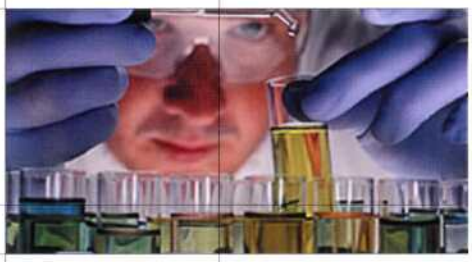

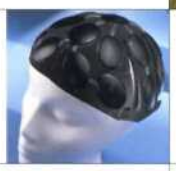

SPINOFF

National Aeronautics and Space Administration

2004

NASA

FIGHTING CORROSION

ORIGINATING TECHNOLOGY/ NASA CONTRIBUTION

Reinforced concrete structures such as bridges, parking decks, and balconies are designed to have a service life of over 50 years. All too often, however, many structures fall short of this goal, requiring expensive repairs and protection work earlier than anticipated. The corrosion of reinforced steel within the concrete infrastructure is a major cause for this premature deterioration. Such corrosion is a particularly dangerous problem for the facilities at NASA's Kennedy Space Center. Located near the Atlantic Ocean in Florida, Kennedy is based in one of the most corrosive-prone areas in the world.

In order to protect its launch support structures, highways, pipelines, and other steel-reinforced concrete structures, Kennedy engineers developed the Galvanic Liquid Applied Coating System. The system utilizes an inorganic coating material that slows or stops the corrosion of reinforced steel members inside concrete structures. Early tests determined that the coating meets the criteria of the National Association of Corrosion Engineers for complete protection of steel rebar embedded in concrete. Testing is being continued at the Kennedy's Materials Science Beach Corrosion Test Site.

PARTNERSHIP

Cortec® Corporation, of St. Paul, Minnesota, has licensed the NASA-developed technology and markets it under the brand name GalvaCorr.™ The company manufactures and supplies corrosion protection solutions to the petrochemical, metalworking, electronics/electrical, utility, construction, military/government, marine, basic metals, automotive, and equipment maintenance markets. GalvaCorr is a compliment to Cortec's line of Migrating Corrosion Inhibitors.

PRODUCT OUTCOME

GalvaCorr is a room temperature liquid coating that can be sprayed or hand applied to concrete structures. It is applied easily to vertical, horizontal, and overhead surfaces, and to structures of many shapes. The coating contains particles of magnesium and indium, as well as moisture-attracting compounds that facilitate the protection process. After the coating is applied to the outer surface of reinforced concrete, an electrical current is established between the metallic particles and the surfaces of the embedded steel rebar. This electrical current is responsible for providing the necessary cathodic protection for the embedded rebar surfaces. Without this protection, the embedded steel may continue to deteriorate until failure.

GalvaCorr is a breakthrough technology with great commercial value for the transportation, infrastructure, marine infrastructure, civil engineering, and construction industries. Without this technology, embedded steel structures will continue to corrode and deteriorate until failure occurs, costing companies billions of dollars to repair their infrastructures. Cortec recommends GalvaCorr for parking decks, ramps, and garages; commercial and civil engineered structures; bridges and concrete piers; offshore platforms; and utility poles above water line.

Cortec® is a registered trademark of Cortec® Corporation.

GalvaCorr™ and Migrating Corrosion Inhibitor™ are trademarks of Cortec® Corporation.

The GalvaCorr™ liquid coating is applied to concrete structures such as this bridge in order to protect the structures from corrosion.