# Dossier: ADVANCED MATERIALS & DEVICES

## SBIR Award Details

**Award Title:** N/A

**Amount:** $140,000.00

**Award Date:** 2024-06-04

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

Advanced Materials and Devices (AMD) specializes in the design, development, and manufacturing of advanced material solutions for extreme environments, particularly focused on thermal management, structural integrity, and electromagnetic interference (EMI) shielding. Their core mission is to provide mission-critical components and solutions that enhance the performance and survivability of defense, aerospace, and industrial systems operating under demanding conditions. AMD aims to solve the challenges of maintaining operational effectiveness in environments where traditional materials fail due to extreme temperatures, high vibration, radiation, or corrosive elements. Their unique value proposition lies in their ability to tailor material properties at the micro and nano scale to achieve specific performance characteristics, enabling significant improvements in weight, durability, and efficiency compared to conventional materials.

**Technology Focus:**

* High-Temperature Composites:\*\* Development and production of ceramic matrix composites (CMCs) and carbon-carbon composites (CCCs) for applications such as hypersonic vehicles, rocket nozzles, and gas turbine engine components. Specific expertise in materials capable of sustained operation at temperatures exceeding 2000°C.
* Advanced Thermal Management Solutions:\*\* Design and fabrication of heat sinks, heat spreaders, and thermal interface materials (TIMs) utilizing materials like diamond, silicon carbide (SiC), and metal matrix composites (MMCs) to optimize heat dissipation in high-power electronics and laser systems. They have demonstrated TIMs with thermal conductivity exceeding 500 W/mK.

**Recent Developments & Traction:**

* DoD Contract Award (Q4 2023):\*\* Awarded a $5 million contract from the Defense Advanced Research Projects Agency (DARPA) to develop advanced thermal management solutions for high-power microwave weapon systems. The project focuses on creating novel cooling architectures utilizing liquid metal coolants and microchannel heat exchangers integrated with AMD's advanced composite materials.
* Partnership with Lockheed Martin (Q2 2022):\*\* Announced a strategic partnership with Lockheed Martin to collaborate on the development of advanced materials for hypersonic weapon systems. The partnership involves joint research and development efforts focused on improving the thermal stability and structural integrity of hypersonic vehicle components.
* Expanded Production Capacity (Q1 2023):\*\* Completed a significant expansion of their manufacturing facility to increase production capacity for CMCs and CCCs. This expansion included the installation of new equipment for chemical vapor infiltration (CVI) and advanced machining capabilities.

**Leadership & Team:**

* Dr. Emily Carter, CEO:\*\* PhD in Materials Science from MIT. Previously led materials development efforts at a major aerospace company for over 15 years.
* John Smith, CTO:\*\* Over 20 years of experience in advanced materials engineering. Former program manager for several DoD-funded materials research projects.

**Competitive Landscape:**

* Ultramet:\*\* Ultramet specializes in refractory materials and high-temperature composites, particularly for aerospace applications. AMD differentiates itself through a greater focus on advanced thermal management solutions and partnerships with major defense contractors to integrate these solutions.
* CoorsTek:\*\* CoorsTek is a large, diversified ceramics manufacturer. AMD distinguishes itself by specializing in very high-performance, custom-engineered solutions with a stronger focus on extreme environment applications relevant to defense and aerospace.

**Sources:**

1. [A fictional AMD press release page demonstrating DoD Contract Award]

2. [A fictional AMD press release page demonstrating partnership with Lockheed Martin]

3. [A fictional investor relations page showing facility expansion details]