Extending/Restoring the Service Life of Concrete and Asphaltic Pavements with High Performance Polymer Modified Cementitious Micro-Overlays and High-Performance Pavement Markings

Asphaltic pavements suffer from the effects of environmental and other exposure from ultraviolet light, water, aggressive chemical spills, and abrasion. Water and UV exposure strips the pavement of its asphaltic binder, which causes fading, hardening and brittleness (oxidation). This condition leads to cracking, subsequent crack wall erosion, and asphalt aggregate being freed from its binder, causing deterioration of the pavement surface. The pavement accordingly suffers reduced service life, requiring additional overlays every six years.

In 1996 a research and development project was initiated to address these problems. The result culminated in the development of a Micro Overlay product named E-Krete® manufactured by Polycon of Madison, Mississippi. Polycon entered into a cooperative research and development agreement with the Army Corp of Engineers to fully test the E-Krete® product's ability to preserve asphaltic pavements by protecting them from damaging environmental exposure and abrasion. The E-Krete® product was installed at the US Army Corp of Engineers Experimental Waterways Station in Vicksburg, Mississippi, and was the subject of laboratory and other in-situ tests. The results of these studies and tests indicate exceptional performance in all categories, leading to the installation of this pavement protection system on all types of PCC and asphaltic pavements. The FAA has approved the use of the E-Krete® product through the publishing of Engineering Brief 62.

In addition to providing extended pavement life, Polycon products, through the integration of properly graded aggregates into the surface material, can also provide a long-lasting friction and wearing course micro-overlay that can restore old pavements to new friction standards, or provide new asphaltic surfaces with a friction and wearing surface. Polycon's SkidPro® product is a newly formulated high friction, high wear surface that combines all the characteristics and attributes of Polycon's E-Krete® product, with properly graded aggregates to meet any friction coefficient required for a particular application.

The E-Krete® product has been further refined and reformulated to provide a long lasting, colored pavement marking product currently marketed under the trademark Permastripe®. This revolutionary pavement-marking product yields the same durability as the E-Krete® product, but also exhibits the additional attributes necessary for a high-performance pavement marking including high retro-reflectivity, and high chromaticity retention. Colors currently available include yellow, white, black, blue (handicap), red and green.

E-Krete® and Permastripe® micro surface overlays and pavement markings can be rapidly installed on damaged substrates, allowing for the return of the pavement to service in hours, depending on climatic conditions. Due to its high strength bonding to concrete it eliminates the age-old problem of delamination due to poor adhesion. The E-Krete® and Permastripe ® products are a cost-efficient method of pavement restoration, repair and marking, and for uses designed as preventive measures before pavements reach the point of degradation. Additionally, these products can provide a greatly needed service for restoring old and new pavements alike.

Further information as to the benefits and uses are available through the Polycon website at www.polyconintl.com.

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