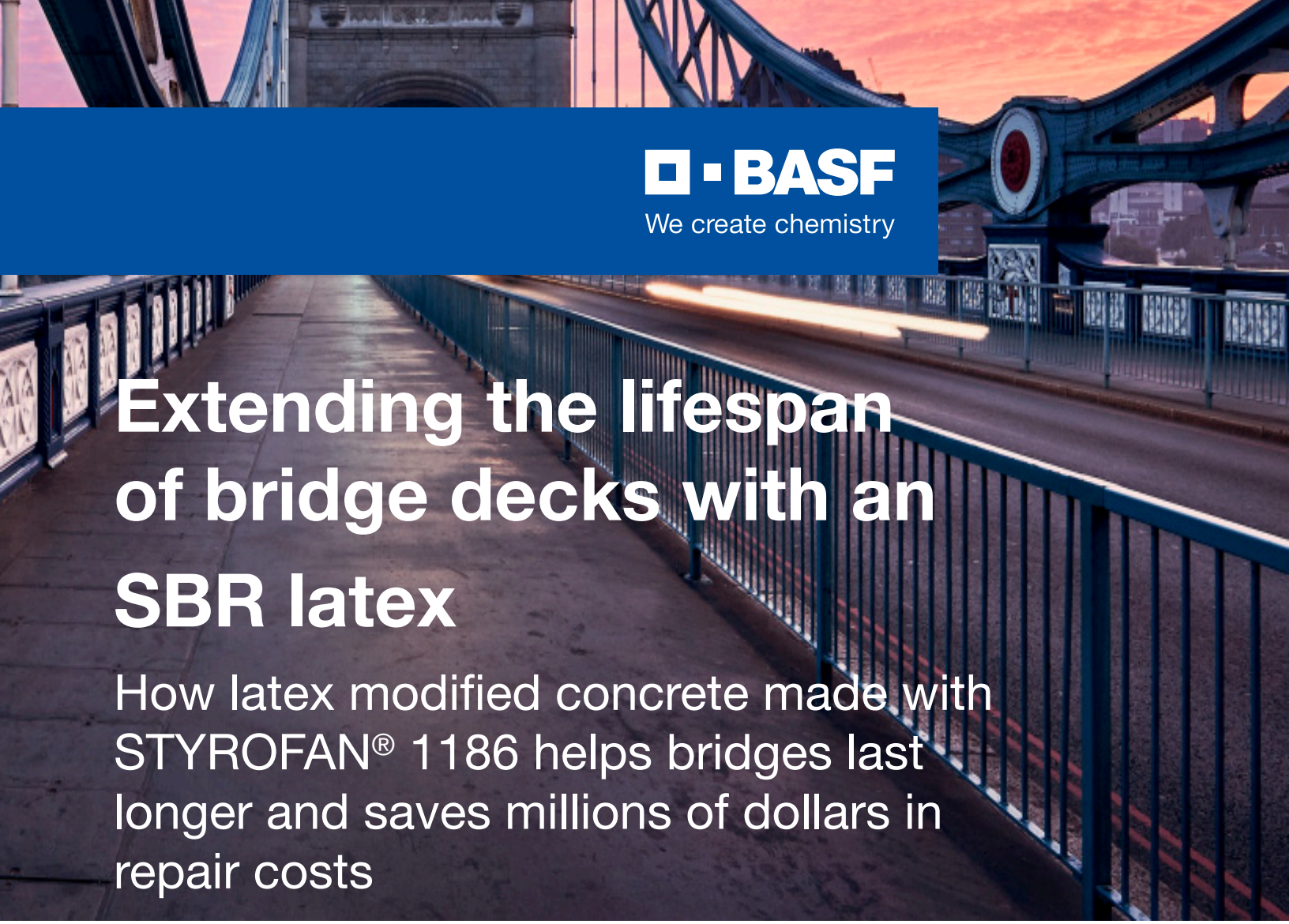

BASF
We create chemistry

Extending the lifespan of bridge decks with an SBR latex

How latex modified concrete made with STYROFAN® 1186 helps bridges last longer and saves millions of dollars in repair costs

Building materials used in infrastructure construction and renovation today must be proven for great performance, ease of use, safety and sustainability. Latex modified concrete (LMC) has been used for over 50 years in tens of thousands of bridges, tunnels and structures and is one of the best options to meet the high demands of the infrastructure market.

BASF has supplied STYROFAN 1186 into LMC applications for refurbishing and new bridge construction for over 40 years, and it can be seen in service from floating bridges over Lake Washington in Seattle, WA to the Ravenel Bridge over the Cooper River in Charleston, SC.

Latex modified concrete has a long-proven history in bridge deck surfaces. In 1979, the US Federal Highway Administration (FHWA) completed a study of styrene-butadiene rubber (SBR) latexes used for bridge deck wear layer applications. The report (FHWA-RD-78-35) detailed typical properties of SBR latexes required for this application and the resulting performance. BASF's STYROFAN 1186 SBR latex meets these stringent specifications and extends the service life of bridge decks as demonstrated in the FHWA study.

The Ravenel Bridge over the Cooper River in Charleston, SC. BASF's STYROFAN 1186 was used in the decking overlay of the bridge with one of the longest cable-stayed spans in North America.

Bridge deck deterioration is primarily caused by the penetration of salts that corrode the steel reinforcing bars within the concrete deck. Water carries oxygen and chloride ions from the salt through the concrete pours to the reinforcing steel. This slowly causes the steel to oxidize, creating pressure that eventually cracks the concrete. In cold climates, the freeze-thaw cycle accelerates the process, widening the cracks and causing potholes and surface degradation in a relatively short period of time. Repairing these potholes can be a headache for both drivers on the bridge and the DOTs that are responsible for maintaining the bridge.

Use of STYROFAN 1186 in the LMC mix creates a latex elastic membrane throughout the concrete matrix that reduces voids and slows the corrosion of reinforcing steel, thus extending the lifespan of the bridge deck. Incorporating the SBR latex also improves flexural strength to minimize cracking. These features, along with the lower water-to-cement ratio of the latex modified concrete, make it far superior to unmodified concrete.

This performance has helped states and municipalities save millions of dollars in repairs over the years. More difficult to quantify but important to all of us is the reduction in traffic delays resulting from the reduced maintenance requirements and road closures.

BASF has teamed up with its distributor, Azelis Americas, to support the needs of the bridge decking industry. Together they provide research, development and application expertise to assist those with mix and formulating challenges. This commitment to excellence helps BASF's customers succeed and positions them as leaders in concrete modification technology.

Third Lake Washington Bridge in Seattle, WA. BASF's STYROFAN 1186 was used on the decking overlay of one of the largest floating bridges in the world.

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