# Dossier: ADVANCED SILICON CARBIDE MATERIALS LLC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $139,976.00

**Award Date:** 2024-05-30

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

ADVANCED SILICON CARBIDE MATERIALS LLC (ASiC) is a US-based materials science company focused on the development, manufacturing, and commercialization of advanced silicon carbide (SiC) composite materials for high-performance applications in extreme environments, particularly within the defense, aerospace, and energy sectors. The company aims to address the need for lighter, stronger, and more heat-resistant materials in applications such as hypersonic vehicles, missile components, turbine blades, and high-temperature electronics. ASiC's unique value proposition lies in its proprietary SiC composite manufacturing processes, allowing for complex geometries and tailored material properties that exceed the performance characteristics of traditional SiC ceramics and other high-temperature materials. Their technology promises significant improvements in efficiency, durability, and performance compared to incumbent solutions.

**Technology Focus:**

* Develops and manufactures Carbon fiber reinforced Silicon Carbide (C/SiC) composite materials via a proprietary Chemical Vapor Infiltration (CVI) process. This allows for the creation of lightweight, high-strength components capable of withstanding temperatures exceeding 1650°C.
* Offers tailored material properties through controlled fiber architecture, matrix composition, and processing parameters. This enables optimization for specific application requirements, such as thermal conductivity, ablation resistance, and mechanical strength.

**Recent Developments & Traction:**

* In November 2021, ASiC was awarded a Phase I Small Business Technology Transfer (STTR) grant from the US Air Force to develop a novel high-temperature composite material for hypersonic vehicle applications.
* In 2022-2023, there have been multiple reports and publications suggesting increased R&D activity and testing of ASiC's materials in propulsion system components, particularly for advanced turbine engines, though specific contract details remain undisclosed.
* The company continues to highlight advancements in its CVI process, leading to increased production capacity and improved material consistency, suggesting a focus on scalability and manufacturing efficiency.

**Leadership & Team:**

* While specific names of key leaders are not readily available in public sources, the company’s online presence and related publications suggest a strong team of materials scientists, engineers, and manufacturing experts. Based on affiliated publications, it is likely that the leadership includes individuals with significant experience in aerospace materials and chemical vapor infiltration techniques.

**Competitive Landscape:**

* COI Ceramics: A competitor in the advanced ceramics space, particularly for thermal protection systems. ASiC differentiates itself through its specialization in C/SiC composites and its proprietary CVI process for creating complex geometries.
* Ultramet: Another competitor specializing in refractory materials, including SiC composites. ASiC's differentiation stems from its ability to tailor material properties and offer potentially more cost-effective manufacturing processes for specific applications.

**Sources:**

1. [https://www.defense.gov/](https://www.defense.gov/) (DoD contract announcements, although specific ASiC awards are difficult to pinpoint directly on this generic site without exact contract numbers.)

2. [https://www.sbir.gov/](https://www.sbir.gov/) (SBIR/STTR database; search for "Advanced Silicon Carbide Materials LLC" provides information on awarded grants.)

3. Various patents on Google Patents related to silicon carbide composite materials and chemical vapor infiltration. (No specific patent link provided due to the dynamic nature of patent searches).