°C

-32°C

184°C

212°C

399°C (DIN 51794)

72°C

0°C	1,320
100°C	3.6
200°C	0.86
345°C	0.33

1,005

0°C	1,021
100°C	955
200°C	885
345°C	770

0°C	1.49
100°C	1.84
200°C	2.19
345°C	2.75

0°C	0.118
100°C	0.114
200°C	0.106
345°C	0.089

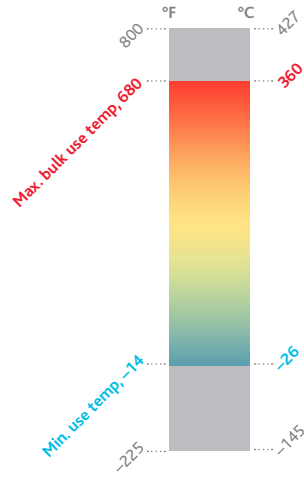
100°C	0.048
200°C	2.2
345°C	78

Globally

THERMINOL

68

High-temperature,
low-viscosity fluid



Clear, pale yellow liquid

Mixture of synthetic aromatics

360°C

390°C

308°C

-10°C

-26°C

-33°C

155°C

174°C

400°C (DIN 51794)

57°C

0°C	130
100°C	2.60
200°C	0.70
360°C	0.26

1,020

0°C	1,040
100°C	969
200°C	898
360°C	782

0°C	1.56
100°C	1.88
200°C	2.20
360°C	2.72

0°C	0.125
100°C	0.117
200°C	0.109
360°C	0.096

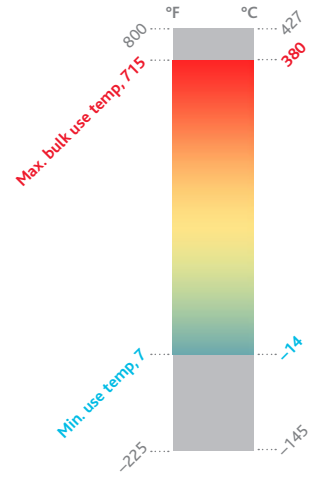
100°C	0.237
200°C	8.15
360°C	251

Europe/Middle East/Africa

THERMINOL

72

High-temperature,
medium-pressure fluid



Clear, amber liquid

Mixture of synthetic aromatics

380°C

400°C

271°C

-10°C

-14°C

-18°C

132°C

143°C

603°C (ASTM E-659)

0°C	59.2
100°C	1.61
250°C	0.329
380°C	0.143

1,075

0°C	1,100
100°C	1,007
250°C	871
380°C	753

0°C	1.50
100°C	1.77
250°C	2.18
380°C	2.53

0°C	0.142
100°C	0.130
250°C	0.112
380°C	0.096

100°C	0.33
250°C	61.6
380°C	623

Globally

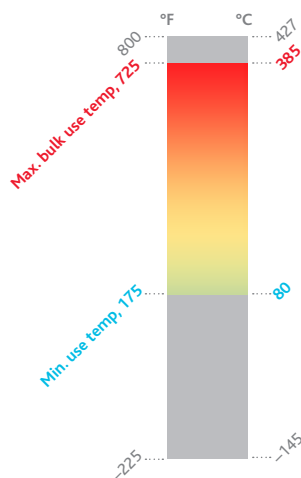
SI units

Liquid phase heat transfer

THERMINOL

75

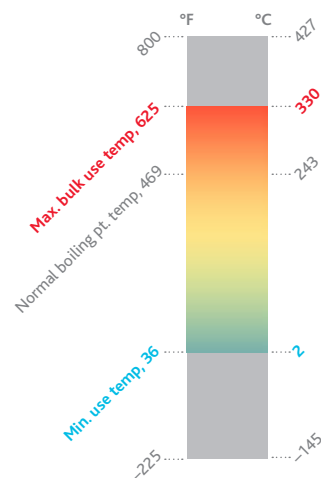
Ultrahigh-temperature,
low-pressure fluid



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	
Maximum 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	n/a		n/a	
Flash point, COC	185°C		104°C	
Fire point, COC	227°C		113°C	
Autoignition temperature ^b	567°C (ASTM E-659)		360°C (ASTM E-659)	
Fully developed turbulent flow (Re = 10,000, 3.05 m/s, 2.54 cm tube)	98°C		2.4°C	
Viscosity, mPa·s (cP)	80°C	4.3	25°C	2.6
	200°C	0.85	150°C	0.54
	300°C	0.37	250°C	0.28
	385°C	0.22	330°C	0.16
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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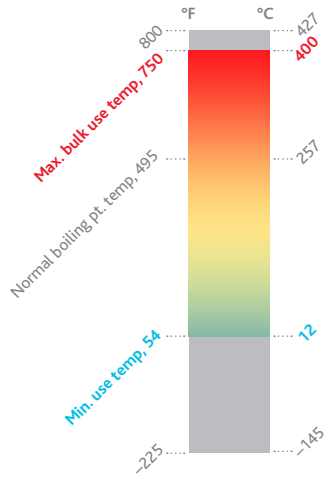
^b Visit www.therminol.com for additional typical properties and test values.

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

THERMINOL

VP-1

Ultra-high-temperature,
liquid/vapor phase fluid



Clear, water-white liquid

Biphenyl/diphenyl oxide (DPO) eutectic mixture

400°C

430°C

257°C

12°C (crystallizing point)

n/a

124°C

127°C

621°C (DIN 51794)

12°C

25°C	3.7
150°C	0.59
250°C	0.29
400°C	0.15

1,060

25°C	1,060
150°C	957
250°C	867
400°C	694

25°C	1.56
150°C	1.91
250°C	2.18
400°C	2.63

25°C	0.136
150°C	0.121
250°C	0.106
400°C	0.076

150°C	4.5
250°C	86
400°C	1,090

Globally



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