

Case Study

Research and Development in Thermal Management Systems

CUSTOMER: U.S. Department of Defense (DoD)
CONTRACT #: W56HZV-09-C-0146
PROJECT NAME: SBIR Project, "Improved Thermal Management Systems Using Advanced Materials and Fluids" (Nano Coolant and Graphite Foam)
PROJECT DURATION: 2008-2009

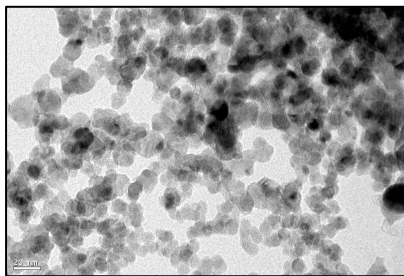
OVERVIEW

The US Department of Defense solicited a SBIR/STTR request for proposal (RFP) for new materials to be used in thermal management systems. Aegis Technology has developed "nano-coolants" and graphite foam materials for use in thermal management for power electronics applications. The advantages include enhanced thermal performance, thereby allowing for more compact and lighter cooling systems. Aegis Technology was awarded the project in 2008 and successfully completed the project in 2009.

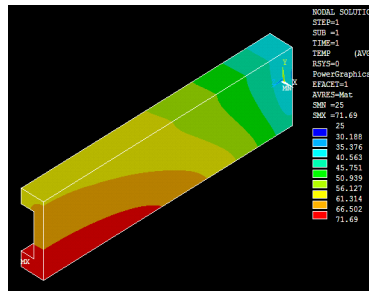
DELIVERABLES

Aegis Technology designed and delivered nano-coolants and a graphite foam heatsink. In the process, Aegis Technology conducted and/or developed:

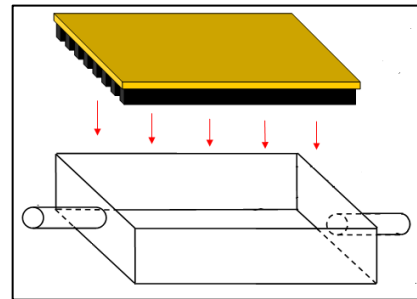
- System level design
- Computer modeling and simulation
- Processing
- Transmission Electron Microscopy (TEM) Analysis
- Viscosity Measurements
- Testing and Characterization



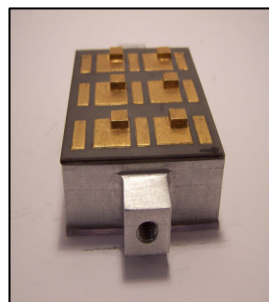
(a)



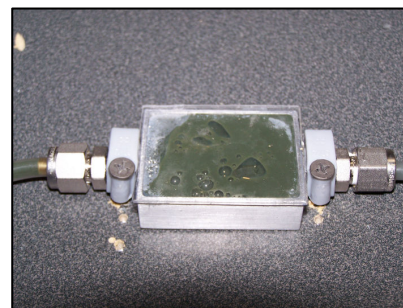
(b)



(c)



(d)



(e)

(a) TEM Image of Nano-coolant material, (b) Computer modeling of graphite foam heatsink,
 (c) System level design of graphite foam heatsink, (d) Aluminum and graphite foam integrated heatsink
 (e) Heatsink with nano-coolant flow

CONTACT

For more information, please contact:
Dr. Timothy Lin, Technical Director, Aegis Technology Inc.
 (714) 554-5511
 timlin@aegistech.net
 www.aegistech.net