

# Contractor Tunes Treatments to Agency Needs: Fog, Sand Seals, Rejuvenators

**A** mid-South pavement preservation contractor adapts the treatments it offers to local and state road agencies to make sure the customer gets “the right treatment to the right pavement at the right time.”

Pavement Restorations Inc. (PRI) was launched by its president, Jon Hargett, in 2006 following his work for a major asphalt paving contractor. “We began with three principal missions: pavement restoration, pavement preservation and pavement management,” Hargett said. “Utilizing a variety of preservation processes—including infrared pavement repair, fog seals and rejuvenators—we sought out municipalities that were looking at preservation as a way allocate as much as 10 percent of their budgets trying to preserve their good roads and keep them in good condition.”

## RIGHT TREATMENT FOR RIGHT ROAD

Hargett and his team would go to an agency and look at its roads and figure out what was needed to keep its pavements at a high pavement condition index (PCI).

“When we got into doing preservation work, the crack sealing, the fog sealing all seemed to be a really good use of taxpayer dollars to help preserve the good pavements,” he added. “If we can preserve the pavements that are not deteriorated by traffic but by weathering, and prolong their life before they turn brittle, agencies can spend money on paving roads that need to be paved, instead of paving roads that needed to be preserved.”

In that era pothole patching and crack sealing was the major part of PRI’s services, and mobile infrared heating was a big part of it. “It was our signature service because we went in and fixed potholes,” Hargett said. “We found we could fix the potholes and deteriorated spots with our higher-quality process, and then put a preservation treatment over the whole road once the bad spots were fixed. It was a good combination on which to

build a business.” Indeed, PRI’s web URL is [gotpotholes.net](http://gotpotholes.net).

“Now we do a lot of different things for cities, counties and state DOTs, such as chip seals, scrub seals, fog seals and crack seals,” Hargett said. “We do everything that’s about maintenance and preservation of pavements, even using some of the processes as inner layers. We will do remedial work on a cracked-up road, and then put a thinner layer of asphalt driving course over it. We don’t have one product that we promote; instead, I work with multiple manufacturers of different products. Some agencies will want the surface black, so

they want a sealer more than a rejuvenator, which finishes clear.”

Black pavements aside, petroleum- and bio-based rejuvenators have their own benefits, as they result in a transparent surface. With today’s supply issues, thermoplastic for pavement markings is extremely expensive, Hargett said. “Now there’s a shortage of thermoplastic materials,” he added. “If you can suggest a rejuvenator that dries clear to help preserve the condition of the road, you likely will not have to spend money on re-stripping.

“Above all I tell them, I’m not going to be tied to one product because there are



*In middle Tennessee, PRI places bio-based rejuvenator on municipal pavement*

advantages to a lot of different products,” Hargett said. “I find out what is their priority for pavements, and then match something out of my toolbox to their priorities, help them keep the process consistent, and let them evaluate different products based on what they want to see. We differentiate; one size does not fit all.”

### BIO-BASED REJUVENATORS

Lately, in addition to its toolbox of conventional surface treatments, PRI has been providing bio-based rejuvenators to keep agency pavement condition indices stable and prolong pavement life.

Rejuvenators are petroleum- or bio-based oils with chemical and physical characteristics selected to restore properties of the aged asphalt binder in the surface layer, says FP<sup>2</sup> Inc.

Rejuvenators are absorbed into the asphalt. They don't sit on top of the asphalt while curing, and residents can get on the pavement within 45 minutes to two hours. Even if the rejuvenator is tracked into their driveways, after a couple of rain events, it washes off.

Instead of simply sealing the surface and preventing entrance of water into the structure, as with conventional preservation seals, rejuvenators trigger chemical changes within the existing asphalt

pavement, reducing the viscosity of the aged binder. The degree of diffusion of the rejuvenator into the aged binder is of utmost importance as it allows chemical changes to take place that affect the physical properties.

“We started out with fog seals and some high-density mineral bonds,” said one agency engineer. “They were a tough act to sell, to be honest, because we have a lot of tree canopy over pavements. That's really nice in the hot summer, but it affected the times of the fog seal and made it tough for residents to get back to their homes.

“If we were out in a rural setting and applying a fog seal or sand seal we would have more time for the cure with less traffic,” the agency engineer added. “Fog seals are a great product with lots of benefits and potential for us. It was just that our tree canopies, curbs and gutters, cul-de-sacs, with their cure times, made them inconvenient for our residential areas.” Rejuvenators solve that problem.

In middle Tennessee, winter-induced cracking can be the No. 1 problem for city streets, and road agencies have begun looking at rejuvenators to prolong life cycles.

### CHANGING REJUVENATORS

The agency makes the choice of material, not the contractor. For rejuvenators, in

2022 PRI was using *Delta Mist*, which is a bio-based rejuvenator made from flax oil that is environmentally friendly.

Delta Mist is marketed by Collaborative Aggregates LLC, which was formed in 2015 to commercialize the green chemistry construction products and infrastructure materials formulated by the Warner Babcock Institute located in Lowell, Mass., using its *12 Principles of Green Chemistry* template.

“We've sprayed other rejuvenators but have switched over to Delta Mist because it seemed to have a quicker absorption and drying time, which means I get to do more in the day,” said Dillon West, preservation specialist and traffic control supervisor for PRI.

“It also does not have a foul odor, which we had to put up with quite a bit with other products,” he added. “In my opinion, people don't do not like the smell of the other rejuvenators. It's all about the drying time and the quality of the material.”

This bio-based rejuvenator goes down with a white, opaque color, which makes it easy to see where it's been placed. “It coats the pavement and looks like snow on the road to begin,” PRI's West said. “Within the first 10 minutes of spraying it, you can just see the oil sinking down into the asphalt, and in a half-hour the white is gone, and the asphalt surface gets a darker color. At that point it gets tacky



*As rejuvenator is absorbed into asphalt surface course, white opaque appearance becomes transparent and takes on color of existing pavement; road can be opened to traffic within an hour or two*




and sticky, which disappears in an hour and a half. Typically, on a hot sunny day, where there's no shade, I can have traffic back in an hour or two."

Because of its bio-base, overspray is not a problem for the contractor. "I could overspray the concrete curb," West said. "I could spray grass. It doesn't matter as you're never going to see it. You wouldn't even know I sprayed it."

"I know I'm probably doing more with my rejuvenators going into the pavement, putting the 'lights' in, and keeping a flexible pavement flexible," Hargett said. "We've seen a cycle in which folks understand they are doing more for their subdivision pavements with a rejuvenator, more than worrying about the surface being black."

"And if I put something that is clear, then I can help traffic get in and out of places because I'm not worried about the rejuvenator tracking onto concrete driveways," Hargett added.

Instead of a dedicated distributor truck, PRI uses a flatbed truck with an agricultural spray assembly. "We run off GPS and measure the rates we're putting down and can measure the road," West added. "It's just a simple agricultural set-up; I don't have all the levers that a distributor would have. But I can adjust everything as I have a computer inside that tells me what rate and speed I should be at, making sure I'm putting down a good product," typically 0.05 gal. per sq. yd. to 0.1 gal. per sq. yd. for most Delta Mist penetrating asphalt rejuvenator applications. 

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