



GLOBAL LEADER PROVIDING
PERFORMANCE FLUIDS & LUBRICANTS

TECHNICAL DATA SHEET

TMC-7500 ENGINEERED FLUID

TMC-7500 Engineered Fluid is a miscible drop-in replacement for 3M™ Novec™ 7500.

PRODUCT INFORMATION

TMC-7500 is a clear, colorless, and nonflammable fluid. TMC-7500 is chemically inert and thermally stable. It is a viable option for replacing perfluorocarbons and perfluoropolyethers in many industrial applications.

TMC-7500 is intended to replace ozone-depleting and high global warming potential chemicals for the following suggested industrial and electronic applications.

APPLICATIONS

- Cooling fluid for semiconductor and electronic device manufacture process, testing equipment, and facilities
- Heat transfer fluid
- Direct contact cooling fluid for supercomputers, high voltage transformers, and power electronics
- Cooling fluid, special solvent, and process aid for chemical manufacturing
- Pharmaceutical manufacturing processes, such as cooling and freeze drying
- Lubricant deposition

FEATURES

- 3rd Party Tested — Meets Current PFAS Guidelines
- Zero Ozone Depletion Potential (ODP)
- Low Global Warming Potential (GWP)
- VOC-Exempt Solvent (US EPA)
- RoHS Compliant

MATERIALS COMPATIBILITY

TMC-7500 fluid is compatible with most metals (Stainless steel, Nickel, Copper, Aluminum, etc.) and hard polymers (Polycarbonate, PMMA, ABS, Polypropylene, and Polyethylene).

Soft and elastomeric materials should be limited to compounds that contain the least amount of extractable plasticizer such as EPDM, Natural Rubber, and Polyurethane.

As with most fluorinated fluids, TMC-7500 fluid will absorb into fluorinated plastics and elastomer over longer exposures.

PACKAGING

TMC-7500 is available in the following sizes and weights:

- **Jug** — 12 lb / 5.4 kg / 0.9 gal / 3.4 L
- **Pail** — 44 lb / 20 kg / 3.3 gal / 12.3 L
- **Drum** — 551 lb / 250 kg / 40.8 gal / 154.3 L
- **Sample** — 2.2 lb / 1 kg / 0.2 gal / 0.6 L
- **Tote** — Available Upon Request



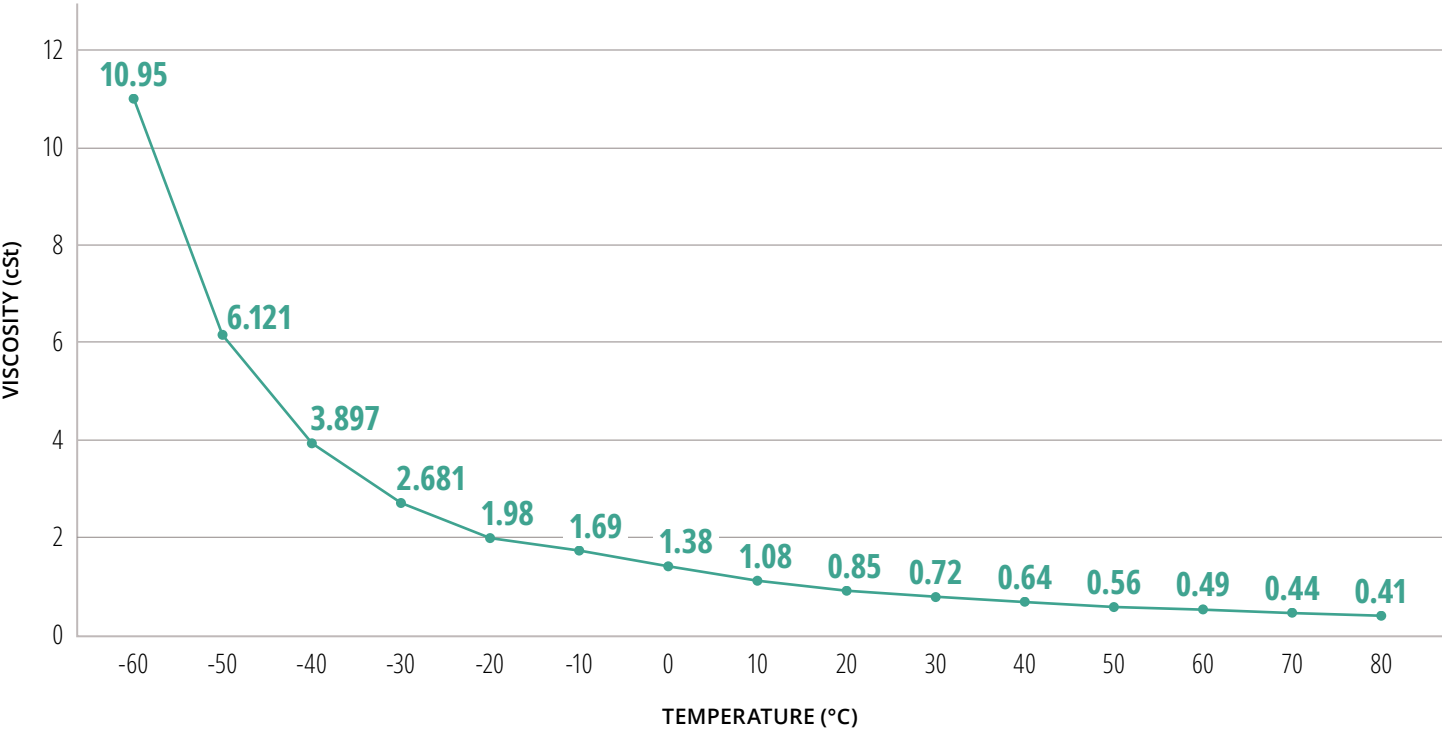
PHYSICAL & ENVIRONMENTAL PROPERTIES COMPARISON

PROPERTY	UNITS	3M™ NOVEC™ 7500	TMC-7500
Type	—	Legacy	Replacement
Form	—	Liquid	Liquid
Color	—	Colorless	Colorless
Odor	—	Odorless	Odorless
Boiling Point	°C	128	128
Freeze/Pour Point	°C	-100	-100
Average Molecular Weight	g/mol	414	414
Calculated Critical Temperature	°C	261	261
Latent Heat of Vaporization @ 1 atm	J/g	89	89
Vapor Pressure	kPa	2.1	2.1
Liquid Density	kg/m ³	1614	1620
Kinematic Viscosity @ 20°C	cSt	0.85	0.85
Absolute Viscosity	cP	1.3	1.3
Specific Heat	J/kg-K	1128	1128
Thermal Conductivity	W/m-K	0.065	0.065
Surface Tension	mN/m	16.2	16.2
Solubility of Fluid in Water	ppmw	<3	<3
Dielectric Strength	kV, 0.1" gap	35	>35
Volume Resistivity	Ohm-cm	10 ⁸	10 ⁸
Dielectric Constant	—	5.8	5.8
Coefficient of Expansion	K ⁻¹	0.0013	0.0013
Ozone Depletion Potential (ODP)	—	0.0	0.0
Global Warming Potential (GWP)	—	~90	~90
Flammability	—	Nonflammable	Nonflammable
Flash Point	—	None	None

Not for specification purposes. All values @ 25°C unless otherwise specified.

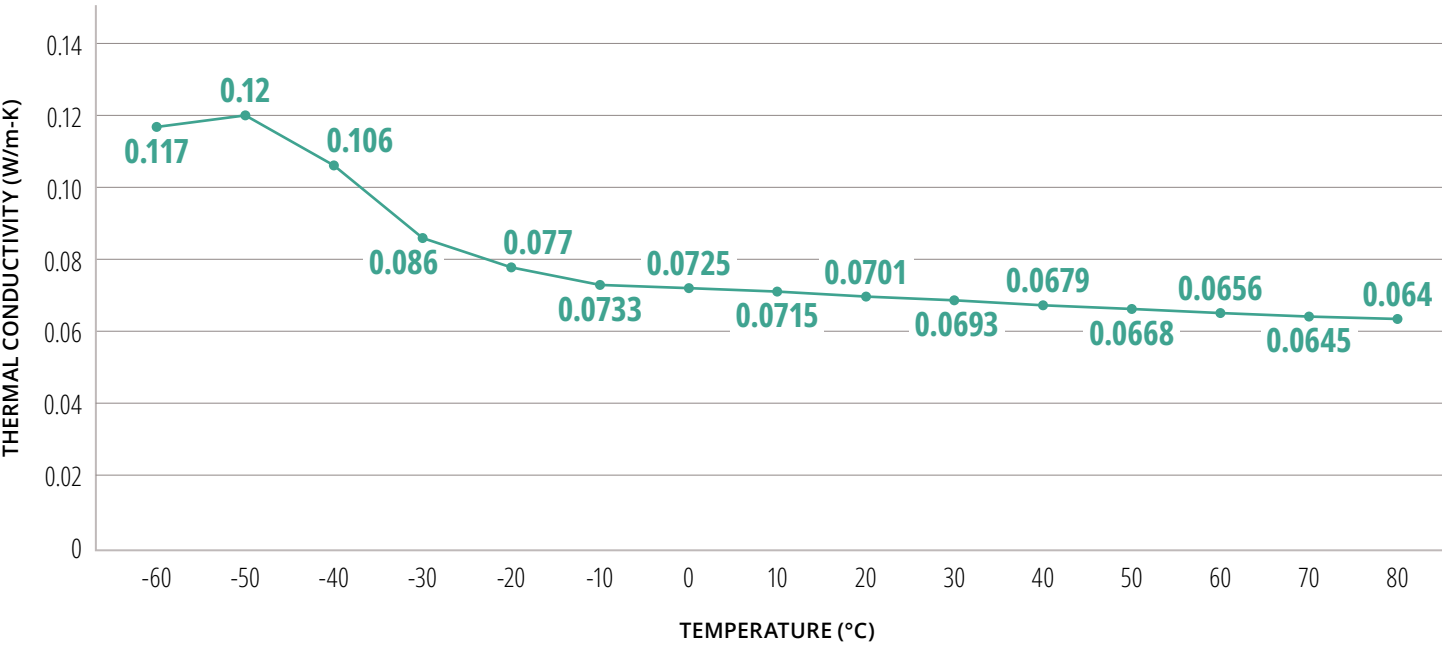
PERFORMANCE — KINEMATIC VISCOSITY

TEMPERATURE (°C)	RESULT (cSt)
-60	10.95
-50	6.121
-40	3.897
-30	2.681
-20	1.98
-10	1.69
0	1.38
10	1.08
20	0.85
30	0.72
40	0.64
50	0.56
60	0.49
70	0.44
80	0.41



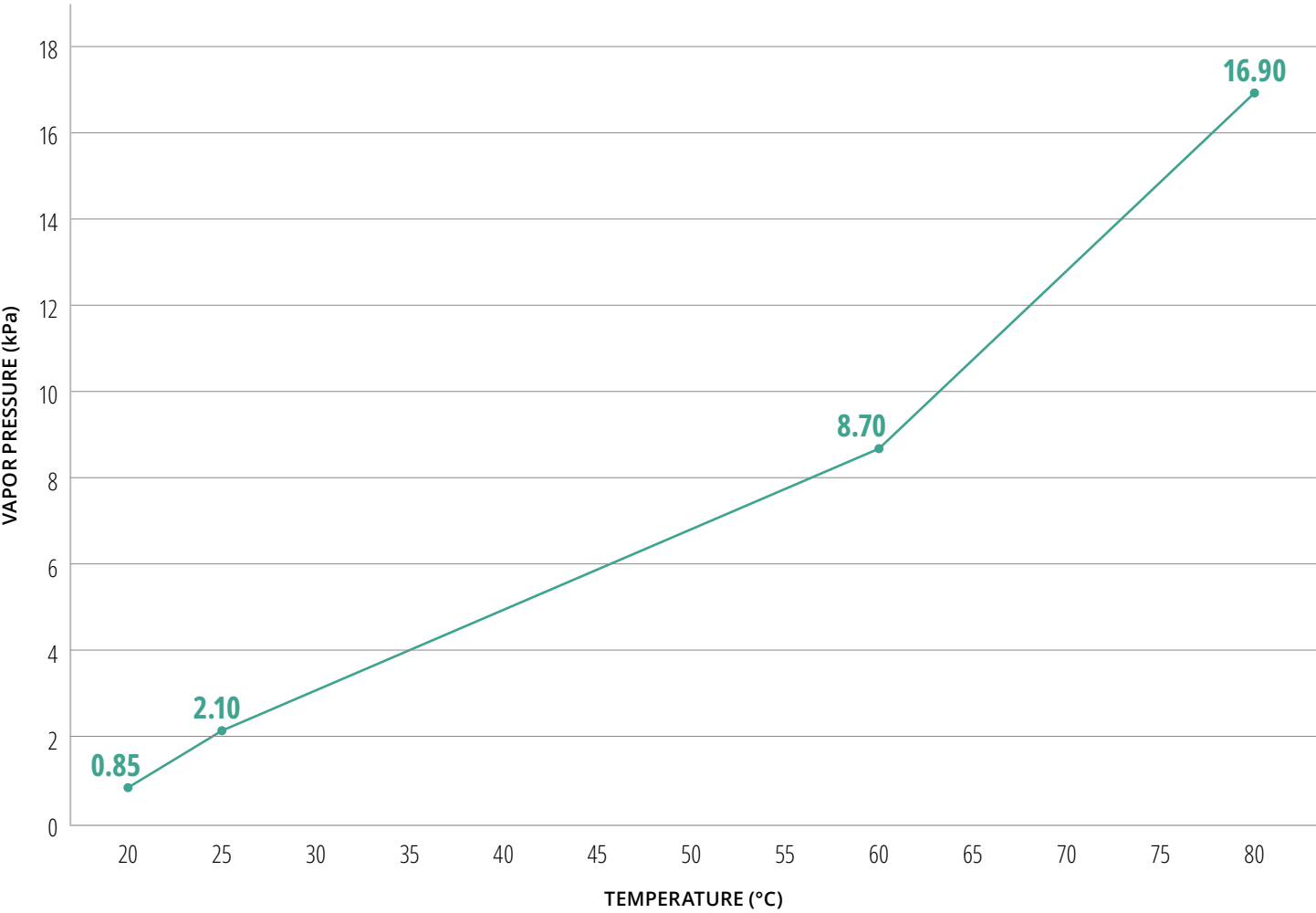
PERFORMANCE — THERMAL CONDUCTIVITY

TEMPERATURE (°C)	RESULT (W/m-K)
-60	0.117
-50	0.12
-40	0.106
-30	0.086
-20	0.077
-10	0.0733
0	0.0725
10	0.0715
20	0.0701
30	0.0693
40	0.0679
50	0.0668
60	0.0656
70	0.0645
80	0.064



PERFORMANCE — VAPOR PRESSURE

TEMPERATURE (°C)	RESULT (kPa)
20	0.85
25	2.10
60	8.70
80	16.90



TMC-7500 Continued

CALCULATION OF TMC-7500 PROPERTIES AT A GIVEN TEMPERATURE

To determine the viscosity at a given temperature T in Kelvin, calculate $Z = 10^{(10^{(11.843 - 5.0874 \cdot \log(T[K]))})}$.

Then, Viscosity [cSt] = $(Z - 0.7) - \exp(-0.7487 - 3.295(Z - 0.7) + 0.6119(Z - 0.7)^2 - 0.3193(Z - 0.7)^3)$

Liquid Density [kg/m³] = $-2.0845 \cdot T[^\circ\text{C}] + 1665.8$

Thermal Conductivity [W/m-K] = $0.069 - 1.798 \cdot 10^{-4} \cdot T[^\circ\text{C}] + 4.24 \cdot 10^{-7} \cdot T[^\circ\text{C}]^2$

Liquid Specific Heat [J/kg-K] = $1.4982 \cdot T[^\circ\text{C}] + 1091$

SHELF LIFE & STORAGE

Shelf life is 5 years from the date of manufacture when stored in the original packaging materials and stored under normal conditions. TMC will re-certify material every 5 years up to 20 years.

DISPOSAL & RECYCLING

This fluid can be recycled and reused. Help protect the environment and don't pay for expensive disposal services.

TMC Industries can reclaim your used fluorinated fluids, restoring them to like-new condition, and save you up to 50% in replacement fluids while protecting the environment.

TMC Reclaimed Fluids are tested to meet new product specifications. It will be clear and odorless, and a Certificate of Analysis is issued with every order.

TMC Industries offers a **100% satisfaction guarantee** on all our reclaimed fluids. We back this up with a no-questions-asked refund policy. To learn more, [click here](#).

EXTERNAL DOCUMENTS

- [SGS Laboratory Report — TMC-7500 — Non-Detectable PFAS](#)
- [TMC Used Fluid Reclamation Service Brochure](#)

Safety and Handling: Before using this product, please thoroughly read the current product SDS and label, following all applicable safety precautions described therein (e.g., recommended storage and safe handling, appropriate exposure controls and personal protective equipment (PPE), addressing accidental spills, disposal considerations, etc.).

Safety Data Sheet: Consult Safety Data Sheet before use.

Regulatory: For regulatory information about this product, contact your TMC representative.

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that TMC believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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