

## Sealing airport pavement

*Dow Corning® 888  
Silicone Joint Sealant*

*Dow Corning® 890-SL  
Self-Leveling Silicone  
Joint Sealant*

*“Dow Corning is a step ahead of the rest, because they care about the product at the time of sale, throughout the project and long after the project is completed.”*

– Frank Costello,  
President  
Costello Industries

# *Dow Corning®* brand silicones seal the Shuttle Landing Facility



*NASA chose Dow Corning® brand silicone sealants to repair the joints and pavement cracks on the 15,000-foot shuttle landing strip. Photos by NASA.*

According to Frank Der, technical lead for NASA's architectural, civil, environmental and structural group, a biennial pavement inspection performed on the facility in 1992 indicated a significant increase in concrete pavement spalling, possibly related to the deteriorating neoprene rubber compression seal.

NASA designed the specifications for the repairs, and in an effort to take advantage of developing technologies and lower costs, chose *Dow Corning®* 888 Silicone Joint Sealant and *Dow Corning®* 890-SL Self-Leveling Silicone Joint Sealant to replace the failing neoprene seal.

Frank Costello, president, Costello Industries, Newington, Connecticut, was given the task of resealing the landing strip. Having used *Dow Corning®* brand silicone products for more than 15 years, he knew NASA had made the right choice.

Prior to applying the *Dow Corning* silicone sealants, Costello had to remove the failed neoprene and prepare the joint surfaces. He says he found the process simple given the ease with which the Dow Corning products adhere to existing surfaces.

*Dow Corning* 888 Silicone Joint Sealant was used to repair the longitudinal and transverse concrete joints, and *Dow Corning* 890-SL Self-Leveling Silicone Joint Sealant was perfect to repair the shoulder joints and irregular contours created by minor spalling.

The *Dow Corning* silicone sealant system is easier to use than the original sealing system, Der says. “The Dow Corning products’ installation required careful attention to cleaning and preparation, but because the silicone products adhere readily to themselves, the process proceeded quickly without the need to work at ensuring sealed splices at joint intersections,” he adds.

The Shuttle Landing Facility at the Kennedy Space Center in Florida has one of the world's best-maintained runways. It has to, because the space shuttle is a glider, and upon re-entering Earth's atmosphere the spacecraft glides toward Kennedy Space Center with only one pass at the landing strip.

According to Frank Der, technical lead for NASA's architectural, civil, environ-



*NASA's Shuttle Landing Facility, Kennedy Space Center, Florida.*

**DOW CORNING**

## Silicone sealants stand up to jet fuel and hydraulic oil exposure

In 1988, failed organic sealants and growing concern over the volatility of those sealants prompted contractor Dennis Garvin to suggest that a test of silicone joint sealants be conducted on taxiways and parking aprons at Eglin Air Force Base.

Michael Newell, pavement engineer at Eglin, said his chief concerns were that the sealants display good adhesion to the joint, as well as compatibility with the materials that come in contact with the sealant, including jet fuel, hydraulic oils and cleaning solvents.

The products chosen for the test, *Dow Corning*<sup>®</sup> 888 Silicone Joint Sealant and *Dow Corning*<sup>®</sup> 890-SL Self-Leveling Silicone Joint Sealant, were installed in five test strips. The strips measured five-to-six feet in length in the parking apron and the engine run-up pad, where F-15 aircraft are secured to ground anchors and tested using a jet blast procedure. Temperatures can reach 1800°F in this jet blast area. The joints in these areas also are periodically exposed to jet fuel and hydraulic oils, although crews prevent the materials from pooling for long.



The sealants have been checked quarterly since installation, and Newell is pleased with their performance. This success convinced engineers to employ the sealants in another construction project at Eglin. Because some of these joints featured angles ranging from 18 degrees to 36 degrees, engineers were skeptical at first that a self-leveling sealant could be effectively employed in the project. However, despite the angles, the sealant stayed in place and the contractors were pleased with its installation.

*Dow Corning*<sup>®</sup> brand silicone joint sealants have proven effective in providing the long-term performance and jet fuel and jet blast resistance required at Eglin Air Force Base in Florida.



*Comparisons of test joints at Eglin Air Force Base indicate that while organic sealants have become brittle and the joints failed, the silicone sealants exhibit excellent adhesion and flexibility.*

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Joint Sealant

*“The hot-pour, organic sealant is getting brittle and dry in some areas and has popped loose from the face of the joint. But the Dow Corning sealant is still flexible and exhibiting excellent adhesion.”*

– Michael Newell,  
Pavement Engineer  
Eglin Air Force Base

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