PROJECT ID:
617

Low VOC Corrosion-Resisting Primer Coating for Navy Aircraft Ground Support Equipment

Shipboard fire truck (P25A) as an example of testbed for coating applications under this project.

(Photo by Evan Winick, Elzly Technology Corporation)

OBJECTIVE

This project will perform coating application and shipboard testing/validation of a low-VOC, corrosion-resistant primer coating for aircraft ground support equipment (GSE).

PROBLEM STATEMENT

There is a push both at the federal and local levels for the continual reduction of volatile organic compounds (VOCs) and Hazardous Air Pollutants in regards to all painting operations. Many of the military specification primers have not changed significantly, whereas local and federal environmental regulations are continually changing. Specifically, Maryland and California have recently passed the most stringent regulations in the nation, requiring a product with a maximum VOC of 2.1 lbs/gallon. NESDI project 563 was initiated to select and test low-VOC primers that meet performance requirements. A candidate coating was identified by this project, however shipboard testing needs to be completed.

DESCRIPTION

The project 563 team identified a commercially available primer coating meeting the laboratory testing requirements of MIL-DTL-53022, Type IV, COMAR Rule 26.11.19.23, and VCAPCD Rule 74.18, and was potentially capable of meeting the service application and performance requirements for aircraft GSE. This project will perform coating application and shipboard field evaluations of the selected corrosion-resistant primer coating as applied to Navy GSE. Application will be performed on abrasive blasted steel by fleet maintenance personnel at one or

more Navy Fleet Readiness Centers (FRC); selected GSE will be deployed for marine environment exposure and active duty use aboard ship. Candidate equipment for marine exposure testing include the P25A fire truck, the Mobile Electric Power Plant, and the Corrosion Control Cart. Three post-deployment inspections will be performed during the GSE deployment. The results of the inspections will generate recommended modifications to maintenance and repair requirements and instructions contained in Naval Air Systems Command (NAVAIR) TM 17-1-125.

RETURN ON INVESTMENT

Use of lower VOC products reduces hazardous chemical exposure risk to applicators, facilities and localities. In turn, lower VOC emissions will reduce risk of rule violation fines and costly facility shutdowns that impact fleet mission requirements.

NAVY BENEFITS

The short-term benefit is that adoption of the new primer coating will meet the requirements of local regulations in locations such as Maryland and California. Longer-term, VOC emissions will be notably reduced. For example, during one 12-month period from February 2017 to February 2018, supply system demand/use data for seven Navy and Marine Corps facilities show approximate VOC emissions of 24,720 lbs/year. Implementation of the candidate coating at the seven facilities would reduce primer coating VOC emissions to 14,850 lbs/year, an annual reduction of 9,870 lbs or about 40%.

TRANSITION DESCRIPTION

Upon successful completion of this project, the product will be added to the Qualified Product Lists QPL(s) and NAVAIR Technical Manual 17-1-125 as an authorized coating.

The expected first Navy users of the coating will be any facility requiring the use of primer coatings containing VOCs less than 250 g/l (2.1 lbs/gallon), such as the SE depot in Maryland and FRC facilities in California.

CONTACT

For more specific information about this project, contact the Principal Investigator at 732-323-2285.

ABOUT THE NESDI PROGRAM

The Navy Environmental Sustainability Development to Integration (NESDI) program is the Navy's environmental research and development demonstration and validation program, sponsored by OPNAV N4I Installations Division and managed by the Naval Facilities Engineering Systems Command from the Engineering and Expeditionary Warfare Center in Port Hueneme, CA. The mission of the program is to provide solutions by demonstrating, validating and integrating innovative technologies, processes and materials and by filling knowledge gaps to minimize operational environmental risks, constraints and costs while ensuring Navy readiness and lethality.

For more information, visit the program's web site at www.navfac.navy.mil/nesdi or contact Ken Kaempffe, the NESDI Program Manager at 805-982-4893, DSN: 551-4893 or kenneth.c.kaempffe.civ@us.navy.mil.