

## Case Study:

# Second Severn Bridge, UK. Concrete Protection.



## The Project

The Second Severn Bridge connects England and Wales. With its 5Km (3miles) length, navigation clearance of 37m (121ft) supported by cable-stayed on main spans, this bridge was designed to withstand adverse weather conditions. Strong prevailing winds and upto 12m (45ft) tidal variations were some factors the designers and constructors had to take into consideration.

## The Need

With a forecast of 19 million vehicles crossing each year, consideration of long-term protection to reduce ongoing yearly maintenance costs together with low interruption of normal use were critical factors for UK Department of Transportation.

These considerations formed part of the aim that directed the specification criteria in the new standard, BD 43/03 (Criteria and Materials for Concrete Impregnation), for Vapour permeable, Hydrophobing pore-lining impregnants such as Silanes, as integral part of the

specification for new road and bridges construction owned by the government.

## The Solution

This bridge over the River Severn connecting Wales & England was completed in 1996, having been treated with Dow Corning® Z-2306 (silane IBTMS)

The silane with a 96% solid content met the strict UK regulation. It prevents degradation of the reinforced concrete by corrosion, caused by salt water spray and wet conditions.

‘ Living in Wales I am a frequent user of the Second Severn Bridge. It is an impressive structure with no known damage being reported on the decks since it was open’ said Terry Chapman, technical engineer at Dow Corning plant in Barry.

Since 1996 several infrastructures have been protected using Dow Corning Silanes not only in the UK & Europe, but also around the World, thanks to Dow Corning global presence & capabilities.

**The project:** *Second Severn Bridge, Bristol, UK, 1996*  
**Product:** *Dow Corning® Z-2306*  
**Specification:** *UK department Transport BD 43/90*

- **Test conducted on concrete structures treated with concentrated silanes, found these effectively control water & chloride ion ingress over a period of >15 Years.**
- **High purity silane >96% to meet BD standards.**
- **Small molecular particle for deep penetration even in high density concrete.**
- **Dow Corning has a wide range of silanes and Si-based Solutions to meet your needs.**



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