

Hello,

We are excited to present this first issue of Axeon Specialty Product's "Asphalt in Action" newsletter. Axeon SP is a specialty petroleum products company that boasts an East Coast terminal system with significant storage and distribution capabilities. Known for being a reliable asphalt supplier and providing proven, high-performance, cost-effective modified asphalt and warm-mix products, Axeon SP was originally part of the CITGO Asphalt Refining Company. It has since transitioned to NuStar Energy LP and NuStar Asphalt LLC before becoming Axeon SP officially in February 2014.

The purpose behind this newsletter, to be distributed electronically three to four times a year, is to provide updates and information from our Technical Services Team on our vast product line and applications, and to educate our customers on the various projects in which we are involved. Our Technical Services Team is made up of knowledgeable individuals with decades of experience who are dedicated to product development, problem solving and field support. Through this newsletter, we hope to provide technical content and detail about our specialty products and their advantages to you.

Details about our company, as well as contact information, can be found online at www.axeonsp.com. Please reach out to us to learn more about how we can help you solve your pavement problems.

Rick Bird,
Executive Vice President & President - Retail Marketing

axeon
Specialty Products

asphalt in action

a technical update



FORD MUSTANG 50TH CELEBRATION & STELLARFLEX SP - PERFECT TOGETHER

Ford Motor Company introduced the Mustang to the American driving public in 1964. Fifty years and eight million vehicles later, the Ford Mustang is the iconic "pony car" with legions of loyal owners around the world. More than 6,000 Mustang enthusiasts marked this 50th milestone with celebrations at both the Charlotte Motor Speedway and the Las Vegas Motor Speedway in April. As part of the celebration, Mustang owners got to drive their cars on the Charlotte Motor Speedway track "at speed" for two hours. Included in their number was Axeon SP Technical Services Director Ron Corun, who put his 2007 GT 500 Shelby Mustang through its paces on the track he helped pave with Axeon SP's StellarFlex SP asphalt in 2006.

Charlotte Motor Speedway was built in 1959. It is 1.5 miles long with 5° banking in the straightaways and 24° banking in the turns. It was repaved in 1973 and 1997. The track was diamond ground in 2005 in an attempt to improve traction and smoothness, but the surface was so abrasive that it destroyed tires in the first race in less than 30 laps. The surface was deemed unfit for racing.

Lane Construction milled and repaved the track in the spring of 2006 using polymer-modified StellarFlex SP asphalt binder supplied by Axeon SP. StellarFlex SP is a Styrene-Butadiene-Styrene (SBS) polymer-modified asphalt binder produced using proprietary technology that produces complete dispersion of the SBS polymer network in the asphalt. It meeting a PG 82-22 grade. Complete dispersion of the SBS polymer optimizes the rut and crack resistance benefits of SBS modification and improves product handling and workability. This dispersion also locks the SBS polymer into the asphalt for a stable product that is extremely resistant to separation.

Laboratory mix tests have shown StellarFlex SP, compared to a neat PG 64-22 asphalt, reduces permanent deformation, known as rutting (as measured by the Repeated Shear at Constant Height Test, which tests the years of traffic required to cause 10 mm of rutting), by a factor of 12; increases fatigue life (as measured by the Flexural Beam Test, which measures cycles to failure), by a factor of 100; and improves low temperature cracking performance (as measured by the Thermal Stress Restrained Specimen Test, which measures the low temperature cracking point), by 24 percent. In the last 15



years, StellarFlex SP has built a reputation for outstanding pavement performance in a wide variety of demanding applications, including highways, airports, port facilities and race tracks. Race tracks have very different performance requirements from typical highway pavements. Heavy truck traffic is non-existent on a race track, but the 3,500 lb. cars generate tremendous heat and the sticky tire compounds allow the cars to produce high G-forces which tear at the surface of the pavement. Raveling and premature aging are the most common failure modes for a race track pavement, and a fine graded mix with a highly modified asphalt able to withstand heat and G-forces is required. After eight years of racing, the sustained excellent pavement surface condition at Charlotte Motor Speedway is a testament to the quality and durability of StellarFlex SP.

Paving a NASCAR track is an extremely difficult and arduous task. The paving and compaction equipment must be supported in the 24° banked turns to prevent them from sliding down the banking or turning over. Placing an extremely smooth pavement under these conditions is difficult, but Lane Construction did an outstanding job and completed the project on schedule. The paving crew noted the excellent workability of the mix with the StellarFlex SP binder. Most new NASCAR track pavements do not allow for good side-by-side racing until the surface ages for a year, but the drivers loved the new pavement at Charlotte Motor Speedway from the first race and it is still one of the drivers' favorite tracks in NASCAR today.

[More information about StellarFlex SP is available on Axeon Specialty Product's website.](#)

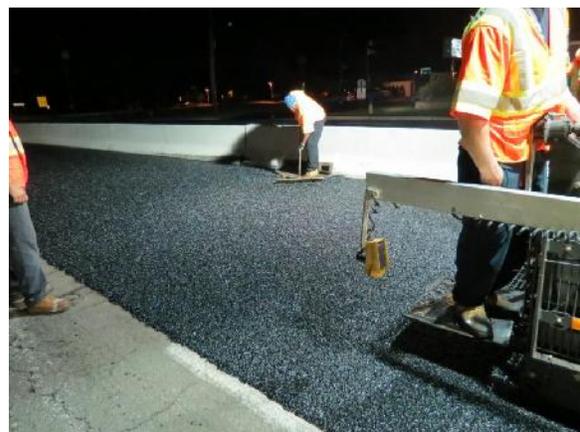
[Watch Ron Corun take his 2007 GT 500 Shelby Mustang out on the track he helped pave with StellarFlex SP asphalt.](#)



Charlotte Lap paved with Axeon Specialty Products
StellarFlex SP

STONE MATRIX ASPHALT WITHOUT FIBERS? NOW POSSIBLE WITH EVOTHERM!

Stone Matrix Asphalt (SMA) is an extremely durable asphalt mix derived from a tough aggregate skeleton filled with mastic, made of mineral filler and polymer-modified asphalt (typically PG 76-22). An asphalt content greater than 6% is required to provide durability and toughness. If the SMA mix sits for an



extended period of time during storage at the plant or transportation to the paving site, the liquid asphalt in the mix may drain down out of the mix onto the bottom of a storage silo or onto the floor of a dump truck bed. Cellulose fibers are usually specified in an SMA mix to act as sponges and prevent drain down. Adding fibers to an SMA mix requires a fiber machine, a worker dedicated to filling the machine and a dry storage area for the bags of fibers. The capacity of the fiber machine may limit the production rate of the asphalt mix plant and occasional inconsistent feed may cause clumps of fibers in the mix which appear as wet spots.

Evotherm is one of the only warm mix products available that lowers mix temperature, improves workability without decreasing the viscosity of the liquid asphalt, and eliminates the need to add fibers to SMA mixes. As reduced mix temperature cause increased viscosity of the liquid asphalt, drain down doesn't occur! Decreasing the temperature of Axeon StellarFlex SP PG 76-22 from 325°F to 275°F increases the asphalt viscosity by a factor of 3.4. Axeon SP's first tested this use of the Evotherm technology in 2009 with Trap Rock Industries on a NJDOT SMA project. The test project went well and both the NJDOT and the contractor were impressed with the finished product. Laboratory testing at Rutgers University revealed that the fiberless SMA warm mix, when compared to a standard SMA hot mix with fibers, had equal drain down performance (< 0.1% drain down), had similar rutting performance as measured by the Hamburg Wheel Tracking Device (2.2mm vs. 3.7mm) and had nine times better fatigue performance as measured by the Texas Overlay Tester (2003 cycles vs. 18,194 cycles). In 2013, Trap Rock Industries supplied 60,000 tons of fiberless SMA warm mix to the NJDOT. All of the mix met NJDOT gradation, asphalt content and volumetric requirements in the laboratory and the contractor was able to meet density and ride requirements in the field. Roadway densities were high enough to achieve a bonus payment from NJDOT.

Successful fiberless SMA test projects have recently been completed in Maryland and Virginia. Owner agencies and contractors are quickly discovering the advantages of this new technology.

For more information [see Rutgers University report](#).

AXEON SP DEBUTS AT CONEXPO

The CONEXPO-CON/AGG and IFPE 2014 tradeshow hosted 129,364 attendees March 4-8 at the Las Vegas Convention Center. The event delivered a global showcase of the newest product innovations and technologies for the construction, construction materials and fluid power/power transmission/motion control industries with more than 1,000 new products and services on display. Attendees took advantage of the shows' strong industry education programs and the unparalleled opportunity to connect with industry peers, take the pulse of what's happening and learn what the future holds. Axeon SP was there showcasing the company's new name and the line of Specialty Products that are meant for very special applications.



For more information on all Axeon SP products, visit our website www.axeonsp.com or contact Ron Corun at 410-952-4020 or Chrissy Skala at 856-579-5135. Please think of us for all your Specialty Asphalt needs.

The Axeon SP Asphalt in Action newsletter is distributed electronically and is also available on our company website, www.axeonsp.com.