



HEAT TRANSFER FLUIDS



- Efficient thermal transfer
- High heat capacity
- Full Line of Novec Replacements

*Cool Down Devices to Heat Up
Performance & Productivity*



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Heat dissipation is a significant challenge in electronics, as excessive heat can degrade performance and even damage critical components. Techspray Heat Transfer Fluids have high thermal conductivity that allow them to rapidly absorb heat from server components, electronic components, and electrical devices, ensuring uniform cooling throughout the system. By coming into direct contact with the heat-generating device, the fluid eliminates the thermal resistance associated with air cooling, leading to more efficient heat dissipation.

All Techspray Heat Transfer Fluids offer the following advantages:

- 1 Enhanced heat dissipation** – Enables efficient heat dissipation from the power electronics.
- 2 Efficient heat transfer** – Allows the cooling system to maintain lower temperatures and prevent thermal throttling.
- 3 Improved temperature regulation** – Fluid surrounds the electronics and removes heat uniformly, preventing hotspots and maintaining a more stable temperature across the components.
- 4 Higher heat capacity** – With a much higher heat capacity than air, Heat Transfer Fluids can absorb and store more heat energy.
- 5 High dielectric strength** – Eliminates the possibility of electrical shorts caused by conductive material.
- 6 High boiling point** – Prevents vaporization and further enhances cooling performance.
- 7 Chemical compatibility** – Chemically compatible with the electronic components and the materials used in the cooling system.



Techspray offers several options to meet your performance and budgetary requirements:

Precision-V Solvent 3710
Replacement for 3M Novec 7100.

Precision-V Solvent 3720
Replacement for 3M Novec 7200.

Precision-V Solvent 3730
Replacement for 3M Novec 7300.

Precision-V Solvent 3810
Proprietary thermal transfer fluid that can replace 3M Novec 7100, 7200 and 7300 solvents, but at a lower cost.



Thermal transfer medium for heat generating electronics



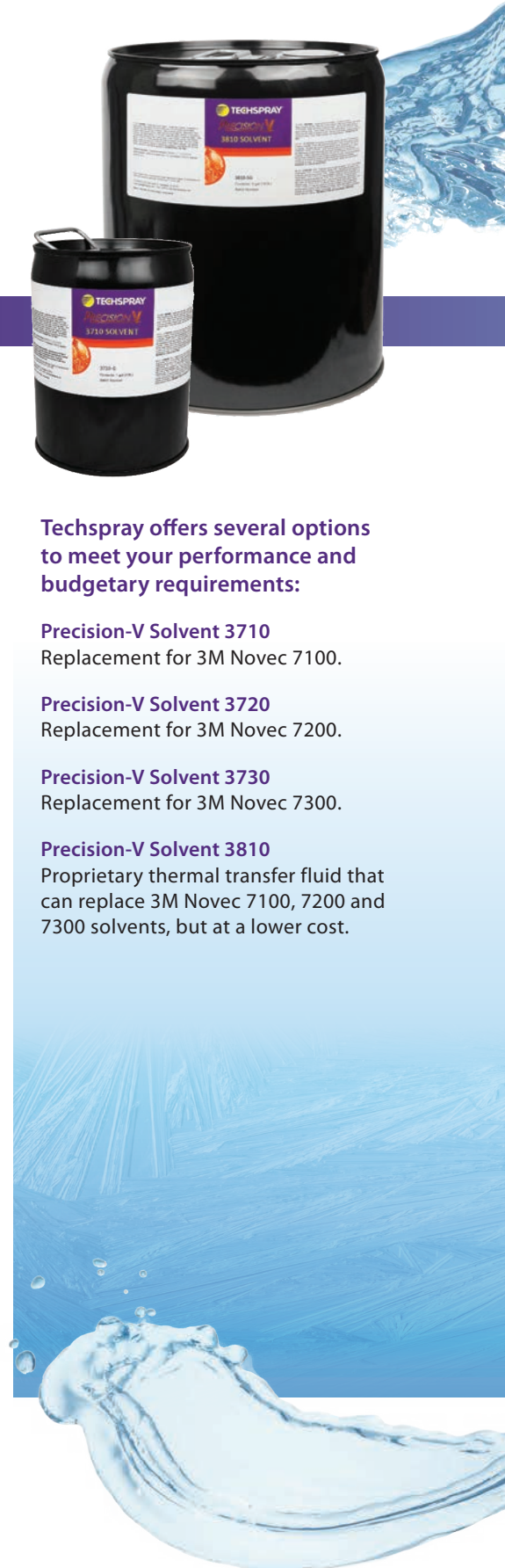
Data center immersion cooling



Temperature control for semicon fabrication



Cooling for aerospace & military equipment



Cool Down to Heat Up Performance & Productivity

HEAT TRANSFER FLUIDS PRODUCT SELECTION GUIDE

		Precision-V 3710	Precision-V 3720	Precision-V 3730	Precision-V 3810
Boiling Point	°C	61	76	98	56
Pour Point	°C	-138	-135	-38	-94
Molecular Weight	g/mol	200	250	264	200
Critical Temperature	°C	195	210	243	ND
Critical Pressure	Mpa	2.23	2.01	1.88	ND
Vapor Pressure	kPa	27	16	5.9	31.37
Heat of Vaporization	KJ/Kg	112	119	102	163
Liquid Density	KJ/m ³	1.51	1.42	1.66	1.47
Coefficient of Expansion	K ⁻¹	0.0018	0.0016	0.0013	ND
Kinematic Viscosity	cSt	0.38	0.41	0.71	ND
Absolute Viscosity	cP	0.58	0.58	1.18	0.65
Specific Heat	J/Kg-K	1183	1220	1140	1260
Thermal Conductivity	W/m-K	0.069	0.068	0.063	ND
Surface Tension	mN/m	13.6	13.6	15	16.4
Solubility in Water in Fluid	ppm	95	92	67	ND
Solubility in Water in Water	ppm	12	<20	<1	<20
Dielectric Strength, 0.1" gap	KV	40	40	40	40
Dielectric Constant @1KHz	-	7.4	7.3	6.1	ND
Volume Resistivity	Ohm-cm	1x10 ⁸	1x10 ⁸	1x10 ¹¹	1.3x10 ¹¹
Global Warming Potential	GWP	297	55	200	540
OEL (occupational exposure limit)	ppm	750	200	100	50
Atmospheric Life	years	4.1	0.77	3.8	ND

ND = not determined

Late Breaking News...

Announcement of 3M Novec Phase-Out... What Now?

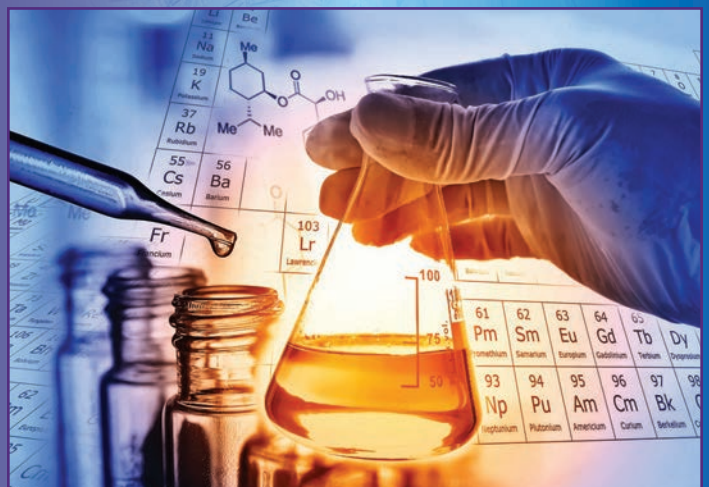
On December 20, 2022, 3M announced their plans to phase-out their Novec PFAS-based product lines by the end of 2025.

In early 2022, 3M found itself in the middle of a pollution scandal, which led to a plant shut-down for an extended period. This issue has led to supply chain shortages in Novec heat transfer fluids across the globe, and escalating prices on the remaining material that can be procured. Companies in the aerospace, medical device manufacturing, and other mission-critical industries were left to scramble to find short-term supply any way they could, and to qualify replacement fluids.

For replacing 3M Novec heat transfer fluids, Techspray has equivalent chemical crosses, in addition to a Precision-V Solvent 3810, which fits the same criteria, but at a much lower cost.

Techspray's TechLab offers state-of-the-art analytical services to help customers qualify new products and optimize their processes. This equipment allows us to better duplicate your production environment for process optimization and troubleshooting.

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