

**WHO**

**SYSCOM:** NAVSEA

**Sponsoring Program:** Naval Sea Systems Command

**Transition Target:** Navy Platforms and Maintenance Contractors

**TPOC:** (301) 227-1574

**Other Transition Opportunities:** Secondary applications of the technology may include protective coatings for various structures and components on a variety of DOD and commercial platforms in a marine environment.

**Notes:** This material can be easily modified to meet specific requirements for a variety of applications. Materials Sciences LLC (MSC) has experience qualifying new materials through extensive mechanical and environmental testing capabilities.



<https://www.dvidshub.net/news/79848>

**WHAT**

**Operational Need and Improvement:** The Navy needs a durable environmental layer to support the installation and maintenance of Radar Absorbing Materials (RAM). While alternative coatings have excellent environmental protective properties, they are difficult to bond to and provide limited impact protection. Poor bond strength can lead to peeling, exposing the underlying vulnerable surfaces to environmental degradation, requiring frequent repairs. These repairs can be very expensive, requiring a high level of technical expertise to execute. The improved RAM protective layer will use an polyurethane which does not carry the same health and environmental risks of alternative protective coatings, while providing better adhesion, more robust impact resistance, and reducing maintenance costs.

**Specifications Required:** The function of the RAM protective layer is to prevent the underlying material from getting damaged from the external environment, while being radar transparent. The material and associated application process are desired to achieve a 10+ year lifetime while protecting against Ultraviolet (UV) and weather extremes in a marine environment.

**Technology Developed:** MSC has developed a replacement protective layer that can form a bond to RAM tiles and is capable of meeting Navy requirements. This is a polyurethane coating based on technology used in other low-signature and RF transparent applications that utilizes hollow spherical fillers to further lower the materials dielectric constant. MSC developed a unique Liquid Polyurethane Encapsulation (LPE) process that can inexpensively produce sheets of customized elastomers.

**Warfighter Value:** MSC's protective layer provides a significantly more robust extended life bonded solution that will reduce maintenance costs, improve reparability, and provide additional impact resistance, all while being a chemically safer material than alternative protective layers that are being phased out due to potential health and environmental risks.

**WHEN**

**Contract Number:** N00024-24-C-S201

**Ending on:** Sep 30, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Fabrication Method and Materials Demonstrated	Low	Samples Available for Testing	3	3rd QTR FY25
Full Scale Performance Testing	Medium	Pass Navy Radar Requirements	4	4th QTR FY25
Environmental Qualification Testing	Medium	Pass Navy Environmental Requirements	5	2nd QTR FY26
Field Installation Test	Low	Bonded onto Navy Assets	6	4th QTR FY26

**HOW**

**Projected Business Model:** MSC maintains a growing polyurethane processing capability in an AS9100 certified facility, and currently has the infrastructure in place to meet prototype and production quantities for the Navy. MSC will be the manufacturer and supplier of the protective layer to the Navy and/or the maintenance contractor.

**Company Objectives:** MSC's objective is to support the warfighter by becoming a supplier of polyurethane coating products for the Navy as well as other DOD and commercial customers, leveraging our unique processing capabilities. MSC seeks to be the go-to developer and producer of innovative protective and abrasion resistant coatings and broaden the use of polyurethane materials.

**Potential Commercial Applications:** This product has the potential to be used for commercial applications as a UV stable vapor barrier. It could also be used as a replacement for "Forever Chemical" coatings that are being phased out.