# 35 YEARS OF CORROSION PROTECTION AT THE KENNEDY SPACE CENTER

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## ABSTRACT

NASA began corrosion studies at the Kennedy Space Center (KSC) in 1966 during the Gemini/Apollo Programs with the evaluation of long-term protective coatings for the atmospheric protection of carbon steel. KSC's Beach Corrosion Test Site (BCTS), which has been documented by the American Society of Materials (ASM) as one of the most corrosive, naturally occurring, environments in the world, was established at that time.

With the introduction of the Space Shuttle in 1981, the already highly corrosive conditions at the launch pad were rendered even more severe by the acidic exhaust from the solid rocket boosters. In the years that followed, numerous studies have identified materials, coatings, and maintenance procedures for launch hardware and equipment exposed to the highly corrosive environment at the launch pad.

This paper presents a historical perspective highlighting the lessons learned in over thirty-five years of corrosion research, materials evaluation, and development work aimed at protecting and enhancing the safety and reliability of the nation's launch infrastructure and hardware.

Keywords: corrosion, carbon steel, spacecraft launch environment, atmospheric corrosion, marine atmosphere, zinc-rich primers, UNS S30400, UNS S31703, UNS S31603, UNS S31803, UNS N10276, UNS N06625, UNS N06022, UNS S31254, UNS N06200, UNS N08367, UNS S44735, UNS S32750, UNS S30403, UNS G10080.