# Dossier: BLUSHIFT AEROSPACE INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,022,500.00

**Award Date:** 2024-07-22

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

BLUSHIFT AEROSPACE INC. is a Maine-based aerospace company specializing in the development and operation of modular, hybrid-fueled rocket engines for launch vehicles, in-space propulsion, and hypersonic applications. Their core mission revolves around providing scalable, affordable, and environmentally sustainable access to space for a variety of payloads and mission profiles, particularly targeting the small satellite launch market. They aim to solve the challenges of traditional launch systems – high costs, limited launch windows, and environmental concerns – by offering adaptable and reusable rocket engine technology that reduces operational complexity and promotes a greener approach to space access. Their unique value proposition lies in the hybrid propulsion technology utilizing non-toxic solid fuel and liquid oxidizer, offering a balance of performance, safety, and environmental responsibility compared to traditional liquid or solid-fueled rockets.

**Technology Focus:**

* Develops modular hybrid rocket engines with thrust ranging from small (CubeSat launchers) to larger (orbital-class launch vehicles). These engines use non-toxic solid fuel and liquid oxidizer, offering simpler operations, lower costs, and reduced environmental impact.
* Focuses on scalable and reusable rocket engine design, enabling rapid development and deployment of propulsion systems tailored to specific mission requirements. Emphasis is placed on achieving high performance through advanced materials and innovative combustion techniques.

**Recent Developments & Traction:**

* In September 2023, Blushift announced the successful hot fire test of a prototype MAINE-1 engine designed for hypersonic applications. The test demonstrated the engine's ability to operate under simulated flight conditions, showcasing the company's expertise in advanced propulsion systems.
* Awarded a contract from the U.S. Air Force Research Laboratory (AFRL) in October 2022 to develop advanced hybrid rocket engine technology for space access and defense applications. The contract supports research and development efforts aimed at improving engine performance, reliability, and affordability.
* In 2021, Blushift secured a Phase II Small Business Innovation Research (SBIR) award from the National Science Foundation (NSF) to advance the development of its hybrid rocket engine technology and explore potential applications in the commercial space sector.

**Leadership & Team:**

* Colin Caissie:\*\* CEO. Has prior experience in engineering leadership roles and entrepreneurial ventures within the technology and manufacturing sectors.
* Information about CTO and other key leaders is not readily available from public sources beyond what is found on LinkedIn.

**Competitive Landscape:**

* Rocket Lab:\*\* While primarily focused on liquid-fueled engines and complete launch services, Rocket Lab also competes for the small satellite launch market.
* Virgin Orbit:\*\* (Though bankrupt, the technology remains relevant) Virgin Orbit, previously offered air-launched solutions for small satellites, presenting another potential competitive overlap, albeit with a different launch methodology. Blushift's key differentiator is its hybrid rocket engine technology, which offers a balance of cost, performance, and environmental advantages compared to traditional liquid and solid-fueled rocket engines.

**Sources:**

1. [https://www.blushiftaerospace.com/](https://www.blushiftaerospace.com/)

2. [https://www.spaceintelreport.com/blushift-aerospace-achieves-key-hypersonic-engine-test-milestone/](https://www.spaceintelreport.com/blushift-aerospace-achieves-key-hypersonic-engine-test-milestone/)

3. [https://www.sbir.gov/sbirsearch/detail/1720926](https://www.sbir.gov/sbirsearch/detail/1720926)