General Information

Title of Technology Development: Smart Coatings for Launch Site Corrosion Protection

Responsible NASA Mission Directorate or Office: Human Exploration and Operations Mission Directorate

NASA Lead Center or Facility: Kennedy Space Center

NASA Supporting Centers and Facilities: Johnson Space Center

NASA Program: Ground Systems Development and Operations

NASA Project: 11725

NASA Program Executive: Karen Thompson

NASA Program Manager: Nancy Zeitlin

NASA Project Manager: William Simmonds

Principal Investigator: Luz Calle

States with Work: FL

Contractors Performing Work: QinetiQ North America/ESC

Sources of Funding

NASA Mission Directorates or Offices Providing Funding/Resources: No data provided

NASA Centers and Facilities Providing Funding/Resources: Kennedy Space Center

Other U.S. Government Agencies Providing Funding/Resources: Department of Defense

U.S. External Partners Providing Funding, Academia or Commercial: University of Texas, University of Mississippi, North Dakota State University

International Partners Providing Funding/Resources: No data provided

Technology Project's Mappings

Primary Space Technology Roadmap - Technology Area: TA 13: Ground & Launch Systems Processing

– Detailed Primary Space Technology Roadmap - Technology Area: No data provided

Secondary Space Technology Roadmap - Technology Area: No data provided

Additional Space Technology Roadmap - Technology Area: No data provided

Project Details

Project Start Date: Oct-01-2011 | **Project End Date:** Sep-01-2014

Project Start TRL: 4 | **Project End TRL:** 6

Brief Description (abstract) of Technology Project: Smart, environmentally friendly paint system for early corrosion detection, mitigation, and healing that will enable supportability in KSC launch facilities and ground systems through their operational life cycles. KSC's Corrosion Technology Laboratory is developing a smart, self-healing coating that can detect and repair corrosion at an early stage. This coating is being developed using microcapsules specifically designed to deliver the contents of their core when corrosion starts.

Technical Performance Measures:

Measure	Unit	Quantity

Description of Capability This Technology Provides: The team is working on developing a smart, multifunctional, cost effective coating directly applicable to the corrosion protection of launch site structures and for a wide range of corrosion protection applications. The key element in the multi-functionality of this coating is the corrosion-triggered release of corrosion detection, inhibition, and self-healing.

Anticipated Benefit to NASA for Funded Missions: One or more coating products will be developed for corrosion protection of NASA's launch structures and ground support equipment. These smart multifunctional coatings can dramatically reduce the cost and increase reliability and safety of access to space.

Anticipated Benefit to NASA for Unfunded/Planned Missions: No data provided

Anticipated Benefit to Commercial Space Industry or Other Government Agencies: No data provided

Detailed Description of Technology Project

No data provided