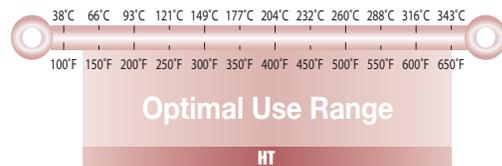


# Paratherm™ HT

## Heat Transfer Fluid



### High Temperature • High Thermal Stability

ENGINEERING BULLETIN HT 817

Paratherm™ HT Heat Transfer Fluid is a partially hydrogenated terphenyl based product designed for closed-loop liquid phase heating to 650°F (343°C) in fired heaters and 675°F (357°C) in solid fuel-fired heat recovery and full convection heaters.

#### Applications include:

- Gas processing
- Chemical processes
- Waste oil recovery
- Biodiesel production
- Plastic processing

#### Proven Formulation

Partially hydrogenated terphenyls have been used successfully in high temperature heat transfer applications for many years. Because it meets the quality standards users have come to expect of this type of chemical, Paratherm HT is fully compatible with existing installations that require topping off or full replacement.

#### Customer Support

Because heat transfer fluids are our only business, our customer support is set up to meet the unique needs of our customers. Multiple distribution sites and 24/7 response ensure product is at your facility when you need it with no minimum order quantity. Our fluid testing program monitors the condition of the Paratherm as well as provides feedback on equipment issues. And if we can't solve the problem over the phone or by email, we'll travel to your site for an up-close look—at no charge to you.

#### Preventing Oxidation

Fluid oxidation is the leading cause of the more serious maintenance issues associated with closed-loop heat transfer systems—including cold spots, heater coking, plugged pressure sensors and ultimately fluid gelling. Paratherm strongly recommends installation of a nitrogen blanket on the expansion tank to prevent oxidation of Paratherm HT heat transfer fluid.

#### Typical Properties\*

Chemical Name	Partially Hydrogenated Terphenyl
Appearance	Pale Yellow
Odor	Mild Odor
Maximum Recommended Film Temperature	705°F/374°C
Maximum Recommended Operating Temperature-Fired Heaters	650°F/343°C
Maximum Recommended Operating Temperature-All Others	675°F/357°C
Minimum Operating Temperature 20 cPs (20 mPa-s)	124°F/51°C
Viscosity cSt:	
40°C (104°F)	31.4
100°C (212°F)	4.5
343°C (650°F)	0.45
Density at 60°F/15.5°C lb/gal (kg/m <sup>3</sup> )	8.4 (1012)
Flash Point Pensky-Martens Closed Cup (D93)	>356°F/180°C
Boiling Point (14.7 psia/101 kPa)	>676°F/358°C
Vapor Pressure @ maximum operating temperature psia (kPa)	11.5/77.9 5.0
% Volume expansion over recommended operating temperature per 100°F (°C)	(9.0)
Average Molecular Weight	330

\* These are typical laboratory values, and are not guaranteed for all samples

#### Fluid Storage

Drums should be stored inside to prevent water from getting into the heat transfer fluid. If sealed drums must be left outdoors, they should be stored on their sides. While unopened totes are weatherproof, they should not be stacked if left outdoors. If the fluid is to be stored outside below its minimum pumpable temperature, the containers should be moved indoors to warm up before charging the fluid into the system.

#### Replacing Extra Fluid

In many cases, changing fluid involves a straightforward drain and fill. There are very few fluids that are so incompatible that 10-15% residue will affect the new Paratherm. If you have any questions, contact us.

#### Fluid Analysis

The fluid in new systems should be tested within 9 to 12 months of start-up. New fluid in existing systems should be tested within the first month of operation to establish a base line for future testing.

#### Charging New Systems

Unless required for product quality reasons, new systems do not need to be cleaned before Paratherm is charged. The amount of chemical coatings, oils, and other manufacturing residues are usually not enough to affect the fluid life. All that is necessary is to install a Y-strainer with a minimum 60-mesh screen up stream of the pump to catch any metal or welding residue. The screen can be removed once the system has been cycled twice through its operating temperature.



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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 will not be liable for incidental or consequential damages of any kind.