



HIGH PERFORMANCE FRAC

# LONGER LIFE

+

# RUTTING & CRACKING ASPHALT RESISTANCE

**ACE FIBER is a true achievement in additive technology to enhance asphalt performance.**

To create ACE, Surface Tech blended aramid fibers and sasobit wax to simultaneously address the 2 major distresses effecting asphalt performance today, cracking and rutting. Not to mention dramatic life expectancy improvement.

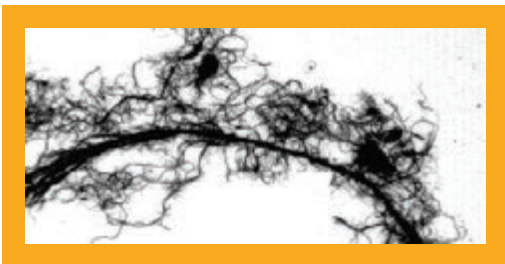
When ACE Fiber is mixed into asphalt, it disperses over 19 million aramid fibers throughout each ton of mix to provide 3-dimensional reinforcement that increases the asphalts resistance to reflective cracking, rutting, fatigue and increased life expectancy. Best of all, no specialty contractors are needed for installation. Contractors handle ACE Fiber reinforced asphalt the same way they handle standard asphalt.

**SURFACE TECH**

[WWW.SURFACE-TECH.COM](http://WWW.SURFACE-TECH.COM)

## How does ACE FIBER make asphalt more durable?

Many fibers have been successfully used to reinforce concrete, but it takes a special fiber to successfully reinforce 350 degree asphalt. Aramid is a unique fiber with 400,000 psi tensile strength and micro-roots that tenaciously anchor themselves in asphalt. In the summertime when asphalt gets hot and wants to rut, the rooted aramid provides resistance to the “flow” of asphalt to mitigate rutting. In the wintertime when asphalt is cold and wants to shrink, aramid provides added tensile strength for resistance to cracking. The bottom line...fibers in asphalt now make sense because of aramid, and for relatively low cost aramid fiber makes a big performance improvement in asphalt.



### ARAMID FIBERS UNDER MICROSCOPE

Aramid fibers have micro-roots that anchor themselves in asphalt to increase tensile strength.



## TECHNOLOGY BEHIND ACE FIBER®

ACE Fiber, is pure aramid with a wax treatment. By treating the aramid with wax, the aramid is weighted down and controlled for proper delivery into the asphalt mix. When ACE Fiber enters the asphalt mixing chamber, the wax melts to release the fibers in the right place at the right time. This unique delivery process results in the highest performing blend of Fiber Reinforced Asphalt Concrete (FRAC) in the market. Any asphalt project can benefit from ACE Fiber including both newly constructed asphalt pavements as well as thin asphalt overlay projects over deteriorated asphalt or concrete pavements.

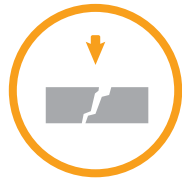
### ACE FIBER™

- ▲ 50% Increase in rut resistance
- ▲ 150% Increase in strength
- ▲ 140% Increase crack resistance
- ▲ 290% Increase in fatigue life
- ▲ 150% Increase in thermal crack resistance

### SASOBIT™ TREATMENT

- ▲ Individual coated Aramid clips, provide superior control of the Aramid into the mix
- ▲ Provides superior/thorough disbursement of Aramid into the mix
- ▲ Completely dissipates in the mix at a flash temp of 230 F; no effect on Aramid fiber once melted.

# ENGINEERED FOR PERFORMANCE



CRACKING



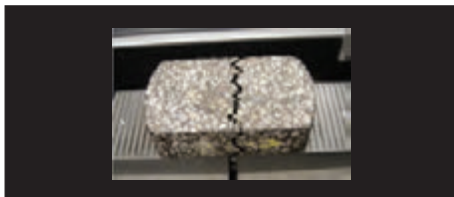
RUTTING



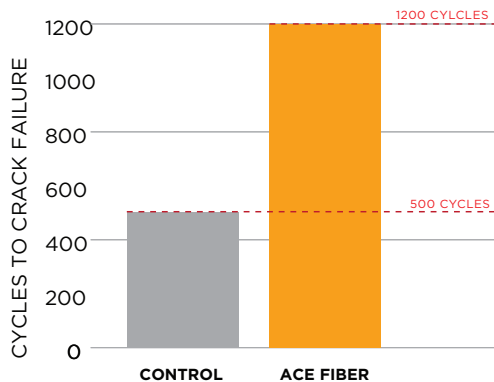
LIFE EXPECTANCY

ACE Fibers are high performance engineered fibers for asphalt that increase service life, save costs, or a combination of both. Similar to different fibers used in concrete for decades, Aramid fibers are now used in asphalt to significantly increase performance of new asphalt pavements and overlays. Aramid fibers are 5 times stronger than steel and add strength to asphalt pavement in all directions.

ACE Fiber mixed in PG 64-22 hot mix asphalt was extensively tested based on the Texas Transportation Institute's Balanced Mix Design Method to quantify ACE Fiber's cracking and rutting performance improvements as can be seen from the test results below. **ACE Fiber improved cracking resistance 140% and rutting resistance 50%.**



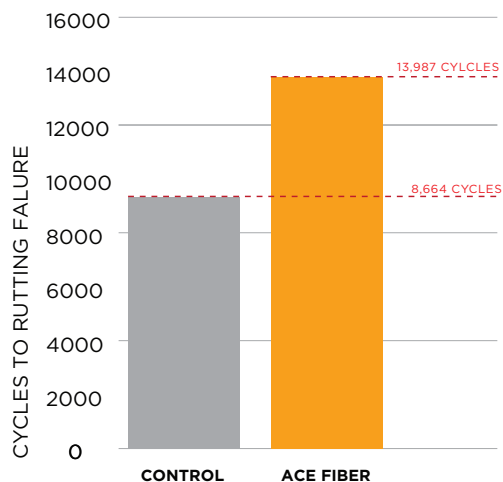
**140% Increase Crack Resistance**



**OVERLAY TESTER**



**50% Increase In Rut Resistance**



**HAMBURG TEST**

## ACE FIBER MATERIAL PROPERTIES

Aramid Fiber Reinforcement. Provide ACE Fiber (pre-treated aramid fibers) conforming the requirements below. Design asphalt mix without fiber and do not alter the final mix design for the addition of fiber at the plant. Use the dosage rate of 4.2 ounces per ton of asphalt mix of which 2.1 ounces is pure aramid). The fiber addition tolerance allowed shall be no less than 4.2 oz. and not more than 8.0 oz. per ton of asphalt mix. Please note that ACE fiber contains 50% actual aramid fiber and 50% actual Sasobit LM wax by weight.

Material (SSTM D2276)	Aramid (50% by weight)
Treatment	Sasobit LM (50% by weight)
Length	3/4"
Form	Wax Treated & Cut Fiber Clips
Color	Yellow
Specific Gravity (ASTM D276)	1.44 g/cm <sup>3</sup>
Fiber Tensile Strength (ASTM D3379)	400,000 psi
Max. Tensile Elongation (ASTM D3379)	1.8%
Fiber Melting Temperature (ASTM D276)	800 F

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## VALUE PROPOSITION

**Up to 33% reduction in asphalt thickness (at \$60/ton for asphalt, you are saving \$20 which covers the cost of ACE)**

**BONUS—50% increase in service life (10 year overlay lasts 15 years)**

**USES LESS SAVE MORE**

## MIXING PROCESS

ACE's superior delivery system ensures efficient and thorough distribution and mixing of the Sasobit and 18 million fibers that go into each ton of asphalt. When distributed and mixed, the Sasobit coated fibers provide 3-D reinforcement and property enhancements throughout the entire asphalt mix and finished pavement or overlay.

ACE Fiber can easily be included in the asphalt mixing process at both batch and drum plant facilities. Drum plants are simple to feed with ACE Fiber being added on the RAP belt in proper weight to match the mixing speed. ACE Fiber is measured in Ton Equivalents (TEs), which is based on the optimal fiber count of approximately 19 million fibers (2.1 ounces or pure aramid) per ton of asphalt mix. A standard TE of waxed ACE Fibers is 4.20 ounces and un-waxed TE is 2.45 ounces. Both versions contain 2.1 ounces of pure aramid per TE.

### Why should we consider using ACE Fiber?

ACE Fiber is made of aramid which has been proven to increase the strength, crack resistance, rut resistance, fatigue life, toughness and service life of any asphalt concrete (A.C.) mixture.

### How much does ACE Fiber cost?

Ace Fiber is between 10% and 20% of the cost of A.C. Depending upon your local asphalt mix tonnage price.

### Is ACE Fiber worth paying 10% or 20% more for?

Using the proper amount of aramid fiber can reduce the overall cost of your project and it can increase the life of your A.C. pavement. Paying 10% to 20% more for A.C. mix that performs 50% better than standard A.C. mix is the simplest financial justification for using aramid fiber. However in certain situations, you can use aramid fiber to reduce the amount of A.C. needed for your pavement sections to save costs. Using ACE Fiber can save approximately 25% in overall A.C. costs.

**For more answers to frequently asked questions visit our site at:  
[www.surface-tech.com](http://www.surface-tech.com)**

**Get the most out of ACE FIBER an NFORCE . Contact us today.**

Our SURFACE TECH design and mixture specialists look forward to answering your questions about this innovative product. Whether it concerns special applications, admixture formulations, or optimizing dosage, please contact our team. Ask us about our free consultation, introductory pricing and complimentary supplies of SURFACE TECH products for your first job.

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