



F.Y.I.

TEMPERATURE CONTROLLERS... PORTABLE CHILLERS... CENTRAL CHILLERS... PUMP TANK STATIONS... TOWER SYSTEMS...

SUBJECT: PARATHERM NF® HEAT TRANSFER FLUID

#7-A-150

7/11/1995

Advantage recommends the use of **PARATHERM NF®** heat transfer fluid in hot oil temperature controllers. Paratherm NF® can be purchased directly from the Paratherm Corporation (1-800-222-3611), a local vendor or Advantage.

Paratherm NF® is a non-toxic heat transfer fluid for use in high temperature applications. It is safe to handle and easy to dispose of.

FLUID FOULING

Unlike conventional heat transfer fluids, Paratherm NF® will not cause hard carbon formation on heated surfaces which bakes on to the heated surface, forming a crust which eventually builds up and restricts flow and heat transfer capacity. In extreme fouling, heater tubing and electrical elements can prematurely fail. Under similar extreme overheat conditions, Paratherm NF® fluid evolves small carbon granules. These granules remain in suspension, and can be filtered out easily.

ENVIRONMENTAL SAFETY

Paratherm NF® fluid has passed Bioassay to confirm the environmental safety of the fluid. In spillage, the Paratherm NF® fluid can be treated using the same clean-up procedures employed for light lubricating oils and recycled into other usable materials. Paratherm NF® fluid contains no aromatics, heavy metals, or compounds of sulfur or nitrogen.

FLUID TOXICITY

Paratherm NF® is completely non-toxic and certified by the FDA and USDA and other agencies for use with food and pharmaceuticals. Note, do not breathe vapor mists of any fluid (see MSDS for more information)..

VAPOR PRESSURE

Paratherm NF® fluid has a vapor pressure below atmosphere at its maximum operating temperature and permits the designer considerable latitude in the choice of lower-cost equipment.

EFFICIENCY

Paratherm NF® low viscosity requires less energy to pump and results in lower power consumption and energy savings.

WATER IN THE SYSTEM

Any water allowed to stand in thermal oil systems can cause severe corrosion. Because the Paratherm NF® fluid is immiscible with water, water in the system can be easily drained from the system's low points.

STORING

Containers should be stored in non-hazardous dry areas. Seals should not be broken and liquids should not be allowed to pool on the containers to prevent drawing any water into the container via a bad seal

PARATHERM NF® SPECIFICATIONS

PHYSICAL PROPERTIES

- Feedstock : NF/USP hydrotreated hydrocarbon base
- Appearance : Transparent, colorless, bright
- Taste & Odor : None
- Minimal Optimal Temperature : 120°F (49°C)
- Maximum Recommended Film Temperature : 650°F (343°C)
- Flash point (coc) ASTM-D-92 : 345°F (174°C)
- Flash point (pmcc) ASTM-D-93 : 335°F (168°C)
- Fire point (coc) ASTM-D-92 : 385°F (196°C)
- Autoignition ASTM-D-2155 : 690°F (366°C)
- Autoignition ASTM-E659-78 : 691°F (367°C)
- Atmospheric Boiling Point, 10% fraction ASTM D-1160 650°F : (343°C)
- Vapor Pressure, psia @ 600°F : 4.720
- Coefficient of Thermal Expansion** : 0.000304/°F (0.000547/°C)
- Average Molecular Weight ASTM D-2502 : 350
- Density, lb/gal @ 75°F (24°C) ASTM D-1298 : 7.25
- Pour Point (Crystal Point) ASTM D-97 : -45°F (-43°C)
- Pumpability: Centrifugal @ 2,000 Centipoise : -13°F (-25°F)
- Heat of Vaporization (Calculated) : 90.72 BTU/lb

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

** Note: normal practice is to size the expansion tank so that it is 1/4 to 1/3 full when the system is cold, and 2/3 to 3/4 full when the system is at the maximum normal operating temperature.

*** Electrical and Optical Properties are Available On Request.

FLUID DISPOSAL

Paratherm NF® can be safely combined with used lubricating oils and recycled locally.

FLUID ANALYSIS

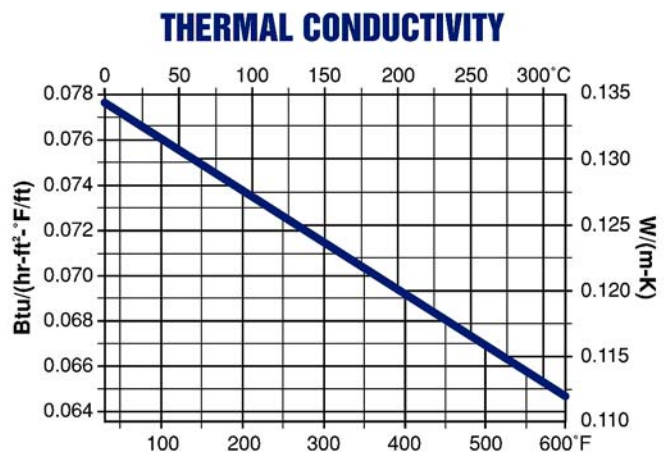
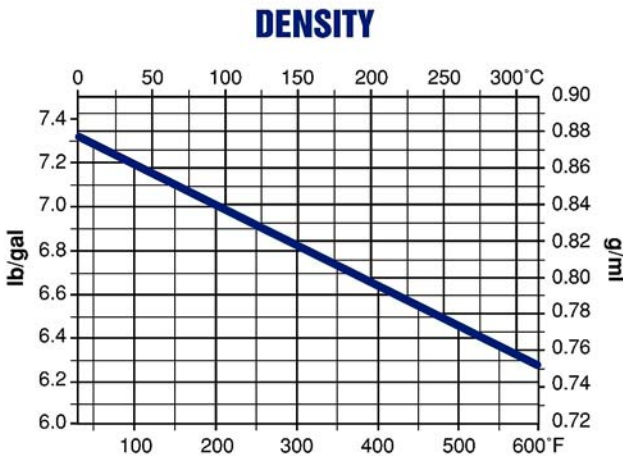
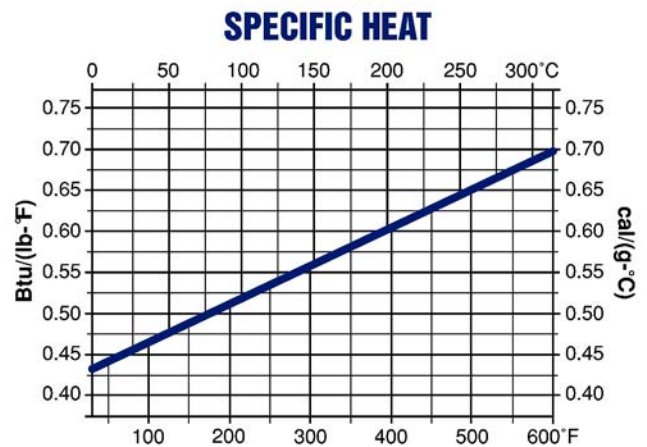
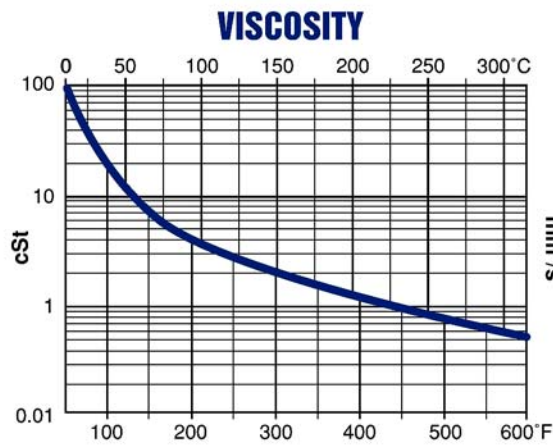
Periodic analysis of your fluid allows you to detect overheating, oxidation and contamination issues in the early stages to result in substantial savings of your heat transfer fluid and thermal system.

QUALITY CONTROL

Paratherm NF® tests each batch of heat transfer fluid to ensure that product specifications are being met. Each shipment is traceable to the master batch, with test results held at the factory.

TECHNICAL ASSISTANCE

Technical expertise is available to you during the planning and design stages, and through system construction, start-up and operation. Advantage and Paratherm are pleased to work closely with you in the recommendation of proven systems, components and procedures. We can also advise you on system cleaning and repair, should these become necessary.



Information presented in this F.Y.I. document is source from the Paratherm NF Engineering Bulletin NF 104.

FOR MORE INFORMATION CONTACT:



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