

Technical Data Sheet

Therminol® VP3 Heat Transfer Fluid

Applications

- Extruding
- Fibers
- Htf - fine chemicals
- Polyamide
- Polyester (pet)
- Specialty and batch chemical production
- Specialty chemicals
- Specialty heat-sensitive polymers

Key Attributes

- Class III b Combustibility
- Easy to Handle
- Low Odor

Product Description

Therminol VP3 heat transfer fluid is a synthetic heat transfer fluid that was specially developed to allow vapor phase heat transfer at lower temperatures than are practical with traditional diphenyl oxide (DPO)/biphenyl constituted fluids like Therminol VP-1.

Performance Benefits

- **Easy to Handle**—Therminol VP-3 has a normal boiling point of 243°C (469°F), 14°C (26°F) below the normal boiling point of Therminol VP-1. Laboratory thermal stability testing suggests a maximum continuous operating temperature of 330°C (625°F) in the liquid or vapor phase. A crystallization point of 2°C (36°F) makes Therminol VP-3 easy to handle and may eliminate the need for costly heat tracing in moderate climates.
- **Low Odor**—The odor of Therminol VP-3 is milder than other vapor phase organic heat transfer fluids. Therminol VP-3 is a mixture of phenylcyclohexane and bicyclohexyl. It contains virtually no biphenyl.
- **Class III b Combustibility**—With an open cup flash point of 104°C (219°F), Therminol VP-3 is a Class III b combustible fluid under the definitions of the (U.S. National Fire Prevention Association) NFPA . As with any other combustible material, proper system design and operation are important to safe operation. Leaks of vapor could condense into a stable mist suspension that may be explosive in certain concentrations in air.

Typical Properties

Property	Test Method	Typical Value, Units
General		
Appearance		Above 2.4°C (36°F) clear, sediment-free liquid
Composition		Phenylcyclohexane + bicyclohexyl
Maximum bulk temperature		330 °C (625 °F)
Maximum film temperature		360 °C (675 °F)
Normal Boiling Point		243 °C (469 °F)
Crystallization Point		2.4 °C (36 °F)
Flash Point		
COC	ASTM D92	104 °C (219 °F)
Autoignition Temperature	ASTM E659	360 °C (680 °F)
	DIN 51794	351 °C (664 °F)
Coefficient of thermal expansion		
@ 200°C		0.001204 /°C (0.000669 /°F)

Viscosity, Kinematic		
@ 40°C	ASTM D 445	2.04 cSt, mm ² /s
Liquid Density		
@ 15°C	ASTM D 4052	935 kg/m ³ (7.8 lb/gal)
@ 25°C	ASTM D 4052	930 kg/m ³ (7.76 lb/gal)
Acidity	ASTM D 664	<0.2 mg KOH/g
Molecular Weight (Average)		161
Pseudocritical temperature		406 °C (764 °F)
Pseudocritical pressure		38.5 bar (558.4 psia)
Pseudocritical density		352 kg/m ³ (22 lb/ft ³)
Copper Corrosion	ASTM D 130	<<1a
Moisture Content, maximum	ASTM E-203	150 ppm
Surface Tension ^a		
@ 25°C		43.2 dynes/cm
Dielectric Constant		
@ 23°C	ASTM D-924	2.48

^ain air

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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