# Dossier: STRUCTURED MATERIALS INDUSTRIES, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,466,228.00

**Award Date:** 2023-06-05

**Branch:** MDA

## AI-Generated Intelligence Summary

**Company Overview:**

Structured Materials Industries, Inc. (SMI) is a technology-driven company specializing in advanced materials and thin-film deposition technologies for a variety of applications, including aerospace, defense, energy, and electronics. Their core mission revolves around developing and manufacturing custom materials and equipment solutions that enhance the performance and efficiency of devices and systems across diverse industries. They aim to solve problems related to material limitations in harsh environments, the need for improved energy efficiency, and the increasing demand for high-performance electronic components. SMI's unique value proposition lies in their ability to provide tailored materials solutions, encompassing advanced ceramic coatings, high-quality single-crystal substrates, and specialized chemical vapor deposition (CVD) equipment, combined with deep materials science expertise and a commitment to collaborative research and development.

**Technology Focus:**

* Advanced Ceramic Coatings:\*\* Development and application of protective coatings using techniques like Thermal Barrier Coatings (TBCs) and Environmental Barrier Coatings (EBCs) to enhance the durability and performance of components in high-temperature environments within aerospace engines and industrial gas turbines. These coatings can increase operating temperatures by hundreds of degrees Celsius.
* Single-Crystal Substrates:\*\* Production of high-quality single-crystal substrates (e.g., silicon carbide (SiC), gallium nitride (GaN), sapphire) used in the fabrication of high-power, high-frequency electronic devices for radar systems, power electronics, and wireless communications. These substrates offer superior performance characteristics compared to conventional materials.
* CVD Equipment:\*\* Design and manufacturing of custom Chemical Vapor Deposition (CVD) equipment tailored to specific materials deposition processes. These systems are utilized in research and development as well as production environments for a wide range of thin-film applications.

**Recent Developments & Traction:**

* October 2023:\*\* SMI was selected by the U.S. Army to develop novel thermal management solutions for advanced power electronics. This project focuses on using SMI's advanced materials expertise to improve the efficiency and reliability of military systems. Details available at [smi-inc.com](https://smi-inc.com/news/).
* 2022:\*\* Continued expansion of their CVD equipment product line, with increased focus on atomic layer deposition (ALD) capabilities. These systems cater to the growing demand for precise thin-film deposition in semiconductor and energy storage applications.
* Collaboration with Research Institutions:\*\* Active participation in collaborative research programs with universities and national laboratories, focusing on the development of new materials and coating technologies for extreme environments. Specifics often undisclosed due to proprietary research.

**Leadership & Team:**

* Information regarding specific leadership names and titles could not be definitively verified via available public sources. The company website emphasizes its team of PhD-level scientists and engineers with extensive experience in materials science, chemistry, and engineering. Their expertise is clearly highlighted, indicating a technology-centric leadership approach.

**Competitive Landscape:**

* Praxair Surface Technologies (Linde)\*\*: Similar focus on thermal barrier coatings and surface engineering. SMI differentiates itself through its specialization in custom materials and equipment, catering to niche applications, while Praxair has a broader portfolio and scale.
* Kyma Technologies:\*\* Specializes in GaN substrates. SMI differentiates by offering a broader range of single-crystal substrate materials and integrated CVD solutions.

**Sources:**

* [https://smi-inc.com/](https://smi-inc.com/)
* [https://smi-inc.com/news/](https://smi-inc.com/news/)
* [https://www.crunchbase.com/organization/structured-materials-industries](https://www.crunchbase.com/organization/structured-materials-industries)