RSC BIO SOLUTIONS | FUTERRA

# FUTERRA™ LV HTF 2.8

## High-Performance, Sustainable Immersion Cooling Fluid

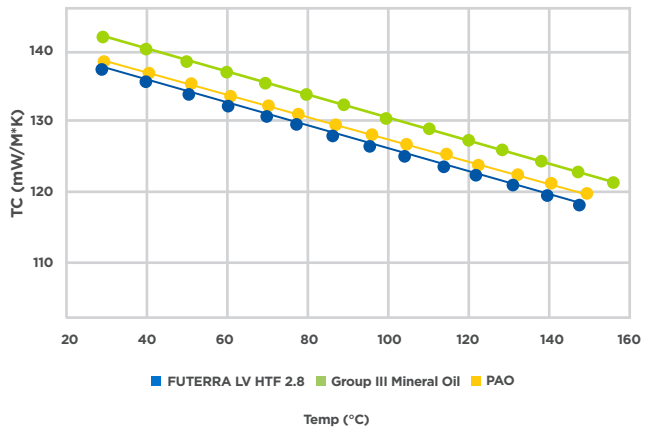
FUTERRA LV HTF 2.8 is the only immersion cooling fluid with increased performance and longevity with a negative cradle-to-gate carbon footprint. FUTERRA™ LV HTF 2.8 was designed to improve heat capacity and thermal conductivity in applications where direct cooling with a dielectric fluid will allow for more compact thermal management designs.

When compared to Group III Mineral Oil and PAO-based fluids, FUTERRA™ LV HTF 2.8 offers:

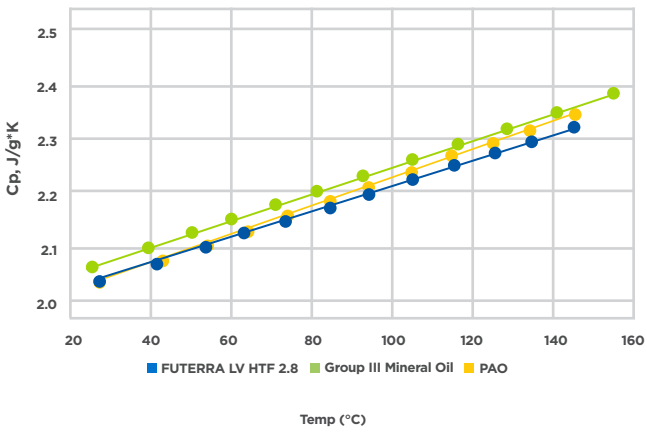
- **Superior thermal conductivity** providing the most efficient heat transfer away from equipment components.
- **Increased heat capacity** for more efficient energy transfer away from components.
- **Improved oxidized stability** resulting in longer service life and greater value of the fluid.
- **Superior compatibility** with all elastomers, polymers, seals and metal components.
- **Reduced fluid volatility** resulting in less fluid loss due to evaporation over time.

**FUTERRA™ LV HTF 2.8 has improved thermal conductivity and heat capacity over immersion cooling fluids using petroleum based (Grp III) or PAO-based synthetic hydrocarbons (PAO).**

2.8 cst Immersion Cooling Fluids:
Thermal Conductivity (mW/m-k)




2.8 cst Immersion Cooling Fluids:
Heat Capacity (J/g-K)



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## Optimized Materials Compatibility

While lowering viscosity generally improves convective heat transfer, elastomer compatibility is crucial for reliability in immersion cooled data centers. Very low viscosity oils lead to greater volume and hardness change in the dielectric insulating elastomer materials and increased leaching of process oils used in these elastomers into the fluid. With FUTERRA™ LV HTF 2.8, the viscosity and thermal properties have been optimized to enable the highest cooling efficiency without excess degradation of critical elastomeric components. FUTERRA™ LV HTF 2.8 is compatible with metals including brass, copper, aluminum, steel and stainless steel.

## Typical Physical Properties

| PHYSICAL PROPERTY | TEST METHOD | SPECIFICATION | TYPICAL |
|---|---|---|---|
| Appearance | (Visual) | Clear & Bright | Clear & Bright |
| Color | ASTM D1500 | <0.5 | <0.5 |
| Specific Gravity 15°C | ASTM D4052 | Report | 0.812 |
| KV40 (cSt) | ASTM D7042 | Report | 10.25 |
| KV100 (cSt) | ASTM D7042 | 2.7-2.9 | 2.80 |
| Viscosity Index | ASTM D2270 | 110 min | 119 |
| Pour Point (°C) | ASTM D5949 | -40 max | -50 |
| Flash Point (°C) | ASTM D92 | 175 min | 193 |
| KF Water (ppm) | ASTM D6304 | 50 max | <25 |

Tests conducted according to International Standards Test Methods are routinely verified to be in compliance with the latest published versions. Minor changes may be made when they have no material impact on test schedules and are necessitated by reasons such as safety, environmental standards, and method effectiveness.

FUTERRA™ LV HTF 2.8 is an example of a range of formulations developed to showcase the benefits of RSC BIO's renewable-based technologies as an immersion cooling fluid. Please inquire if you have specifications or requirements which differ from this specific formulation.

RSC BIO SOLUTIONS

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