

INNOVATE™

Faster. Cooler. Cleaner.

ADVANCED IMMERSION COOLING FLUIDS

The demand for advanced liquid cooling technologies is rising, driven by the upsurge of compute power required to support artificial intelligence, cloud computing and other high-performance applications. So, we developed a range of single-phase dielectric fluids designed to deliver superior cooling and performance benefits for high-performance computing and digital infrastructure.

Introducing **INNOVATE™** — ultra-pure fluids designed to meet the demands of modern computing.

MEET THE SERIES

INNOVATE™ GARDA

High-performance product that meets the requirements of the Open Compute Project (OCP)

INNOVATE™ PEYTO

Optimal thermal management delivering exceptional heat transfer

INNOVATE™ YARRA

Outstanding thermal management through a balanced physical profile

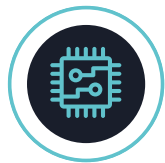
LEVERAGING HIGHLY REFINED ALKANES™ TECHNOLOGY

Our unique combination of Highly Refined Alkanes (HRA™), performance additives and supply chain capabilities result in advanced immersion cooling fluids that deliver exceptional:



THERMAL MANAGEMENT

Unique low viscosity profile resulting in exceptional heat transfer



MATERIAL COMPATIBILITY

Designed to work with a diverse range of materials



PURITY & STABILITY

Non-detectable levels of impurities such as S, N, O and aromatics



TRANSFORMATIVE INNOVATION

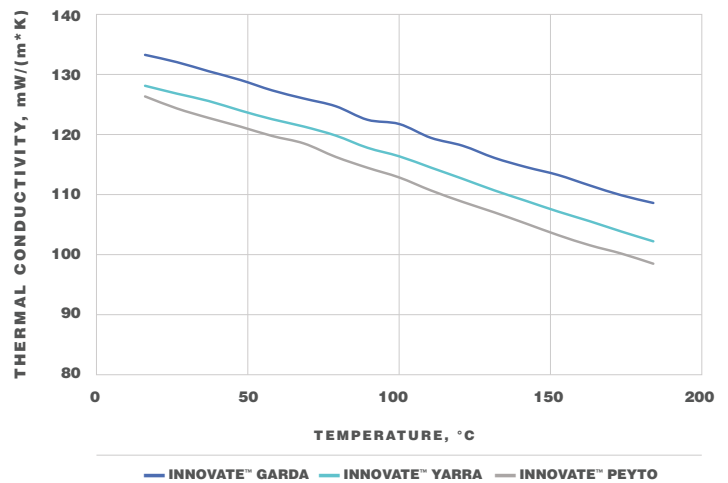
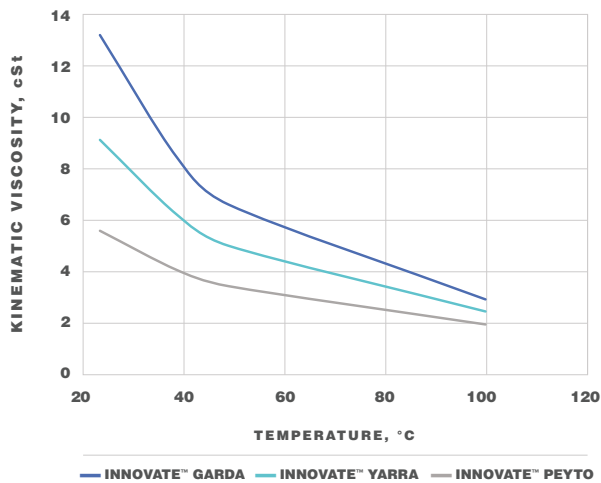
Proactive approach to anticipating emerging needs

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INNOVATE™ ENHANCED HEAT TRANSFER

Kinematic viscosity and thermal conductivity are key factors in the performance of immersion cooling fluids for high-performance computing systems and digital infrastructure. Lower kinematic viscosity allows the fluid to circulate efficiently around heat-generating components, enhancing fluid flow and improving heat distribution. High thermal conductivity enables rapid heat transfer from electronic components to the fluid, promoting effective heat removal. The combination of optimal kinematic viscosity and high thermal conductivity is essential for maximizing the cooling efficiency of advanced immersion cooling fluids.



TYPICAL PROPERTIES

PROPERTY	UNITS	STANDARD	TYPICAL VALUE		
			INNOVATE™ GARDA	INNOVATE™ PEYTO	INNOVATE™ YARRA
Kinematic Viscosity @ 40°C	cSt	ASTM D445	8.13	3.58	5.77
Kinematic Viscosity @ 100°C	cSt	ASTM D445	2.37	1.37	1.89
Specific Heat Capacity @ 25°C	J/(kg-K)	ASTM E1269	1970	2000	1900
Thermal Conductivity @ 25°C	W/m-K	ASTM D7896	0.1324	0.125	0.127
Figure Of Merit 1 @ 50°C	—	OCP	50.5	60.6	53.3
Figure Of Merit 2 @ 50°C	—	OCP	30.2	29.1	29.1
Density @ 15°C	kg/m3	ASTM D4052	826.9	827.4	828.8
Pour Point	°C	ASTM D97	-57	-66	-60
Flash Point (Closed Cup)	°C	ASTM D93	154	128	136
Water Content	ppm	ASTM D1533	< 20	< 20	< 20
Color	—	ASTM D1500	< 0.5	< 0.5	< 0.5
Dielectric Strength	kV/mm	ASTM D1816	> 22	> 22	> 22
Dielectric Constant @ 25°C	—	ASTM D924	< 2.2	< 2.2	< 2.2

FOR MORE INFORMATION, VISIT [INNOVATEIMMERSION.COM](https://www.innovateimmersion.com) OR CONTACT US AT INNOVATEIMMERSION@HFSINCLAIR.COM

HF Sinclair™

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LUB4438E (2024.10)



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