+400°C



Heat Transfer Fluids By SOLUTIA Solutions for a better life."

+300°C



+50°C

+0°C

-50°C



-100°C

Therminol_® VLT^{**} is a uniquely formulated liquid phase heat transfer fluid with excellent heat transfer and fluid properties for use in extremely low temperature applications. This fluid offers exceptional low temperature pumpability and thermal stability and is ideally suited for single fluid heating and cooling systems between -115°C and 175°C.

** Patent Pending

Combustibility

With a closed cup flash point of -7°C, under the EU Dangerous Preparations Directive 1999/45/EC, Therminol VLT is classified as «Highly Flammable» The use of protective devices may be required to minimize fire risk. The insurer of your property should be consulted relative to this matter.

Fluid Operation

Therminol VLT generally is neither corrosive to nor affected by metals and alloys commonly used in low temperature heat transfer systems. The fluid is water-white and has a characteristic hydrocarbon odour.

Thermal Stability

The maximum bulk and film operating temperatures are based on thermal studies, vapour pressure and the autoignition temperature of the fluid. Operating within these temperature maxima promotes long service life under most operating conditions. Operation below ambient temperatures would provide an almost limitless fluid life, based on thermal stability.

Moisture removal from Cooling Systems

For heat transfer fluids used in cooling systems, it is important to prevent the chiller heat exchanger surface from being coated with ice. This icing will reduce the efficiency of the chiller and can occasionally cause a blockage in the system piping.

Various methods of moisture removal are presented in a separate brochure. This brochure is available from our sales offices.

Typical Properties of Therminol® VLT Heat Transfer Fluid

Composition		Methylcyclohexane/Trimethylpentane Mixture				
Appearance		Water-white liquid				
Maximum Bulk Temperature		175°C				
Maximum Film Temperature		210°C				
Kinematic Viscosity @ 40°C		0.71 mm²/s (cSt)				
Liquid density at 15°C		752.5 kg/m ³				
Vapour density at 25°C		0.2845 kg/m ³				
Flash Point, Tag Closed Cup	ASTM D-56	-7°C				
Fire Point	ASTM D-1310	-7°C				
Autoignition Temperature	ASTM E-659	264°C				
Cloud Point		< -135°C				
Normal Boiling Point		99.2°C				
Coefficient of Thermal Expansion at 100°C		0.00142/°C				
Moisture Content, Maximum	ASTM E203-75	max. 80 ppm				
Total Acidity	ASTM D664-81	< 0.2 mg KOH/g				
Chlorine Content		< 10 ppm				
Copper Corrosion, Maximum	ASTM D130	<< 1a				
Average Molecular Weight		102				
Pumpability at 300 mm ² /s		-126°C				
Minimum Temperature for Fully Developed Turbulent Flow (Re = 10000) :						
3.048 m/s, 2.54 cm - tube		-76°C				
6.096 m/s, 2.54 cm - tube		-93°C				
Minimum Temperature for Transition Region Flow (Re = 2000) :						
3.048 m/s, 2.54 cm - tube		-108°C				
6.096 m/s, 2.54 cm - tube		-118°C				
Heat of Vaporization at 175°C		252.3 kJ/kg				

Note: Values quoted are typical values obtained in the laboratory from production samples. Other samples might exhibit slightly different data. Specifications are subject to change. Write to Solutia for current sales specifications.

Properties of Therminol VLT vs Temperatures

Temperature	Density	Thermal	Heat Viscosity		Vapour	
		Conductivity	Сараспу	Dynamic	Kinematic	(absolute)
°C	kg/m ³	W/m.K	kJ/kg.K	mPa.s	mm²/s	kPa
-120	866	0.131	1.352	69.5	80.3	<u> </u> -
-110	857	0.129	1.397	31.0	36.1	
-100	849	0.128	1.441	16.2	19.0	<u> </u>
-90	841	0.126	1.485	9.49	11.3	0.0004
-80	833	0.124	1.529	6.10	7.32	0.0017
-70	824	0.122	1.572	4.20	5.10	0.0061
-60	816	0.120	1.616	3.06	3.75	0.018
-50	808	0.118	1.659	2.32	2.88	0.049
-40	799	0.116	1.702	1.83	2.28	0.119
-30	791	0.114	1.744	1.48	1.87	0.264
-20	783	0.112	1.787	1.22	1.56	0.542
-10	774	0.110	1.829	1.03	1.32	1.04
0	766	0.108	1.871	0.876	1.14	1.90
10	757	0.106	1.914	0.757	1.00	3.29
20	748	0.104	1.955	0.661	0.883	5.45
30	740	0.101	1.997	0.582	0.786	8.70
40	731	0.099	2.039	0.516	0.705	13.40
50	722	0.097	2.080	0.460	0.637	20.03
60	713	0.095	2.122	0.412	0.578	29.11
70	704	0.093	2.163	0.371	0.527	41.28
80	695	0.090	2.204	0.336	0.483	57.24
90	686	0.088	2.245	0.304	0.444	77.77
100	676	0.086	2.287	0.277	0.409	103.7
110	666	0.083	2.328	0.252	0.378	136.1
120	657	0.081	2.370	0.230	0.351	175.7
130	646	0.078	2.412	0.211	0.326	223.7
140	636	0.076	2.454	0.193	0.304	281.2
150	626	0.073	2.497	0.177	0.283	349.2
160	615	0.071	2.541	0.163	0.265	428.9
170	603	0.068	2.586	0.150	0.249	521.4
180	592	0.065	2.633	0.138	0.234	627.9
190	580	0.062	2.682	0.128	0.220	749.5
200	567	0.059	2.735	0.118	0.208	887.3

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The Therminol_® Range

Therminol VLT is one of the Solutia synthetic heat transfer fluids covering an operating range from -115°C to +400°C, suitable for most process heating or waste heat recovery applications, and capable of operation at or near atmospheric pressure within their recommended operating temperature range.

As a user's process temperature demands change there is always a Therminol fluid capable of meeting the new requirements. In addition Therminol fluids are often interchangeable allowing conversion by a simple top-up procedure where this is preferred.

Solutia also has a standard DP-DPO eutectic, Therminol VP-1.

Quality Management

All our manufacturing units have obtained ISO 9002 guality control certification. This registration means that plant procedures, quality control systems, material sampling, product storage, handling, packaging, shipping, product literature and characteristic data, record keeping and other company procedures are in line with the guality requirements of the ISO 9002 standards and its other national equivalents.

This is your quality assurance.

LUTIA

Health, Safety and **Environmental Information**

Please contact the Solutia Europe/Africa HQ for the Material safety data sheet, or if any other information concerning health, safety and environmental issues is required during filling or operation of your heat transfer system with this product.

Visit our Web site at www.therminol.com

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Solutions for a better life."



Please contact us for more information :

Therminol is a trademark of Solutia. Therminol has now been adopted as a world-wide brand for the Solutia Heat Transfer Fluid range. Fluids known previously under the Santotherm and Gilotherm brands are identical in composition and performance to the corresponding Therminol brand fluids.

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