Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2023-0422

Topic # N111-042
Improved Accelerated Life Testing
Texas Research Institute Austin, Inc.

WHO

SYSCOM: NAVSEA

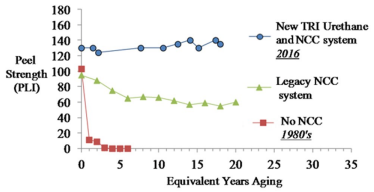
Sponsoring Program: PMS450E

Transition Target: Virginia Class Submarines, Columbia Class Submarines, and other Subsea applications.

TPOC: (401) 832-5111

Other Transition Opportunities: TRI has begun to commercialize PU-189 as both a tie-coat layer for subsea parts, and a two-part quart kit. Samples have been sent to prospective customers, with good feedback. There has been a number of commercial kits sold and numerous parts have been tie-coated to date.

Notes:



Internal

WHAT

Operational Need and Improvement: Currently approved materials have been around for a number of years some dating back to the early 1970's. The two currently approved Navy materials have either performance related issues or environmental issues that currently leave the Navy very few quality options for Polyurethane overmold materials.

Specifications Required: Both currently approved Navy systems are approved to both NAVSEA PRO20 and MIL-STD 24041, the PRO20 specification is specific to wet area connectors within the submarine fleet and the focus of this project. MIL-STD 24041 is very broad and covers overmolded products across numerous platforms, both wet and dry.

Technology Developed: TRI Austin devoted significant effort to scaling the production process for PU-189 and produced a total of 50 gallons of Part A and part B components. Connectors were also potted using the material and additional testing was performed on the mechanical and acoustic properties of the PU-189. TRI Austin has also continued to prepare product documentation, including revising the branding of the safety data sheets, and developing labels for the boxes used to ship the scaled-up batches of PU-189.

Warfighter Value: The resulting material TRI PU 189 is intended to enhance the Navy's capabilities by allowing subsea connectors to operate in a cathodic environment for up to 20 years, while simultaneously improving the health and environmental characteristics of the potting materials.

WHEN

Contract Number: N68335-18-C-0231 **Ending on:** Aug 06, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Scale Production	Low	50 gallon production batch	6	2nd QTR FY22
Qualify to NAVSEA PRO20	Low	Approval	7	1st QTR FY23
Qualify to MIL-STD 24041	High	Approval	8	2nd QTR FY23

HOW

Projected Business Model: TRI will both manufacture and manage sales for the new TRI PU 189, sales have already begun in both the military and commercial markets.

Company Objectives: We are interested in additional applications for the product outside of the Navy both within the DoD and commercial markets. We are also looking for sales and distribution networks for the TRI PU 189 both domestically and globally.

Potential Commercial Applications: TRI is in the process of testing to satisfy the requirements for PU-189 use as an encapsulant material for Navy subsea connectors in cathodic environments. However, this is not the only foreseeable application as several others are anticipated. These applications include sonar transducer and electrical hull penetrator cable connectors, elastomeric boots, and other outboard equipment as identified by NAVSEA. PU-189 could also be used to coat components in transducers and hydrophones that are exposed to water to reduce water permeation, and for potting image intensifier tubes.

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