

PM-125 High Temperature Down-Hole Fluid

Service Temperature: 25°C to 300°C (closed system)



PM-125 High Temp Downhole Silicone Fluid will remain stable at 300°C and withstand high pressure environments.

PM-125 High Temperature Down-Hole Silicone Fluid is a clear, colorless, and odorless silicone fluid that is classified as a Phenylmethylsiloxane (CAS#63148-52-7) with a viscosity of 125cSt @ 25°C. It is formulated for use as a heat transfer medium for high temperatures ranging from 25°C to 300°C (closed system*).

PM-125 High Temperature Down-Hole Silicone Fluid is an excellent fluid for the ever harsher environments in the Downhole Oil and Gas Industries. It is characterized by its high temp stability, high flash point, stability at extremely high pressures, high resistance to oxidation, high dielectric strength, long service life, and hydrophobic nature (insoluble in water). When heated, the fluid's viscosity will lower quickly, allowing it to be easily pumped.

Unlike conventional fluids like mineral oil, PM-125 will not coagulate under pressure. Even at high pressures of 4,000MPa, the fluid will not solidify.

PM-125 High Temperature Down-Hole Silicone Fluid has a Thermal Conductivity value of 0.00035g/cal/cm/sec °C. Its specific heat value is 1.498k J/kg. K @ 40°C.

When compared to mineral oils, glycols and Polydimethylsiloxane fluids (PSF-Fluids), PM-125 Down-Hole Silicone Fluid exhibits much higher thermal stability and resistance to oxidation. Although it is more expensive, it will provide a much longer service life at elevated temperatures.

*Closed system baths are systems from which air has been excluded

Features

- Excellent High Temp Stability
- Service range: -40 to 315°C (closed system)
- High Oxidation Resistance
- Non-Flammable
- High Temperature fluid for Downhole instruments and downhole gauges
- High Dielectric strength –dielectric fluid in capacitors
- High Pressure fluid for downhole
- Compatible with virtually all o-rings, gaskets, valves, seals, and hoses *
- VOC Exempt

Not recommended for silicone o-rings where the fluid may cause swelling

Thermal Properties

Specific Heat

@ 0°C.....1.418 kJ/kg K
 @ 40°C.....1.498kJ/kg. K
 @ 100°C.....1.615 kJ/kg. K.
 @ 200°C.....1.812 J/kg. K

Thermal Conductivity

@ 25°C.....0.00035g/cal/cm/sec °C
 @ 50°C.....0.00036g/cal/cm/sec °C

Thermal Gel Time (open system)

months @ 200°C.....14 months
 hours @ 250°C.....1,200 hours
 hours @ 260°C.....200 hours

Properties

Pour Point °C.....-51°C
 Flashpoint.....315°C
 Ignition Temperature.....482°C
 Surface tension.....24.5
 Specific Gravity.....1.07
 Refractive index.....1.500

Viscosity/Temp Coefficient.....0.76
 Viscosity @ 25°C.....125cSt
 (mm²/sec)

Viscosity @ temperature

@ 99°C.....20cSt (mm²/sec)
 @ 38°C.....84cSt (mm²/sec)
 @ 25°C.....125cSt (mm²/sec)
 @ -29°C.....22,000cSt (mm²/sec)

Volatility (open system)

12 months @ 150C.....4%
 12 months @ 200C.....15%
 4 hours @ 250C.....1.2%
 48 hours @ 250C.....5.5%

Vapor pressure vs. Temperature

@ 228°C.....11 Pa
 @ 244°C.....25 Pa
 @ 263°C.....84 Pa
 @ 277°C.....155 Pa
 @ 380°C.....13,332 Pa
 (1mm Hg = 133.322Pa)

Volume Expansion vs. temperature

-18°C to 149°C.....0.00075
 150°C to 204°C.....0.00077
 205°C to 260°C.....0.00080

Compressibility

@ 7MPa.....0.5%
 @ 20MPa.....1.4%
 @ 35MPa.....2.3%
 @ 50MPa.....3.0%
 @ 75MPa.....4.2%
 @ 100MPa.....5.2%
 @ 150MPa.....6.8%

Packaging

1-gallon pail.....4kg
 5-gallon pail.....20kg
 55-gallon drum.....220 kg

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