

TM-HTN-170 Heat Transfer Fluid

TM-HTN-170 is an inert, dielectric, nonflammable, hydrofluoroether (HFE) heat transfer fluid that can be used as an alternative to perfluorocarbons and perfluoropolyethers. TM-HTN-170 boasts a low global warming potential and can be used in a variety of applications. Compatible with most plastics and electronics.

Applications

- Semiconductor manufacturing
- Industrial/chemical manufacturing
- Pharmaceutical manufacturing
- Test equipment cooling
- Compute, transformer and electronic cooling

Properties and Usage Benefits

- Chemical and thermal stability for consistent performance in semiconductor manufacturing and supercomputing
- Reliable and consistent cooling capabilities able to perform through single-phase and two-phase immersion cooling
- No residue and clean evaporation
- Nonflammable for worker safety in chemical and pharmaceutical industries
- Low toxicity profile

Properties	
Tyrell Part #	TM-HTN-170
Fisher Scientific Part # (Air Freight)	502120265
Fisher Scientific Part # (Sea Freight)	502120266
Type	HFE
Boiling point	165 °C
Pour point	<- 50 °C
Density	1.801 g/cm ³
Kinematic viscosity	2.98 cSt
Vapor pressure	85.5 torr
Specific heat	0.36 cal/g·°C
Heat of vaporization at boiling point	29.09 cal/g
Refractive index	1.28
Coefficient of thermal expansion	0.0013 ·°C
Surface tension	16.98 dyne/cm
Thermal conductivity	0.063 W/m-K
Dielectric strength	40 kV
Dielectric constant	3.82
Volume resistance	2·10 ¹⁵ Ohm·cm
Average molecular weight	500 amu
Dissipation factor (1 Khz)	1·10 ⁻⁴
Solubility of water	3.06 ppm (wt)
Solubility of air	26 cm ³ gas

Material Compatibility

HTN heat transfer fluids can extract plasticizer from elastomers. Use should be limited to elastomers with low amounts of plasticizer such as butyl, EPR, and EPDM.

Safety

Worker safety is of utmost importance. HTN fluids are nonflammable and the overall toxicity profile is low. HTN fluids can be mildly irritating to the skin and eyes.

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