Thermal Management Applications in Aerospace and Defense

Thermal Management Expo Panel 2026



Arya Hakimian, MSc

Application Scientist

C-Therm Technologies

C-THERM

C-THERM

Who We Are

World leader in thermal conductivity instrumentation, specializing in non-destructive thermal analysis solutions that empower researchers, manufacturers, and quality control professionals across various industries.

SIMPLIFYING THERMAL CONDUCTIVITY TESTING FOR THE MATERIALS OF TOMORROW

Experts
Thermal Conductivity

#1
Leader in Transient Methods

2,000+
Customers Worldwide

50+
Distribution Partners

C-THERM

TRIDENT

1 instrument, 4 methods for

Thermal Conductivity (k)

(It's better to have options.)



AVAILABLE METHODS

MTPS
GUARD RING
TECHNOLOGY

FLEX
TRANSIENT
PLANE SOURCE

NEEDLE
TRANSIENT
LINE SOURCE

THW
TRANSIENT
HOT WIRE

Copyright C-Therm Technologies Ltd. 2026

More Ways to Measure Thermal Conductivity

In partnership with ZFW Stuttgart — exclusive North American distribution



ZFW TIM-Tester

- TIM characterization per ASTM D5470
- Gap fillers, pads, greases, adhesives, films
- Precise optical gap measurement
- Compression, expansion, and cyclic testing

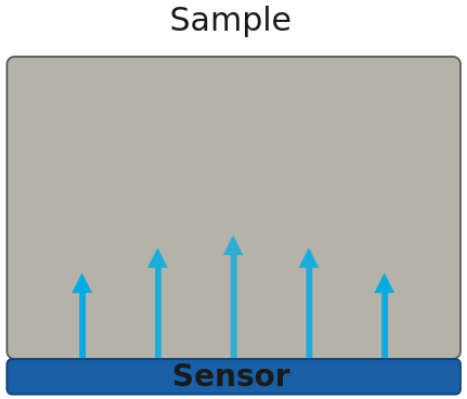
Learn more

ctherm.com/zfw-tim-tester

ASTM D5470, simplified

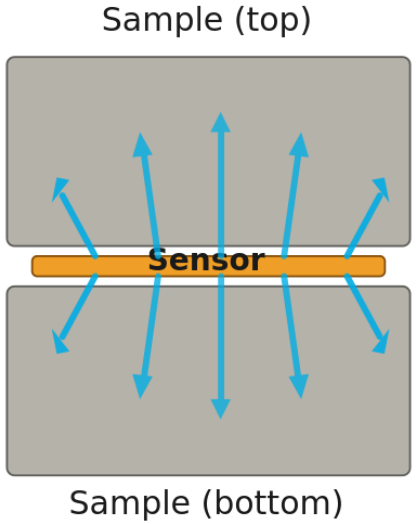
Copyright C-Therm Technologies Ltd. 2026

Method Geometry Shapes the Measurement



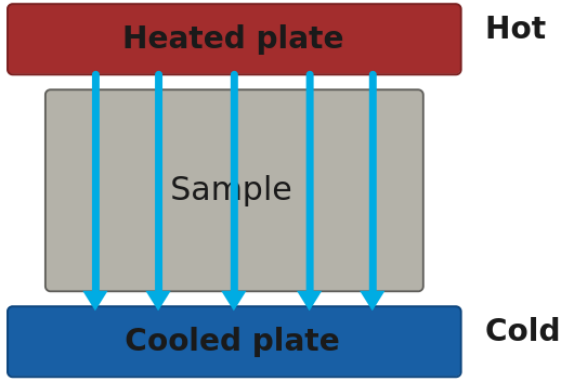
Single-sided transient

MTPS



Double-sided transient

TPS



Dual-plate steady-state

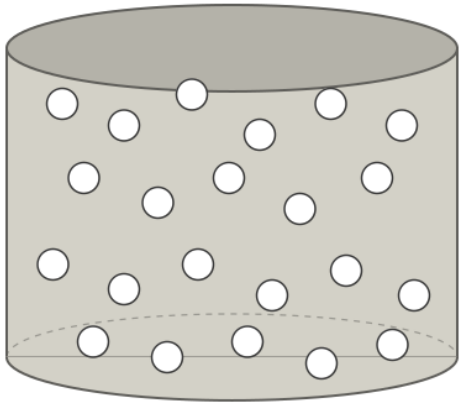
TIM Tester

Heat flow direction

Copyright C-Therm Technologies Ltd. 2026

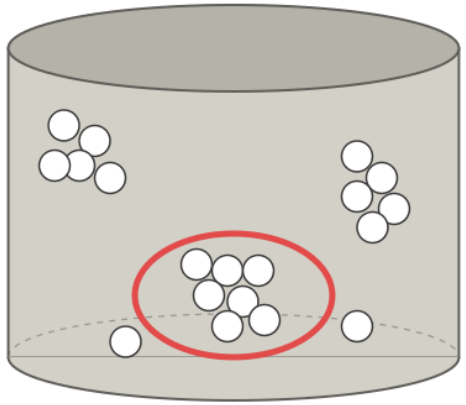
Challenges With Filler Distribution

Well-dispersed



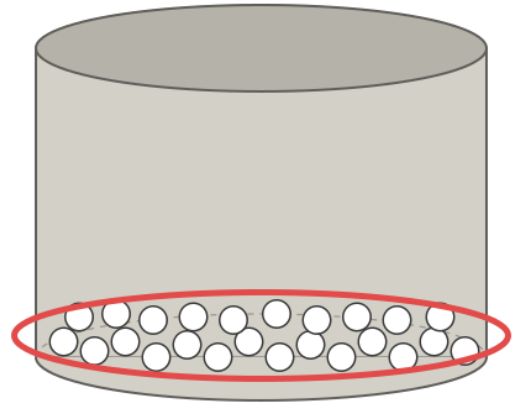
Goal state

Agglomeration



Clusters of filler

Sedimentation



All filler at bottom

Copyright C-Therm Technologies Ltd. 2026

01 Case Highlight

Thermal mapping in TIM development

Copyright C-Therm Technologies Ltd. 2026

MTPS as a Thermal Mapping Tool



This isn't just thermal conductivity. It's a development tool for optimizing dispersion and iterating on formulation.

Copyright C-Therm Technologies Ltd. 2026

Certifying Against the Right Standard

Once your formulation is locked in, these are the standards your TDS values come from.

TPS

Thermal conductivity and thermal diffusivity

ISO 22007-2 **ASTM E3088**

TIM Tester

Thermal conductivity and thermal contact resistance

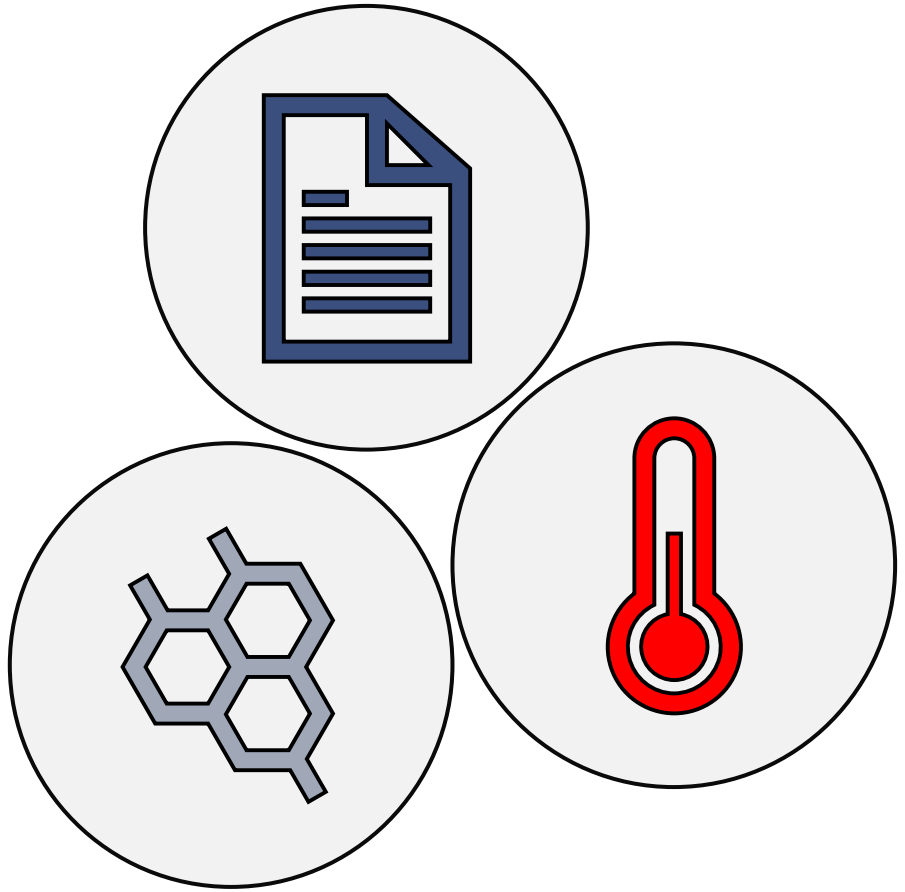
ASTM D5470

> **No method is universally better; choose what your supply chain and industry require.**

Copyright C-Therm Technologies Ltd. 2026

Defense Demands More Than a Datasheet

- Beyond datasheet values
  - Verifying performance under non-standard conditions and temperature ranges
- Cycling, ageing, varied environments
  - Replicating specific environmental conditions and long-term performance
- Consumer-grade isn’t enough
  - Demands for novel materials outside of what is typical in commercial industries



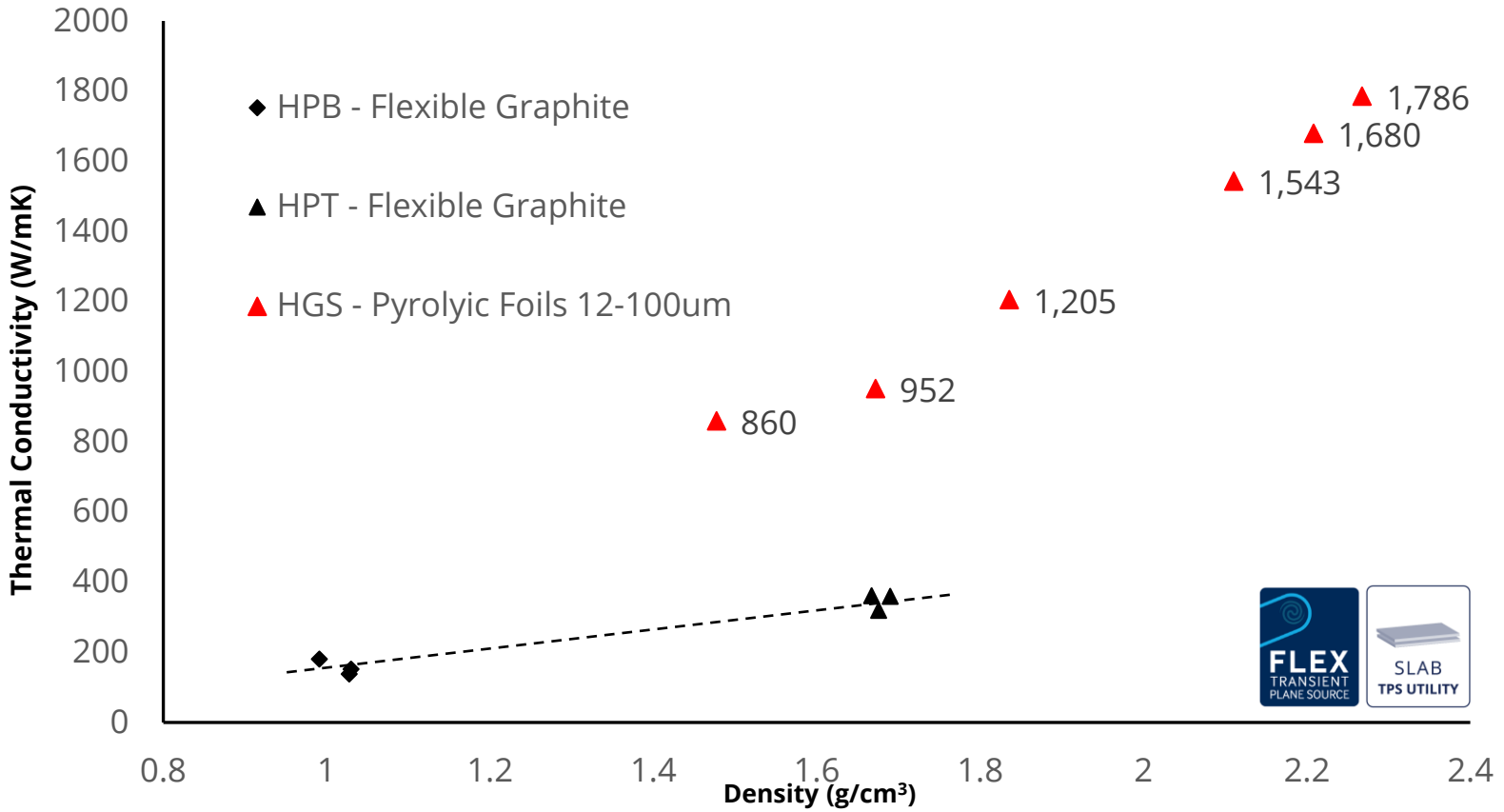
Copyright C-Therm Technologies Ltd. 2026

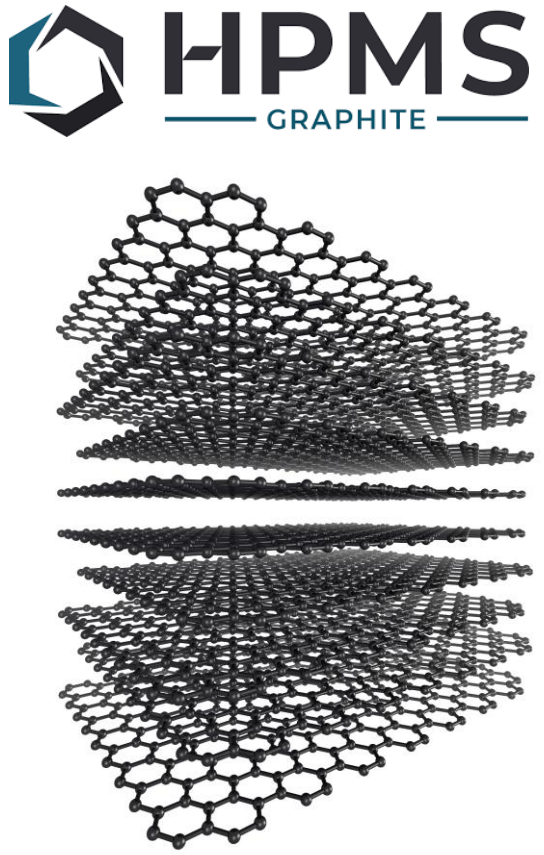
02 Case Highlight

Novel High-k Heat Spreaders

Copyright C-Therm Technologies Ltd. 2026

TPS Testing of Thin High-k Heat Spreaders





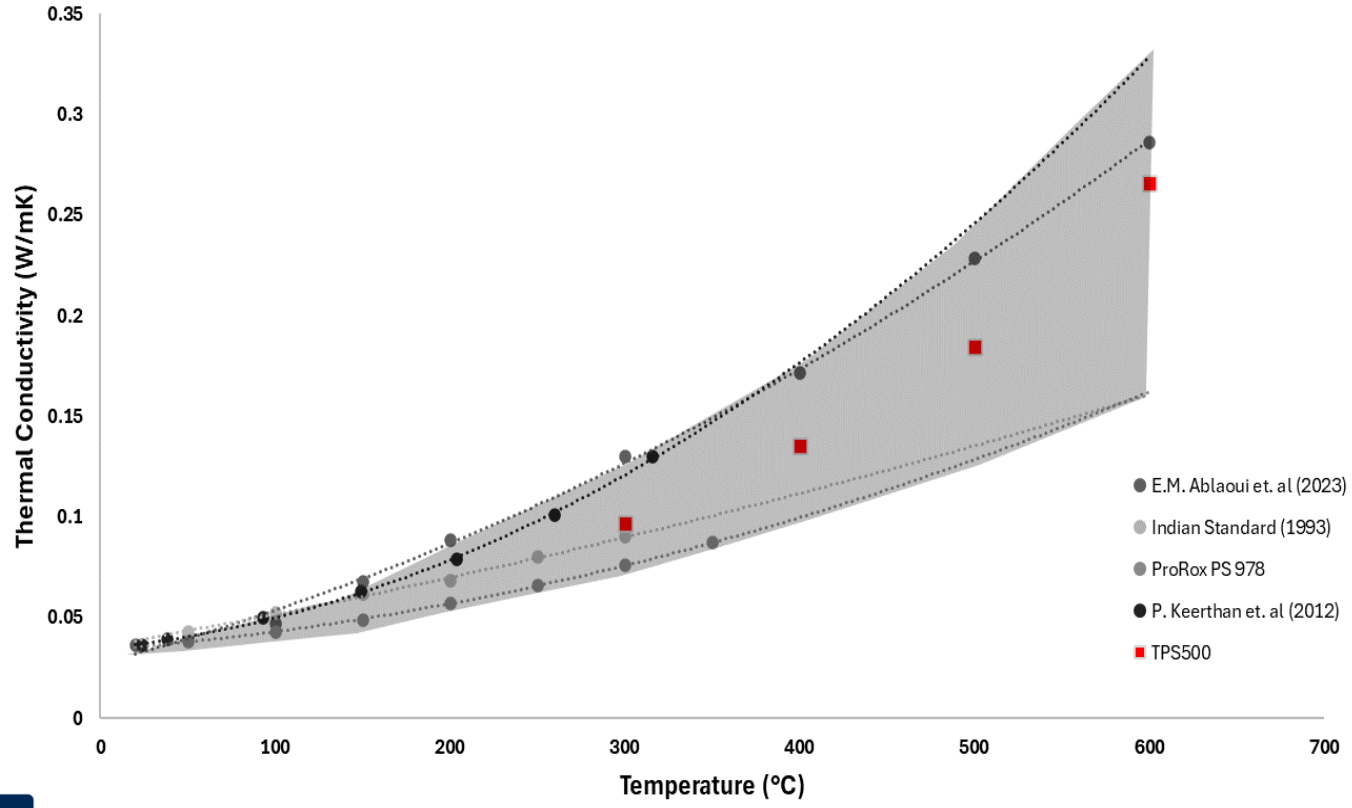
Copyright C-Therm Technologies Ltd. 2026

03 Case Highlight

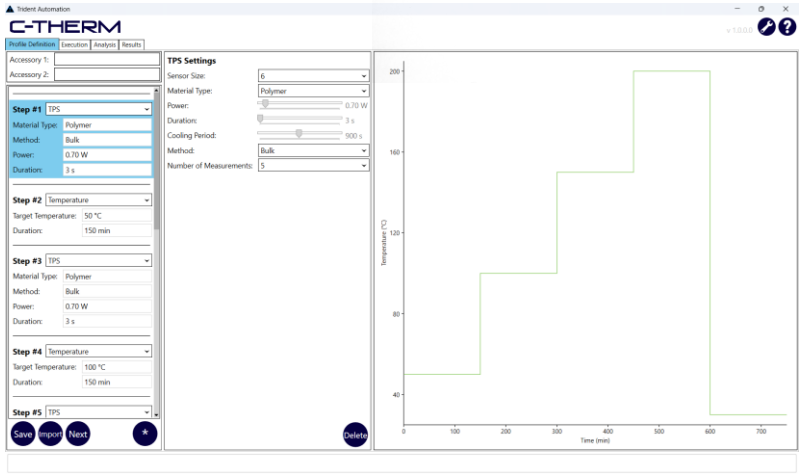
High-Temperature k and Testing Automation

Copyright C-Therm Technologies Ltd. 2026

High-Temperature Testing Automation







Copyright C-Therm Technologies Ltd. 2026

C-THERM

WANT TO LEARN MORE?



MEET US AT BOOTH 921.

Copyright C-Therm Technologies Ltd. 2026