



TECHNICAL DATA SHEET THERMINOL® VLT HEAT TRANSFER FLUID

Therminol VLT is a synthetic liquid phase heat transfer fluid with excellent heat transfer and fluid properties for extremely low temperature applications. This fluid is ideally suited for single fluid heating and cooling systems.

Performance Benefits

- **Very Low Temperature Operation** – Therminol VLT has excellent heat transfer performance at extremely low temperatures and offers the benefits of liquid coolant temperature control.
- **Cooling and/or Heating Operation** – Therminol VLT allows a single fluid to be used in many general purpose processes where both cooling and heating are required. The properties of Therminol VLT allow the same equipment to be used over its wide range of operation.
- **Easy Operation** – Using Therminol VLT avoids problems of using multiple fluids in the same piece of equipment and allows low temperature operation with normal centrifugal pumps.

Typical Properties

Appearance	Water-white liquid
Composition	Methylcyclohexane/trimethylpentane mixture
Maximum bulk temperature	175°C (350°F)
Maximum film temperature	210°C (410°F)
Normal boiling point	99°C (211°F)
Pumpability, at 300 mm ² /s (cSt)	-126°C (-195°F)
Cloud point	-135°C (-211°F)
Autoignition temperature (ASTM E-659)	264°C (507°F)
Autoignition temperature (DIN 51794)	294°C (562°F)
Pour point (ASTM D-97)	-135°C (-211°F)
Minimum liquid temperatures for fully developed turbulent flow ($N_{Re} > 10000$)	
10 ft/sec, 1 in tube (3.048 m/s, 2.54 cm tube)	-76°C (-105°F)
20 ft/sec, 1 in tube (6.096 m/s, 2.54 cm tube)	-93°C (-135°F)
Minimum liquid temperatures for transitional region flow, ($N_{Re} > 2000$)	
10 ft/sec, 1 in tube (3.048 m/s, 2.54 cm tube)	-108°C (-163°F)

20 ft/sec, 1 in tube (6.096 m/s, 2.54 cm tube)	-118°C (-180°F)
Coefficient of thermal expansion at 200°C	0.001420/°C (0.000786/°F)
Heat of vaporization at max. use temperature	252.3 kJ/kg (108.6 Btu/lb)
Kinematic viscosity at 100°C (ASTM D-445)	0.41 mm ² /s (cSt)
Kinematic viscosity at 40°C (ASTM D-445)	0.71 mm ² /s (cSt)
Liquid density at 25°C (ASTM D-4052)	744 kg/m ³ (6.21 lb/gal)
Total acidity (ASTM D-664)	< 0.2 mg KOH/g
Average molecular weight	102
Pseudocritical temperature	299°C (570°F)
Pseudocritical pressure	35.0 bar (521.7 psia)
Pseudocritical density	267.80 kg/m ³ (16.72 lb/ft ³)
Copper corrosion (ASTM D-130)	<< 1 a
Moisture content, maximum (ASTM E-203)	80 ppm
Dielectric constant @ 23°C (ASTM D-924)	1.99

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