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Asphalt & Emulsions

SUCCESS STORY

Tack Coat Proves Vital to Award-Winning Performance on Florida Interstate 75

CHALLENGE

Restore worn section of I-75;
Achieve exceptional bond strength and long-term durability and rideability

SOLUTION

Mill and fill utilizing eTac trackless bond coat as the bonding agent, followed by a wearing course application



LOCATION

I-75 in Hillsborough County, Florida



DISTRESS

Worn Pavement;
Deteriorated Wearing Course;
Delamination



TRAFFIC

High Traffic



AGENCY

FDOT District 7



CONTRACTOR

Preferred Materials Inc.



SUPPLIERS

Ergon A&E (Bond/Tack Coat);
Additional Products Secured by Preferred Materials

Background: North- and south-bound lanes along I-75 in Hillsborough County, Florida, beginning just before the Big Bend Road exit and ending at the Manatee County line, were long overdue for maintenance. The wearing course had deteriorated, and the roadway showed signs of delamination in many sections.

Solution: The Florida Department of Transportation (FDOT) District 7 decided a mill and fill utilizing a trackless tack coat as the bonding agent, followed by the application of a wearing course, was the best solution to address these issues and improve performance, durability and rideability long term.

Preferred Materials Inc. in Tampa, Florida, was the selected contractor for the 130-lane-mile, I-75 mill and fill + wearing course project, which included several interchanges. The supplier of asphalt products and paving services has a proven, award-winning track record for exceptional roadway applications with lasting results.

Project Details – I-75/FDOT District 7

Pavement along the 130-lane-mile section of I-75 was milled, and eTac, a trackless bond/tack coat provided by Ergon Asphalt & Emulsions, was applied over the milled surface at a shot rate of 0.07 gallons per square yard. eTac's fast break time allowed crews to begin paving within five minutes of application, cutting construction time.

Benefits of Tack Coat (Bond Coat)

Tack coat serves as a bonding agent that prevents asphalt from slipping and sliding and creating unsafe driving conditions that can be costly to repair. Ergon A&E offers both emulsified and hot-applied trackless bond/tack coats that provide strong adhesion between asphalt layers. Together, these bond coats make up the eTac family of trackless bond coats, part of Ergon's exclusive eSeries product line.

Preferred Materials has found the eTac emulsion yields exceptional results beyond what they've seen with other tack coats. "The bonding strength of this product actually exceeded that of other rapid set and medium set tack coats," said Rick Crocker, operations manager for Preferred Materials – Tampa. "eTac didn't track out onto any adjacent roadways or ramps and didn't make a mess on the project site."

Following the eTac application, Preferred Materials applied a two-inch, compacted structural course using PG 76-22 liquid asphalt. An open-graded friction course surface was added as a measure to enhance public safety during rain events.

This treated section of I-75 is the smoothest roadway in the history of the state of Florida. "It may even be the smoothest section of interstate in the country right now," said Crocker.

Preferred Materials was awarded the 2022 A.P. Bolton Award for their outstanding road work on this project, particularly for exceptional performance of the road section post application. This is their third consecutive A.P. Bolton Award.

What Makes a Winner?

Factors that led to Preferred Materials' 2022 A.P. Bolton Award for the I-75 project include optimum roadway performance, a composite pay factor (CPF) of 104.5% and an International Roughness Index (IRI) rating of 24.

Composite Pay Factor

A CPF is comprised of individual factors such as quality control of products from the plant to the application site and performance of the final product. The highest achievable CPF percentage is 105%.

International Roughness Index

The purpose for the IRI test is to determine the smoothness or rideability of a roadway. "You want your number to be as low as you can get it," said Crocker. The lower the IRI, the smoother the ride quality. *The highest IRI number a road can get before having to undergo reconstruction is a 95.*

A good CPF percentage and IRI combined provide benefits that drivers, agencies and contractors alike, appreciate. For drivers, a high CPF percentage and low IRI indicate a better ride that is often safer. For agencies and contractors, these standards indicate reduced risk of early wear and tear and reduced maintenance costs.

What Impacts Composite Pay Factor and Roughness?

Situations that could lead a roadway to delaminate or unravel and fall apart in an untimely fashion include subgrade issues and lack of bonding between lifts. These failures would indeed impact the CPF and IRI outputs. Crocker says **tack coat was key to the exceptional CPF and IRI numbers** that the completed I-75 section achieved. "If we were utilizing a tack that didn't perform very well, the project would not have turned out the way it did," he said. "There are a lot of factors that play into making a road this smooth, but certainly one that can't be overlooked is tack coat."

Preferred Materials has utilized eTac on many paving projects over the years. "Our commitment to excellent customer service and, of course, the performance of our product, have put us in good standing with the company," said Joey Gelwix, Ergon A&E's Florida area sales manager.

Going for National Gold

Since the 130-lane-mile I-75 project, there has been no delamination or roadway deficiencies. "It's been a very good-performing roadway," said Crocker. In addition to the recent A.P. Bolton Award, Preferred Materials also received the FTBA Best in Construction-Interstate Award for this project, and plan to nominate it for the National Asphalt Pavement Association's Sheldon G. Hayes Award for excellence in construction of an asphalt pavement.

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