# Dossier: ETHER FORM INCORPORATED`

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,249,883.74

**Award Date:** 2024-08-12

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Ether Form Incorporated (EtherForm) is a materials science company specializing in the design, development, and manufacturing of advanced ceramic matrix composites (CMCs) for extreme environment applications, particularly within the defense and aerospace sectors. Their core mission is to enable next-generation hypersonic vehicles, missile defense systems, and high-temperature energy applications by providing lightweight, ultra-high temperature-resistant materials that can withstand extreme thermal and mechanical stresses. EtherForm's unique value proposition lies in its proprietary CMC architecture and manufacturing processes that allow for the creation of complex geometries and superior performance characteristics compared to traditional materials or competing CMCs. They aim to solve the critical limitations of existing materials in extreme environments, enabling improved performance, efficiency, and lifespan of aerospace and defense systems.

**Technology Focus:**

* Ultra-High Temperature Ceramic Matrix Composites (UHTCMCs):\*\* EtherForm focuses on developing CMCs that can withstand temperatures exceeding 2000°C (3632°F) while maintaining structural integrity. These composites incorporate a proprietary matrix architecture and fiber reinforcement scheme to optimize strength, toughness, and resistance to oxidation and thermal shock. Specific material chemistries and fiber types are not publicly detailed but are likely based on silicon carbide (SiC) and carbon-based fibers.
* Advanced Manufacturing Techniques:\*\* EtherForm utilizes proprietary manufacturing processes, including tailored preform design, advanced infiltration techniques, and optimized consolidation processes, to produce complex CMC components with near-net-shape capabilities. This allows for the creation of custom geometries and minimized machining, reducing cost and lead times.

**Recent Developments & Traction:**

* SBIR/STTR Funding:\*\* EtherForm has received multiple Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants from the Department of Defense (DoD) and NASA. While specific amounts and dates are not always publicly available, these grants indicate ongoing government interest in their technology. Specific grants focused on enhanced high-temperature performance and durability of CMC materials have been identified.
* Partnership with University of Delaware's Center for Composite Materials:\*\* EtherForm has collaborated with the University of Delaware’s Center for Composite Materials to advance CMC manufacturing processes and material characterization. This partnership leverages the university's expertise in composite materials research and development.
* Hypersonic Vehicle Applications:\*\* Evidence suggests the company is actively involved in developing CMC components for hypersonic vehicles, potentially including leading-edge components, control surfaces, and engine components. Specific program names are not disclosed, but the focus on hypersonic applications is apparent from SBIR/STTR abstracts and industry reports.

**Leadership & Team:**

* Information on specific leadership roles and individual names is limited in the publicly available information. General sources indicate a team with expertise in materials science, aerospace engineering, and manufacturing, including individuals with experience in developing advanced composite materials for defense applications. Further investigation using subscription databases (e.g., Crunchbase, Pitchbook) might reveal additional details.

**Competitive Landscape:**

* Ultramet:\*\* Ultramet specializes in refractory materials for extreme environments and offers a range of CMCs and other high-temperature materials. EtherForm's differentiator likely lies in its proprietary CMC architecture and manufacturing processes, potentially offering superior performance characteristics in specific applications or the ability to create more complex geometries.
* General Atomics Electromagnetic Systems (GA-EMS):\*\* GA-EMS is a diversified company with a materials division focusing on advanced composites for aerospace and defense. EtherForm is significantly smaller and more specialized, which allows them to potentially focus more intensely on specific CMC applications and tailor materials to niche requirements.

**Sources:**

1. Various SBIR/STTR databases (e.g., sbir.gov, Grants.gov) searching for "Ether Form Incorporated" and related keywords (ceramic matrix composites, UHTC, hypersonic) - used to confirm grant awards and project focuses.

2. University of Delaware Center for Composite Materials website and publications mentioning collaborations with Ether Form.

3. Defense industry news articles and reports referencing advanced materials for hypersonic applications, identifying Ether Form as a potential player.