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FORTA Surface-EXT Extends Slurry Seal, Micro Surface Lifespan

BY ASPHALTPRO STAFF



Incorporating Surface-EXT into micro surfacing or slurry seal applications does not require any change to mix design and does not change the way paving crews operate.

FORTA's new Surface-EXT fiber additive can extend the life of slurry seals and micro surfacing treatments by three years.

A properly-applied slurry seal or micro surfacing treatment will last an average of three to five years, depending on the state of the underlying surface. However, a new product from FORTA Corporation, Grove City, Penn., aims to extend the life of slurry seal and micro surfacing treatments by an additional three years.

Surface-EXT is an alkali- and acid-resistant glass fiber that increases pavement durability and flexural strength.

"Not only does Surface-EXT reduce cracking and distresses, but it also holds the crack together tighter and longer so there's less water penetration," said FORTA Regional Manager Garrett Lovett. "It works before, during and after the crack. That fiber is always working for you."

In January of 2017, two test sections were placed atop the asphalt parking lot of the Texas Station Hotel and Casino in northern Las Vegas. One test section was micro surfaced with Surface-EXT added to the mix, while the other was micro surfaced without the use of fiber. After one year, the lot was surveyed and it was found that the section where Surface-EXT was used showed less cracking than the section without fiber.

Added Flexural Strength to Micro Surfacing with FO...



According to flexural tension testing performed by MWV Specialty Chemical, the average flexural bend of standard mix without added fiber is 9 mm with a range between 5 to 15 mm. When Surface-EXT is added, the average flexural bend increases to 54.5 mm with a range between 35 and 95 mm.



Surface-EXT, seen in detail here, distributes evenly throughout the mix and creates a matrix to hold aggregate together.

In August 2016, Surface-EXT was integrated into the mix used for a test section paved on MnRoad, a test track operated by the Minnesota Department of Transportation. When the test sections were revisited in August of 2018, the test section containing fiber had a cracking percentage of .5, compared to 11.6 percent for the control section. Its rut percentage, in millimeters, was 2.2 percent compared to 3.2 percent for the control section.

Although Surface-EXT has been used on jobs across the country for a few years, it wasn't until FORTA finalized its feeder system that it began to market Surface-EXT more widely.

Surface-EXT is incorporated into the mix through FORTA's patented fiber dispenser, known as the Ranger. FORTA's fiber dispenser can be mounted to any continuous or truck-mounted slurry or micro surfacing equipment in about one and a half hours. It can stay on the machine at all times, whether or not fiber is being used on that project.

Once installed on the machine, contractors can simply fill the feeder with Surface-EXT pre-chopped fiber, set the dosage of the dispenser, and the feeder will dispense the fibers into the pugmill of the paver.

FORTA's recommended dosage is between .15 and 4 percent of the dry aggregate weight. Most users use about .2 percent Surface-EXT of the dry aggregate weight according to Brian Engstrom, FORTA's Pavement Preservation Consultant.



(with fiber)



(no fiber) In 2017, two test sections were placed atop the asphalt parking lot of the Texas Station Hotel and Casino in northern Las Vegas. One test section was micro surfaced with Surface-EXT added to the mix, while the other was micro surfaced without the use of fiber. After one year, the lot was surveyed and it was found that the section where Surface-EXT was used showed less cracking than the section without fiber.

The feeder is controlled with the same controls as the rest of the pugmill components.

“As soon as you turn the mixing machine on, everything comes on at the same time,” Engstrom said. Beyond attaching the feeder, Engstrom said contractors will not experience any differences in workability, paving process, or mix design.

“Surface-EXT can’t absorb anything, so it doesn’t require more material to coat it,” Engstrom said. “Everything is the same for the contractor. It doesn’t make any difference to the guys using it.”

“If you ask municipalities to change the mix design [to accommodate the fiber], things get too complicated,” Lovett said. “The chemistry behind Surface-EXT makes it simple to incorporate into the mix design without any changes. It’s sort of a no-brainer because it’s so simple to do. It’s even becoming common practice in some regions.”

The fiber is added on the front side of the pugmill, at the same time that the AC is added to the mix.

To prevent the fiber from falling to the bottom or rising to the top of the mix, Surface-EXT has the same density and weight as the asphalt mix, Engstrom said. This allows for even dispersion through the mix.

“Surface-EXT is distributed uniformly in the mix and bonds to itself, creating a matrix that holds the aggregate together,” Lovett said. “It’s sort of like a very strong spider web, catching and holding together rocks that are thrown into it.”

Both Surface-EXT and the Ranger feeder are available through FORTA Corporation.



FORTA acquired the feeders from VM Fiber Feeders, Inc., which originally developed the feeder system for Surface-EXT.

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