



## FACT DATA | FORTA-FI®



### GENERAL DESCRIPTION

FORTA-FI® is a high tensile strength synthetic fiber blend formulated to reinforce asphalt mixes. FORTA-FI® helps to control and reduce thermal cracking, reflective cracking and rutting. In new construction or rehab projects, FORTA-FI® provides initial cost savings through reduced pavement layer thickness providing the same durability as conventional mixes or a life cycle cost reduction when placed at conventional asphalt pavement thickness, extending the pavement life. The FORTA-FI® blend contains aramid and polyolefin fibers. Aramid fibers will not melt in the asphalt mix, and are known for their strength and durability in both high and low temperatures.



### APPLICATIONS

FORTA-FI® fiber blend is added directly to the asphalt mix during production creating a three-dimensional material reinforcement throughout the entire pavement layer. This reinforcement helps control thermal, reflective, and fatigue cracking, as well as reduces rutting. FORTA-FI® is a cost effective way to improve the durability and longevity of a variety of transportation applications such as airports, streets, highways, interstates, and industrial parking lots, etc. FORTA-FI® is an innovative way to help transportation agencies achieve sustainability objectives by lowering Life Cycle Costs. Additionally, FORTA-FI® can be used as a stabilizing agent in SMA's and OGFC's.



### INSTALLATION

FORTA-FI® mixes well in batch and drum plants without compromising production. The fibers are added during asphalt production in batch plants either manually using pre-measured bags or with a Big Shot. For drum plants, bags can be placed on the RAP conveyor manually or a modified fiber feeder can be used. The fibers are added at a rate of one (1) pound of fibers per one (1) ton of asphalt mix. Add fiber during the production process ensuring minimum mix production temperatures as follows: 220°F min. for bulk fiber use; or 275°F min. for pre-measured bags (bags may not fully dissolve below 275°F).



### AVAILABILITY

FORTA-FI® can be purchased from FORTA Corporation or an authorized FORTA® products distributor, dealer or representative. Orders can be shipped by small package services, commercial carrier or air freight.



### WARRANTY

FORTA® products are warranted to be free of defects in material and meet all quality control standards set by the manufacturer. FORTA Corporation specifically disclaims all other warranties, express or implied. The exclusive remedy for defective product shall be to replace the product or refund the purchase price. No agent or employee of this company is authorized to vary the terms of this warranty notice. FORTA Corporation has no control over the design, production, placement, or testing of the asphalt products in which FORTA® products are incorporated, and therefore FORTA Corporation disclaims liability for the end product.



### INNOVATION

FORTA Corporation has spent years on engineering research and scores of projects to develop our unique fiber system. Not only do we manufacture the fibers, but also have created a proven comprehensive process to ensure successful product performance. The FORTA-FI® fiber blend and fiber feeders were designed to optimize asphalt mix performance without having to change or modify the Job Mix Formula (JMF). FORTA-FI® fiber blend can be added manually by the bag, with The Little Shot, The Big Shot, or by a modified fiber feeder, at a dosage rate of one (1) pound of fibers to one (1) ton of mix.

PACKAGING:	US SHORT TON	METRIC TON
BAGS	1.0 POUND (0.45KG)	0.5 KILOGRAMS
CARTONS	35 BAGS/BOX	35 BAGS/Box
BULK BOX	35 LBS. LOOSE IN BOX	17.5 KGS LOOSE IN BOX
GAYLORD PALLET	600 LBS. /PALLET	273 Kgs/PALLET
PALLETS	16 BOXES/560 BAGS	12 BOXES/210 BAGS (STANDARD CONT.) 28 BOXES/980 BAGS (HIGH CUBE CONT.)

#### PHYSICAL PROPERTIES:

##### ARAMID FIBERS:

LENGTH.....	3/4"(19MM)
FORM.....	MONOFILAMENT
ACID/ALKALI RESISTANCE.....	INERT
TENSILE STRENGTH.....	400,000 PSI
SPECIFIC GRAVITY.....	1.44
OPERATING TEMPERATURES.....	-100°F TO 800°F (-73°C TO 427°C)

##### POLYOLEFIN FIBERS:

LENGTH.....	3/4"(19MM)
FORM.....	SERRATED
ACID/ALKALI RESISTANCE.....	INERT
TENSILE STRENGTH.....	N/A*
SPECIFIC GRAVITY.....	0.91
OPERATING TEMPERATURES.....	N/A*

\* Fibers will melt or become plastically deformed during asphalt mix production.



**REINFORCEMENT OBJECTIVE:** To three-dimensionally reinforce pavements by controlling thermal, reflective, and fatigue cracking as well as reduce rutting.



## SAMPLE SPECIFICATION

### Proposed Modified Specification MATERIALS--

Fiber Reinforcement: Provide fibers conforming to the requirements below. Design the asphalt mix without the fiber in accordance with DOT specifications. Do not alter the final mix design for the addition of fiber at the plant. Use the fiber type specified at the rate of 1.0 pounds/ton (0.5 kg/metric ton) of total mix. Furnish with the mix design submittal certified test data for the fibers to be used on the project.

#### PHYSICAL PROPERTIES:

MATERIALS.....	POLYOLEFIN/ARAMID
LENGTH.....	3/4"
FORM.....	SERRATED & MONOFILAMENT FIBERS
COLOR.....	YELLOW
SPECIFIC GRAVITY.....	0.91/1.44
ACID/ALKALI RESISTANCE.....	INERT
TENSILE STRENGTH.....	N/A* / 400,000 P.S.I.
WORKING TEMPERATURE.....	N/A* / -100° TO 800°F

\* Fibers will melt or become plastically deformed during asphalt mix production.

#### CONSTRUCTION--- Bituminous Mixing Plant

1. Fiber Supply System. Add fiber through specialized equipment that can accurately proportion and/or meter, by weight (mass), the proper amount per batch for batch plants, or continuously and in a steady uniform manner for drum plants. If approved by the Manufacturer's Representative, fiber can be added manually by pre-weighed dissolvable bags at production temperatures 275°F and above (bags may not fully dissolve below 275°F).

Provide proportioning devices that are interlocked with the plant system and controlled to  $\pm 10\%$  of the mass (weight) of the fibers required. Perform an equipment calibration to the satisfaction of the Representative to show that the fiber is being accurately metered and uniformly distributed into the mix, or use pre-weighed bags through a feeder system equipped with electronic counting devices capable of date and time stamp print outs.

Include the following on the fiber supply system:

- Low level indicators (loose fiber feeders only).
- No-flow indicators (loose fiber feeders only).
- A printout of feed rate status in kg (pounds)/ minute, or date and time stamp each bag by print out.
- A section of transparent pipe in the fiber supply line for observing consistency of the flow or feed (loose fiber feeder only).

Have a Manufacturer's Representative approve all fiber addition systems.

When a batch plant is used, add the fiber to the aggregate in the weigh hopper and increase both dry and wet mixing times. Ensure that the fiber is uniformly distributed before the injection of asphalt cement into the mixture.

When a drum plant is used, do not allow the fibers to become entangled in the exhaust system. If there is any uncoated fibers at the discharge chute, increase the mixing time and/or intensity. Store fiber in a dry environment.

**APPROVED PRODUCT:** FORTA-FI® AS MANUFACTURED BY FORTA CORPORATION, GROVE CITY, PA, U.S.A. PHONE: (800) 245-0306 OR (724) 458-5221; FAX: (724) 458-8331



#### **FORTA Corporation**

100 Forta Drive, Grove City, PA  
16127-6399 U.S.A.  
(800) 245-0306 or (724)  
458-5221  
Fax: (724) 458-8331  
[www.forta-fi.com](http://www.forta-fi.com)

