

NuTherm® S165

Technical Data Sheet

NuTherm® S165

Silicone Heat Transfer Fluid

Operating Temperature Range: -80°C to 150°C
(Closed Systems Only)

Description:

NuTherm® S165 is a low-viscosity, linear polydimethylsiloxane (PDMS) silicone heat transfer fluid engineered for extremely low-temperature applications requiring superior pumpability, chemical stability, and long service life. This crystal-clear, colorless, odorless silicone oil delivers reliable performance in closed-loop thermal control systems across a wide temperature range.

Derived from ultra-pure PDMS chemistry, NuTherm® S165 exhibits:

- Very low pour point
- Low viscosity-temperature change (low V.T.C.)
- Exceptional low-temperature stability
- Hydrophobic behavior (insoluble in water)
- Long operating life and oxidative stability

At -40°C, NuTherm® S165 maintains a viscosity of only 6 cSt, making it ideal for circulation systems with limited pump capacity at low temperatures.



Applications:

NuTherm® S165 is recommended for:

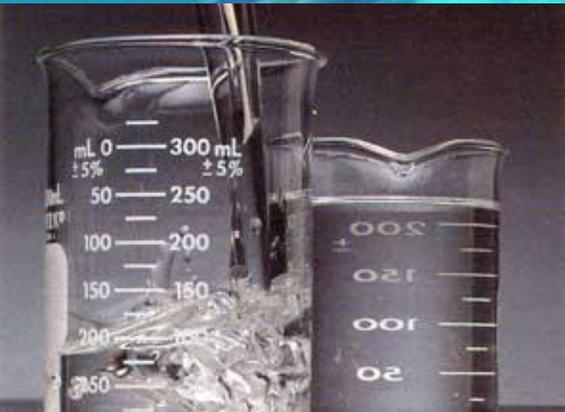
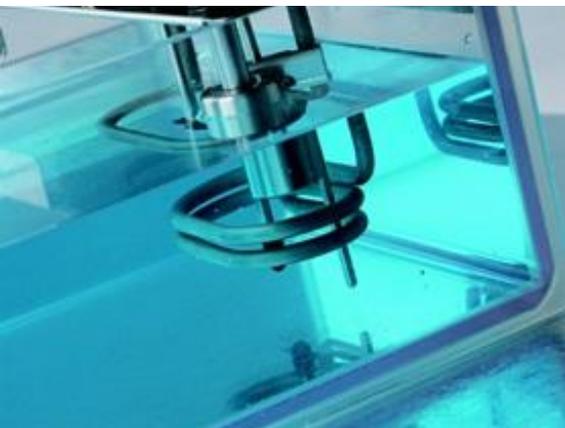
- Low-temperature heat transfer systems
- Environmental/thermal test chambers
- Cryostats & refrigerated baths
- Freeze-drying equipment
- Calibration and metrology baths
- Low-temperature recirculating chillers
- Closed-loop low-temperature circulation baths
- Thermostatic control systems requiring ultra-low viscosity fluids

Note: NuTherm® S165 must be used in closed systems, where air exposure is minimized.

Product Benefits

- Ultra-low viscosity
- Clear, colorless, odorless
- Low surface tension
- Wide service temperature Range (-80°C to 150°C)
- Hydrophobic
- Thermally stable & long lasting
- Low volatility
- Compatible w/ most seals, O-rings, gaskets, and elastomers

NuTherm[®] S165 Physical Properties



NuTherm[®] S165

Specific Gravity @ 25°C	0.851
Refractive Index	1.3874
Pour Point	-100°C
Flash Point (Closed Cup)	57°C
Boiling Point (760mmHg)	194°C
Surface Tension @ 25°C	18.0 dynes/cm
Vapor Pressure @ 25°C	1 mmHg
Volatile Content @ 150°C (open)	100%
Molecular Weight	340 g/mol
Thermal Conductivity @ 50°C	0.10 W/m°C
Specific Heat @ 25°C	0.410 cal/g°C
Thermal Expansion Coefficient	0.00134 cc/cc°C
Dielectric Strength	350 volts/mil
Dielectric Constant @ 100Hz	2.36
Volume Resistivity	5.0 x 10 ¹⁴ ohm-cm
Appearance, Color, Odor	Clear, Colorless, Odorless

Availability: 5-gallon pails, 55-gallon drums, 275-gallon tote-bins, and bulk tankers.

Shipment: Non-Hazardous for transport via DOT, IMDG, and IATA.

Storage: Keep containers sealed to prevent contamination. Store between 5 to 35°C (40-95°F).

Disposal: Dispose of in accordance with local, state, and federal regulations.

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EMERGENCY OVERVIEW:

This product may cause serious irritation to the eyes.

SAFETY:

Please make sure you have read and understand the product label and SDS before using this product. Use proper chemical hygiene when handling product. Wash thoroughly after handling. Observe label precautions. This product is classified and labeled according to the Globally Harmonized System (GHS).

Temperature (°C)	Viscosity
25	1.5 cSt
-25	3 cSt
-40	6 cSt
-60	< 20 cSt
Viscosity-Temperature Coefficient (VTC)	0.46

Low V.T.C. indicates exceptional stability across a wide temperature range

Operating Guidelines:

- Use only in closed systems (atmospheric oxygen accelerates degradation).
- Avoid contamination with moisture, solvents, or other heat transfer fluids.
- Suitable for systems requiring rapid thermal response and high fluidity at low temperatures.