



BUILDING BETTER PAVEMENT PERFORMANCE IN TEXAS

Achieving Top Performance from Tires

SigmaBond enhances the performance of your asphalt mix, sustainably.

According to TxDOT, there are more than 79,000 miles of roadway in Texas — more than any other state! With all that pavement, the Lone Star State deserves a sustainable asphalt solution that extends the life of those roads. SigmaBond can help make that a reality.

Since 2014, SigmaBond has improved the longevity of Texas pavements.

An innovative asphalt modifier, SigmaBond enables hot mix contractors to use more upcycled materials while extending the life of pavements. Utilizing Polycos proprietary Rapid Digestion Process™ (RDP), end-of-life tires are liquefied and blended to create customized asphalt formulations. With SigmaBond, we're leveraging the performance properties inherent in those tires to construct longer-lasting roads — building a sustainable infrastructure today to ensure a brighter future tomorrow.



“ We need to raise the bar as an industry — SigmaBond ensures that asphalt endures and performs. ”

– HOTMIX PRODUCER

SigmaBond Benefits

For the paving industry, SigmaBond translates into safety and cost savings. SigmaBond can be applied like any other binder — arriving at the plant ready to be added to any hot mix, without the need for special equipment. Since SigmaBond contains completely digested tire rubber, there is no mix separation or tank clean out at the end of a project. This enables faster production times and sustainable practices without compromising performance. With SigmaBond, pavements are better protected and stay darker and smoother longer — improving driving conditions for all.

For Contractors



- » Manages viscosity when adding RAP
 - » No additional equipment needed
 - » Easy workability for hot mix lay down and density attainment
 - » Improves dense graded compaction
 - » Only PG-TR that can be compacted with pneumatic roller
 - » Eliminates binder variability in results compared to field blend method
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For Terminal Operators



- » Reduces tank maintenance due to NO tire rubber settlement
 - » Lowers required temperatures with terminal blend tire rubber
 - » Low viscosity and stabilized viscosity when storing and mixing
 - » Can be blended with any asphalt stream to the required tire rubber concentration
 - » Indefinite storage stability with no physical changes
 - » Concentrated tire rubber solubility is >97.5%
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For TxDOT



- » Only tire rubber asphalt that can improve low-temperature performance with increased percentage
- » Meets all binder specifications at any tire rubber concentration
- » Successful performance in cationic and anionic emulsions or hot-applied seal coats
- » Enhances striping contrast and reduces discoloration due to carbon black from tire rubber

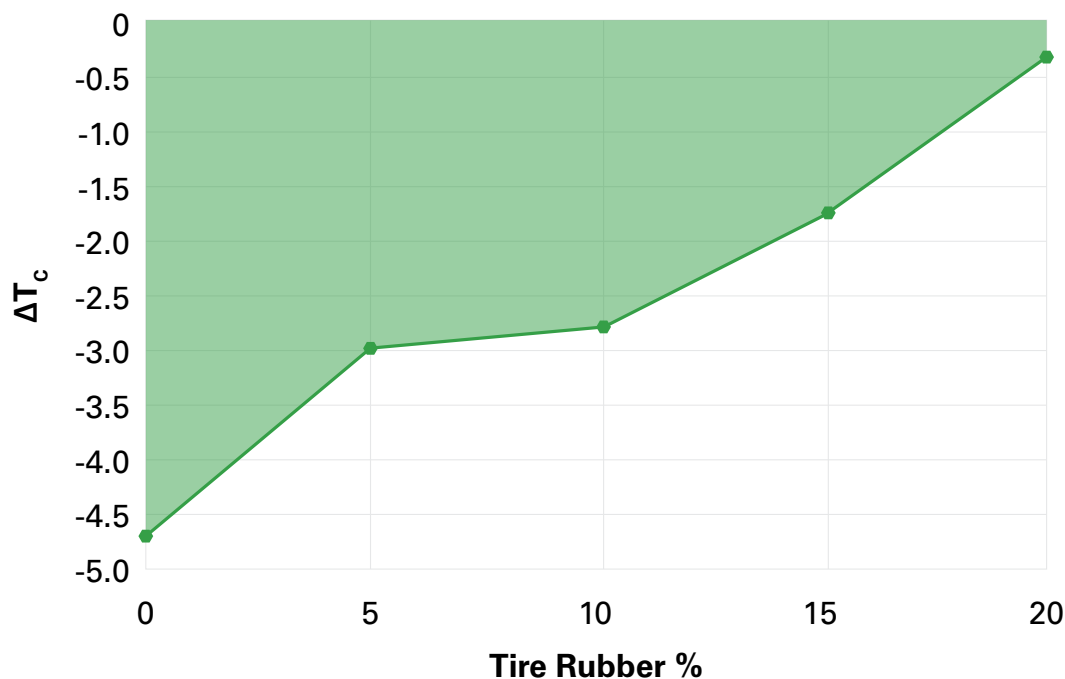
SigmaBond Stays Stronger, Longer

The proof is in the pavement.



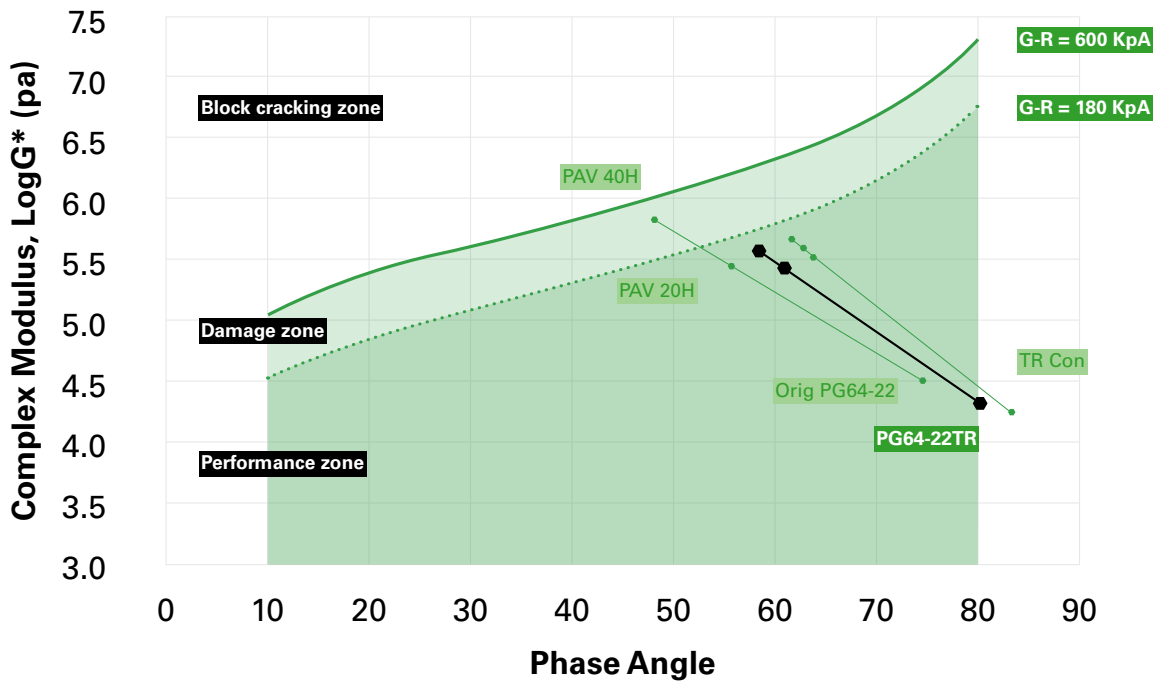
SigmaBond has been rigorously tested to ensure long-term performance. The following data are the results of binder tests run at Polyco's R&D lab. Our testing protocol used a raw, liquid SigmaBond asphalt mixture as a control, which was then blended with various asphalt streams — indicating performance improvement over time.

Resistant to Thermal Cracking



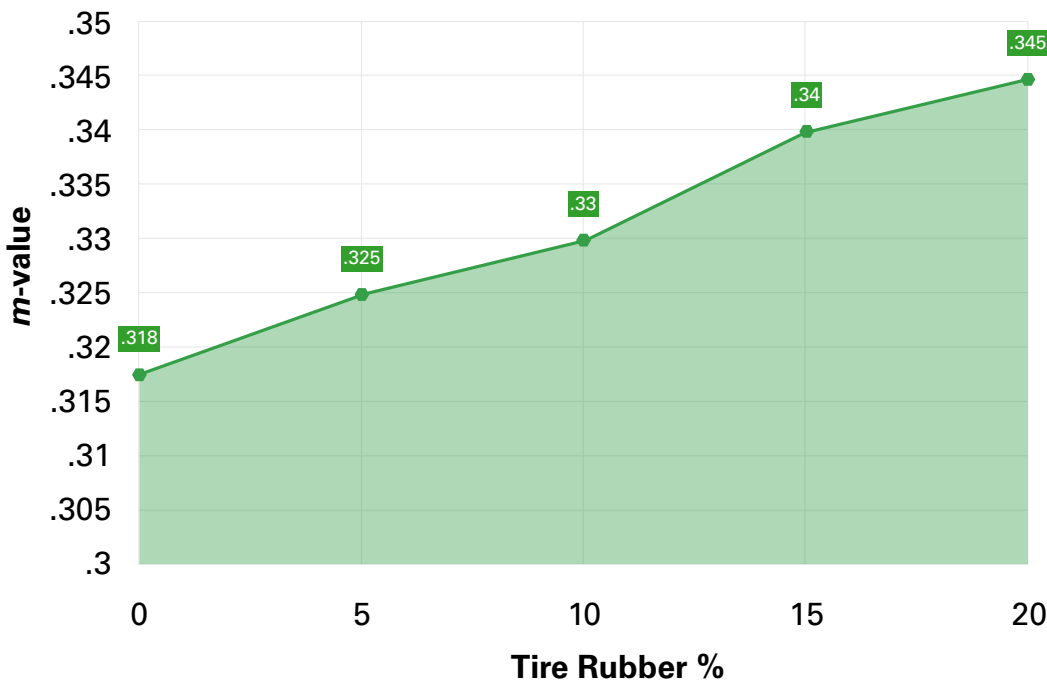
DeltaTC improves as the concentration of SigmaBond increases. Additions make no change to PG Binder grade.

Block or Fatigue Cracking | Black Space Diagram



This black space diagram highlights physical properties related to cracking as they change over aging in a pressure aging vessel. SigmaBond was aged 60 hours without approaching the damage zone — proving that, when added to a neat binder, it resists aging.

Low Temperature Improvement



As SigmaBond concentration increases tire rubber percentage, there is drastic improvement in low temperature performance. This is due to the increase in process oils released from the tire rubber.

SigmaBond Performs Across the Country

At NCAT

Two independent studies conducted at the National Center for Asphalt Technology (NCAT) at Auburn University and the University of Nevada, Reno prove that SigmaBond significantly improves fatigue resistance and thermal stability.

The results speak for themselves:

SigmaBond outperforms other standard grades on the test track.

PG76-28SR binder blended with SigmaBond at 20%+ TR and 20% RAP resulted in **no cracking after ~2 million ESALs and <5mm of rutting.**



In Texas

A city near Dallas turned to a Polyco customer to construct a four lane roadway in a heavy traffic area. The main travel lanes used a hot mix designed with SigmaBond, while the turn lanes and crossovers were paved with a standard mix using common grade asphalt. The results are easy to see. The SigmaBond pavement lasted well past the city's expected timeline, and outperformed the sections paved without SigmaBond.

**STABLE PROCESS.
CONSISTENT RESULTS.**

RAPID DIGESTION PROCESS™

SigmaBond is powered by RDP — the only process in the market that completely digests recycled tire rubber and asphalt into a homogeneous, liquefied state.

Benefits



**PREDICTABLE
PERFORMANCE**



WEATHERABILITY



**RESISTANCE TO
THERMAL CRACKING**



**ELASTIC
RECOVERY**



**HIGHER PERCENTAGE
OF TIRE RUBBER IN MIX**



**STORAGE
STABLE**



**APPLICATION-SPECIFIC
VISCOSITY**



**FASTER PRODUCTION
PROCESS**



Made in Texas, by Texans.

With two manufacturing plants in North Texas, we are proud to contribute to the economy and infrastructure of our home state.

 SigmaBond



Contact us to learn more about our advanced asphalt solutions, including SigmaBond.

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