

S²MARTS “Coming Soon” Opportunity (22-10)
Classified Test Material for Hypersonics (CTMH)

The Department of the Navy (DoN) is seeking prototypes that fabricate/demonstrate a total of three articles (two unclassified and one classified) using Chemical Vapor Infiltration (CVI) Carbon/Silicon Carbide (C/SiC) densification of carbon fiber preforms.

The DoN has entered into the hypersonic missile domain to execute the Warfighter’s mission requirements. As threats and mission requirements continue to evolve, the Department of Defense (DoD) is constantly looking to improve and upgrade its domestic manufacturing capabilities and industrial base. Partnership with academia and industry will help develop and demonstrate capabilities in key focus areas, supporting transition to military Service programs of record, consistent with the FY 2020 National Defense Authorization Act (NDAA).

The purpose of this effort is to advance the domestic manufacturing readiness in support of hypersonic missile development. Hypersonic systems like the boost-glide system comprising the Air-Launched Rapid Response Weapon (ARRW) require both classified and unclassified test articles for Manufacturing Readiness Level (MRL) and design advancement of an aeroshell fabricated from Chemical Vapor Infiltration (CVI) Carbon/Silicon Carbide (C/SiC) material. These improved technology readiness levels of these articles are needed by 2023.

This effort would seek to produce the design of first an unclassified, then a classified prototype test article and associated tooling, followed by fabrication of layup, CVI, machining, and inspection tooling and fixtures. Finally, the effort would culminate in manufacturing of the classified prototype test article at a cleared manufacturing facility. To further refine the CVI C/SiC manufacturing production processes, this project will target advancing the MRL of CVI C/SiC materials as deliverables of multiple aeroshell components viable for government-led ground testing.

The improvements resulting from this effort can be designed into future systems, thus eliminating requirements for more complex and less capable approaches.

The Classified Test Material for Hypersonics (CTMH) Other Transaction (OT) prototype project is anticipated to be released and executed in a 30-month period of performance.