

# Research focusses on eco-friendly technologies for spaceport structures

Monday, 13. January 2014

The protection behaviors of 15 different soft film Corrosion Preventive Compounds (CPCs) were evaluated by NASA on various steel and aluminum substrates.



The objective was to determine if environmentally-friendly CPCs will provide adequate corrosion protection for spaceport structures and related hardware used at NASA's center considering large number of environmental and safety issues associated with conventional CPC's. Petroleum-based CPCs have become increasingly impractical for use at this location due to environmental concerns and cumbersome containment procedures required during application and removal.

## CPCs must survive in an aggressive environment

[NASA](#) tested "The Behavior of Environmentally Friendly Corrosion Preventative Compounds in an Aggressive Coastal Marine Environment" in a real life test at their atmospheric test station Kennedy Space Center, Florida. This is known as one of the most corrosive places in the world because of its hot climate, proximity of Atlantic ocean, winds carrying salt spray and fallout of rocket propellants that are highly corrosive.

## One inhibitor resisted corrosion for all of the aluminum alloys

The CPC and substrate systems were subjected to atmospheric testing, as well as cyclic accelerated corrosion testing. Each CPC also underwent physical characterization and launch-related compatibility testing. Three of [Cortec's](#) products "VpCI 368", "EcoLine 3690", and "EcoLine HD Grease" showed good results. The summary of current results and analysis performed by NASA revealed that the inhibitors exhibited the least amount of both crevice and galvanic corrosion and have penetrated successfully under the fastener as well as provided good protection considering the long atmospheric exposure time period. "VpCI 368" was the only inhibitor tested to resist corrosion for all of the aluminum alloys.

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