

Technical Data Sheet Therminol® D12 Heat Transfer Fluid

Applications

- Environmental test chambers
- Htf active pharmaceutical ingredients
- Htf food/feed/beverage processing
- Htf pharmaceutical processing
- Specialty and batch chemical production
- Specialty chemicals

Key Attributes

- Easy Operation
- Heating or Cooling Operation
- Low Cost
- Low Odor and Excellent Toxicity Profile

Product Description

Therminol D-12 is a synthetic liquid phase heat transfer fluid with excellent heat transfer properties over a wide temperature range. This fluid is ideally suited for applications requiring efficient cooling and heating.

Performance Benefits

- **Heating or Cooling Operation**—Therminol D-12 is ideally suited for combination heating and cooling applications and delivers excellent heat transfer rates even at -45°C (-50°F). Batch processes will benefit from the excellent cooling performance Therminol D-12 delivers. Therminol D-12 also may be used as a secondary coolant or "brine" in refrigeration loops where a broad range of properties is desired.
- **Easy Operation**—Using Therminol D-12 avoids problems of using multiple fluids in the same piece of equipment.
- Low Cost—Therminol D-12 delivers better thermal performance at lower cost than competing fluids.
- Low Odor and Excellent Toxicity Profile—Therminol D-12 is NSF registered with HT1 status, surpassing requirements for use where there is the possibility of incidental food contact.

Typical Properties

Property	Test Method	Typical Value, Units	
General			
Appearance		Clear, water-white liquid	
Composition		Synthetic hydrocarbons	
Maximum bulk temperature		230 °C (450 °F)	
Maximum film temperature		245 °C (475 °F)	
Normal Boiling Point		192 °C (378 °F)	
Pumpability			
@300 mm2/s (cSt)		-82 °C (-116 °F)	
@ 2000 mm2/s (cSt)		-94 °C (-137 °F)	
Autoignition Temperature	ASTM E659	247 °C (477 °F)	
	DIN 51794	277 °C (531 °F)	
Minimum liquid temperatures for fully developed turbulent flow (NRe >			
10000)			
10 ft/s, 1-in. tube (3.048 m/s,		-37 °C (-35 °F)	
2.54-cm tube)			
20 ft/s, 1-in. tube (6.096 m/s,		-51 °C (-59 °F)	
2.54-cm tube)			
Minimum liquid temperatures for	transitional region flow, (NRe > 2000)		

Minimum liquid temperatures for transitional region flow, (NRe > 2000) 10 ft/s, 1-in. tube (3.048 m/s,

-64 °C (-82 °F)



2.54-cm tube) 20 ft/s 1-in tube (6.096 m/s		-71 °C (-96 °F)
$20 \text{ H/s}, 1^{-111}, \text{ tube } (0.090 \text{ H/s}, 254 \text{ sec tube})$		-71 C (-90 T)
2.54-cm tube)		
Coefficient of thermal expansion		
@ 100°C		0.001122 /°C (0.00062 /°F)
Viscosity, Kinematic		
@ 100°C	ASTM D 445	0.65 cSt, mm ² /s
@ 40°C	ASTM D 445	1.23 cSt, mm ² /s
Molecular Weight (Average)		162
Pseudocritical temperature		360 °C (680 °F)
Pseudocritical pressure		16.2 bar (235 psia)
Pseudocritical density		229 kg/m ³ (14.1 lb/ft ³)
Moisture Content, maximum	ASTM E-203	80 ppm
Dielectric Constant		
@ 23°C	ASTM D-924	2.02

Comments

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

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