



# Paratherm<sup>®</sup>-CR<sup>™</sup> Heat Transfer Fluid

Predictable, Consistent, Efficient Performance

ENGINEERING BULLETIN CR 104

*Precise, Uniform Temperature Control in Closed-Loop Cryogenic Systems*

- **Fine Chemical Processes**
- **Pharmaceutical Production**
- **Secondary Coolant Systems**
- **Continuous Process Applications**
- **Environmental Chambers**

The new Paratherm CR<sup>™</sup> (Patent Pending) heat transfer fluid offers *predictable, repeatable* performance in cryogenically-driven process applications. One-hundred percent synthetic, the CR fluid's consistent properties improve productivity by eliminating runaway coil freeze-ups.

With a measured viscosity of 10 centipoise at -88°C, and 20 centipoise at -96°C, the CR fluid provides greater efficiency at lower temperatures. Its ease of containment — and handling — allows engineers significantly greater latitude in system design and specification of components.

## Typical Physical Properties

Base	Synthetic Hydrocarbon
Appearance	Transparent, Bright Water White
Odor	Slight Odor
Optimum Use Range	-175°F to 400°F (-115°C to 204°C)
Maximum Recommended	
Film Temperature	400°F (204°C)
Flash Point ASTM D-56	110°F (43°C)
Flash Point ASTM D-92	120°F (49°C)
Autoignition Temperature	
(AIT) ASTM E659-78	430°F (221°C)
Initial Boiling Point	287°F (142°C)
Vapor Pressure, psia @ 400°F (204°C)	18.4
Coefficient of Thermal Expansion	0.00031/°F 0.00056/°C
Average Molecular Weight	133
Density, lb/gal @ 75°F (24°C)	6.9
Pour Point	<-184°F (<-120°C)
Heat of Vaporization (calculated), BTU/lb	147.8
Total Acid Number (TAN) ASTM D-664	<0.01

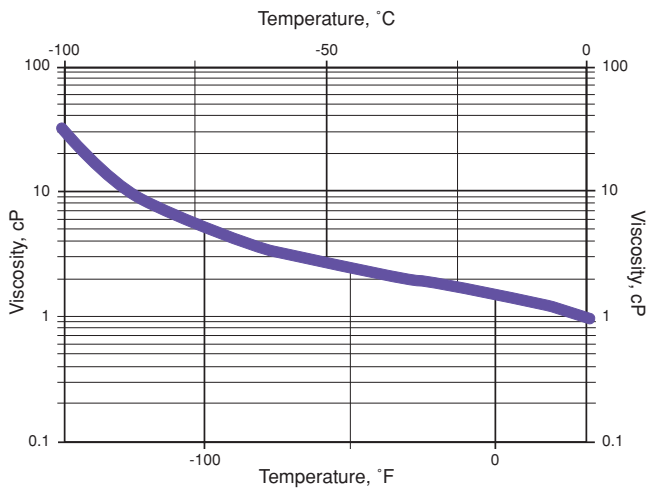
These, coupled with the fluid's unusually low freeze point (<-120°C), can lead to substantially improved production quality and yield over d-limonene and silicone-based fluids.



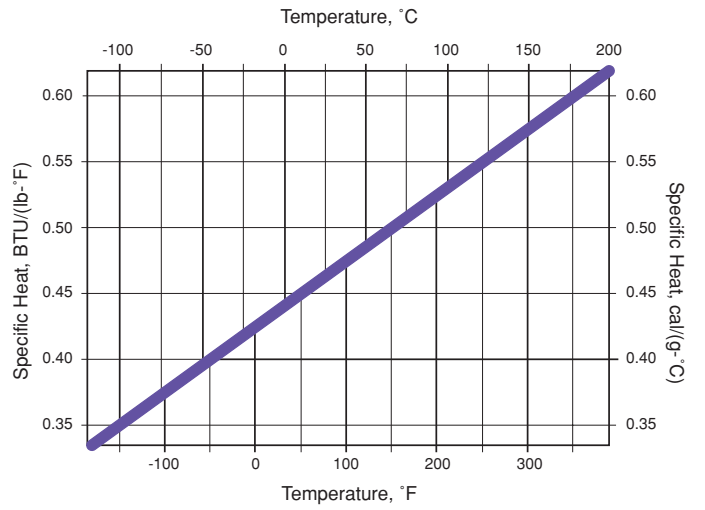
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Note: The information and recommendations in this literature are made in good faith and are believed to be correct as of the below date. You, the user or specifier, should independently determine the suitability and fitness of Paratherm heat transfer fluids for use in your specific application. We warrant that the fluids conform to the specifications in Paratherm literature. Because our assistance is furnished without charge, and because we have no control over the fluid's end use or the conditions under which it will be used, we make no other warranties—expressed or implied, including the warranties of merchantability or fitness for a particular use or purpose (recommendations in this bulletin are not intended nor should be construed as approval to infringe on any existing patent). The user's exclusive remedy, and Paratherm's sole liability is limited to refund of the purchase price or replacement of any product proven to be otherwise than as warranted. Paratherm Corporation will not be liable for incidental or consequential damages of any kind.

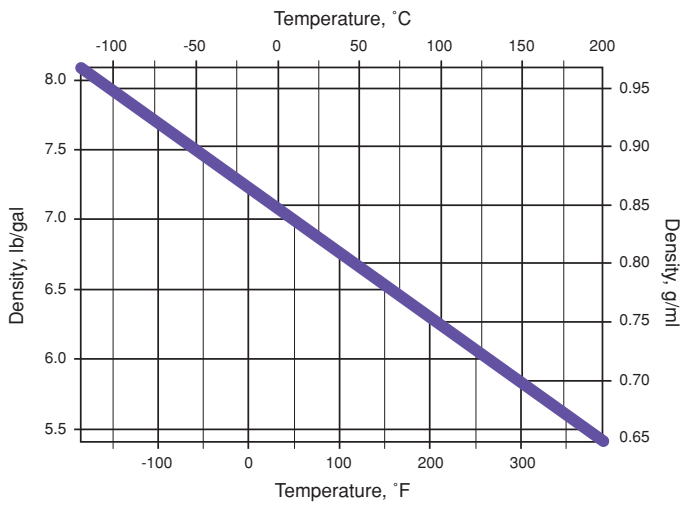
## VISCOSITY



## SPECIFIC HEAT



## DENSITY



## THERMAL CONDUCTIVITY

