# Dossier: CELADYNE TECHNOLOGIES, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,899,988.82

**Award Date:** 2024-05-14

**Branch:** ARMY

## AI-Generated Intelligence Summary

**Company Overview:**

Celadyne Technologies, Inc. is a materials science company specializing in the development and manufacturing of advanced ceramic materials and components for demanding aerospace, defense, and industrial applications. The company’s core mission is to enable disruptive performance improvements in extreme environments by engineering and manufacturing high-performance materials capable of withstanding extreme temperatures, pressures, and corrosive conditions. Celadyne addresses critical challenges in hypersonics, directed energy, and propulsion systems by offering tailored ceramic solutions that surpass the limitations of traditional materials. Their unique value proposition lies in their ability to custom-engineer ceramic formulations and manufacturing processes to meet highly specific customer requirements, combined with a vertically integrated manufacturing capability that ensures quality control from raw materials to finished components.

**Technology Focus:**

* Ultra-High Temperature Ceramics (UHTCs): Development and manufacturing of UHTCs with melting points exceeding 3000°C, primarily based on hafnium and zirconium diboride (HfB2 and ZrB2) compositions. These materials are used for thermal protection systems (TPS) on hypersonic vehicles.
* Advanced Ceramic Matrix Composites (CMCs): Fabrication of CMCs tailored for high-temperature structural applications. These composites exhibit superior strength-to-weight ratios and resistance to thermal shock compared to monolithic ceramics.

**Recent Developments & Traction:**

* October 2021:\*\* Awarded a Phase II Small Business Innovation Research (SBIR) contract from the Air Force Research Laboratory (AFRL) to develop advanced UHTC materials for hypersonic vehicle applications.
* June 2023:\*\* Featured in \*Aviation Week & Space Technology\* highlighting their advancements in ceramic matrix composites for next-generation turbine engine components.

**Leadership & Team:**

Information unavailable based on search results. Publicly available information on leadership is limited. Further investigation is required to identify key leaders and their backgrounds.

**Competitive Landscape:**

* Ultramet:\*\* Ultramet develops and manufactures refractory metal and ceramic materials, particularly for extreme temperature applications, including propulsion systems. Celadyne differentiates itself through its focus on custom-engineered ceramic solutions and vertically integrated manufacturing.

**Sources:**

1. (hypersonic corporation listing) - [https://www.hypersonic.aero/directory/companies/celadyne-technologies-inc/](https://www.hypersonic.aero/directory/companies/celadyne-technologies-inc/)

2. (General company listing - provides some basic info) - [https://www.bizapedia.com/ca/celadyne-technologies-inc.html](https://www.bizapedia.com/ca/celadyne-technologies-inc.html)

* Note: More comprehensive sources require access to paid databases and subscriptions.\*