ERGON
Asphalt & Emulsions

SUCCESS STORY

Polymer Modified Rejuvenating Fog Seal Restores Asphalt Rubber Asphalt Concrete Friction Course in Arizona

CHALLENGE

Extend the life of asphalt rubber asphalt concrete friction course (ARACFC)

SOLUTION

Fog seal with polymer modified rejuvenating emulsion (PMRE)

LOCATION	DISTRESS	TRAFFIC	AGENCY	CONTRACTOR	SUPPLIERS
I-10 between Chandler Blvd to Riggs Road, including parts of AZ-202	Worn ARACFC surface (raveling)	High traffic, 90,000 ADT	Arizona Department of Transportation	Cactus Asphalt	Ergon Asphalt & Emulsions

Background

There are numerous asphalt rubber asphalt concrete friction course (ARACFC) surfaces throughout the Arizona Department of Transportation's (ADOT) roadway network. Historically, ADOT would mill and replace ARACFC surfaces after 10-12 years when they began to show signs of aging, such as raveling. However, this was an expensive practice. ADOT needed a cost-effective solution that would allow them to maintain and extend the service life of these surfaces, deferring the cost of replacement.

Solution

ADOT determined a fog seal using a polymer modified rejuvenating emulsion (PMRE) was the solution to efficiently extend the life of this type of surface course. They have since implemented this treatment as part of ongoing maintenance with a current goal of applying PMRE to 6,000 lane miles per year.

Ergon Asphalt & Emulsions (Ergon A&E) had the opportunity to supply PMRE on an ARACFC surface along I-10 between Cactus Boulevard and Riggs Road that was due for maintenance.

Benefits of ARACFC Surfaces

With ARACFC surfaces, asphalt binder is mixed with ground recycled tire rubber and other additives. These surfaces are considered a type of open-graded friction course (OGFC) because they provide increased friction by allowing water to drain to the sides of the roadway during rain events instead of collecting on the surface. This function helps to prevent hydroplaning, increase traction and positively impact driver safety. ARACFC surfaces provide durable roadways by utilizing a heavy film thickness. Minimal road noise is an additional benefit. They are ideal for high-traffic, high-speed roads like I-10.

Why PMRE Fog Seal?

A fog seal using PMRE can extend the life of ARACFC/OGFC surfaces, as it inhibits raveling and contains a rejuvenating agent that restores essential properties to aging surfaces. Its polymer modification allows for a more flexible binder that helps prevent further raveling throughout the life of the treatment. The goal for the PMRE application on I-10 was to delay a more costly replacement project.

Application Highlights

On November 12-13, 2022, the Contractor, Cactus Asphalt, applied PMRE at an average of 0.13 gallons per square yard to approximately eight miles of I-10 across multiple lanes, including entrance and exit ramps leading to the AZ-202 loop. Ergon A&E's Chandler, Arizona, plant supplied the emulsion for the project, which called for a total of 375 tons of PMRE.

ADOT remains pleased with the outcome of the PMRE application, which has proven to extend the service life of their ARACFC surfaces. Utilizing PMRE allows ADOT to make the most effective use of their limited budget over time, and they plan to continue utilizing PMRE fog seal as part of their maintenance strategy.

In addition to PMRE, Ergon offers a variety of conventional and specialty fog seal options to meet your specific roadway needs. Contact your local salesperson to learn more about our fog seal solutions for you.