Product Information

HT-110 High-Temp Silicone Heat Transfer Fluid

Polydimethylsiloxane heat-stabilized with iron-siloxane additive…enhanced thermal stability in open system

HT-110 High Temp Heat Transfer Fluid remains stable in open system baths @ 199°C / 390°F

HT-110 High Temp Silicone Heat Transfer Fluid is a Polydimethylsiloxane (CAS # 63148-62-9) with a viscosity of 100cSt @ 25°C. It is heat-stabilized with an iron-siloxane additive to enhance thermal stability and resistance to oxidation. **HT-110** can be used as a bath fluid/heat transfer in baths exceeding 200°C (open system) for extended periods. It can withstand high temperatures and remain stable with little viscosity change and exhibits a high resistance to oxidation and gumming.

Due to the iron-siloxane additive, **HT-110** has a brownish-murky color and an odor when heated. If bath instrumentation needs to be visible within the bath, we recommend the DPDM-400 or PM-125 High Temp Fluids which are clear, colorless and odorless.

In the presence of oxygen or air (open system), the HT-100 High Temp Silicone Bath Fluid has a greater resistance to high temperatures (see Table 1) than conventional PDMS Silicone fluids that are not heat-stabilized.

Effects of Temperature:
HT-110 does not boil or flash at temperatures as high as 288°C, and withstands long heat exposure without gumming or oxidizing. The maximum service temperature of HT-110 Bath Fluid will vary with each specific application.

HT-110 remains pourable to -40°C. In addition, the fluid shows very little change in viscosity and flow characteristics over a wide temperature span.

Typical Properties

Parameter	Value
Product Code	HT-110
Appearance	Brownish color
Odor	Mild odor… gets stronger when heated
Flash Point – open cup	>288°C
Pour point1 (ASTM D-97)	-65°C
Specific gravity at 25°C	0.960
Viscosity at 25°C	100cSt
Viscosity-temperature co-efficient, (viscosity at 99°C/ viscosity at 38°C)	0.60
Refractive Index	1.4030
Vapor pressure at 204°C	~330pa

Thermal Properties

Parameter	Value
Thermal conductivity at 25°C,	0.11 W/m. K
Specific heat @ 98.8°C	1423 J/kg. K
Coefficient of expansion per °C unit volume/unit volume	0.00095
Volatility, % weight loss 3	<2

Packaging

1-gallon (3.785 liters).....3.6kg net wt.

5-gallon pail (18.9 liters) .....18kg net wt.

55-gallon drum (208 liters).....200kg net wt.

F.O.B. Phila, PA U.S.A.

Table 1: Typical Oxidation Stability

Weight Loss at 249°C
After 4 hours.....2.0 %
After 24 hours.....4.5%
After 48 hours.....7.0%

Gel Time (hours)
At 199°C / 390°F.....>19,000 hrs.
At 288°C / 550°F..... >5,000 hrs.

Weight Loss at 288°C
After 4 hour..... .....3.0%
After 24 hours.....9.4 %
After 48 hours.....11.5%

For More Info, Contact:
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Effects of Shear
HT-110 High Temp Silicone Heat Transfer Fluid provides stability and uniform performance in mechano-fluid devices and controls. Because uniform flow characteristics under shear are rigidly controlled, uniform performance from lot to lot is assured. Even after repeated or long service at high shear rates, this fluid has little or no permanent change in viscosity, and the damping effects remain nearly constant.

At low shear rates, Clearco Silicone Heat Transfer Fluid behaves like a Newtonian fluid, showing little appreciable drop in apparent viscosity with increasing shear.

At extreme shear rates above 2000/s, Silicone Bath Fluid shows slight deviation from Newtownian behavior.

Any change in the apparent viscosity of HT-110 die to shear is only temporary. When the shear stress is removed, the viscosity returns to its original value.

Effects of Temperature
HT-110 does not boil or flash at temperatures as high as 288°C, and withstands long heat exposure without gumming or oxidizing. The maximum service temperature of HT-110 Silicone Bath Fluid will vary with each specific application.

Suitability of this fluid must be individually qualified by the customer for a given use. Clearco Silicone Bath Fluid remains pourable to -40°C.

In addition, the fluid shows very little change in viscosity and flow characteristics over a wide temperature span. The graph (see Figure 1) gives temperature vs. viscosity relationships for Silicone Bath Fluid.

Solubility
HT-110 is soluble in most aliphatic hydrocarbon solvents and chlorinated solvents, including gasoline, heptane, VM&P naptha, xylene, toluene, methylene chloride, perchloroethylene, ethyl ether and hexyl ether.

It is partially soluble in such solvents as 99% isopropyl alcohol, heptadecanol, acetone and insoluble in such liquids as water, ethyl alcohol, 70% isopropyl alcohol, ethylene glycol, propylene glycol and diethylene glycol stearate.

Handling Precautions
Clearco Silicone Heat Transfer Fluid may cause slight temporary discomfort of accidentally rubbed into the eyes. It is essentially non-irritating to the skin.

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. READ

PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABEL FOR SAFE USE.

Usable Life & Storage
When stored at or below 60°C in closed but vented containers, this product has a usable life of 60 months from date of production.

Limitations
This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

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