The Ultimate Stress Absorbing Membrane

presented by

Jack Kowalski

432 McLaws Circle
Williamsburg, Virginia 23185

Cell: 757 592-1628
Utilize the Best properties of both products
Combine Emulsion with Glass Fiber’s

Asphalt Emulsions = the waterproofing membrane
Glass Fiber Strands = ability to withstand stresses and enhance tensile properties
Together they create = “The Ultimate Stress Absorbing Membrane”
FiberMat® Types A & B

Type A – Fiber Reinforced Membrane – Wearing Surface
- Polymer Modified FiberMat® Asphalt Emulsion
  - 0.4 – 0.6 gal/sy
- Fiberglass
  - 2 - 3 oz/sy
- Aggregate
  - 17 – 25 lbs/sy
  - ½”, 3/8” or ¼” and combination

Type B - Fiber Reinforced Membrane - Interlayer
- Polymer Modified FiberMat® Asphalt Emulsion
  - 0.35 – 0.45 gal/sy
- Fiberglass
  - 3 - 4 oz./sy
- Aggregate
  - 10 – 15 lbs/sy
  - ¼” blinding aggregate

Fiber Reinforced Membrane – Wearing Surface

Fiber Reinforced Membrane – Interlayer
Machine History

Mini-Machine
4 foot wide unit

Truck mounted
8 foot wide unit
Performance Review

FiberMat® Type A – Field Test
Groad Road in Murray, New York

FIBERMAT® TYPE A (Left Side of Roadway)  
CRS-2p (Right Side of Roadway)

March 2004
FIBERMAT® TYPE A
LONGITUDINAL CRACKS REAPPEARED AFTER 6 MONTHS

January 2005
FIBERMAT® TYPE A
CRS-2p
SNOW PLOW DAMAGE AFTER 2ND WINTER
Performance Review

FiberMat® Type A – Field Test
Groth Road in Murray, New York

FIBERMAT® TYPE A (Left Side of Roadway)  CRS-2p (Right Side of Roadway)

January 2006
FURTHER SNOW PLOW DAMAGE & WATER PUMPING AFTER 3RD WINTER

January 2007
DAMAGE CONTINUED NOW WATER IS PUMPING FROM SUBBASE

June 2008
REPAIRS NEEDED IN ORDER TO MAINTAIN PUBLIC SAFETY
Performance Review

FiberMat® Type A – Field Test
Groth Road in Murray, New York

FIBERMAT® TYPE A (Left Side of Roadway)  CRS-2p (Right Side of Roadway)

October 2009
Performance Review

FiberMat® Type A – Field Test
Groth Road in Murray, New York

FIBERMAT® TYPE A (Left Side of Roadway)  CRS-2p (Right Side of Roadway)

2012
EVALUATION STUDY OF FIBERMATS TYPE B INTERLAYER SYSTEM FOR ROADWAY PAVEMENT REHABILITATION

Original Report prepared by:
Ghassan R. Chehab, Ph.D.
Assistant Professor
&
Carlos J. Palacios
Graduate Research Assistant

Pennsylvania Transportation Institute
The Pennsylvania State University

Penn State University Report

Evaluation of FiberMats Type B as a Stress Absorbing Membrane Interlayer to Minimize Reflective Cracking in Asphalt Pavements

by

Arif Chowdhury, P.E.
Assistant Research Engineer
Texas Transportation Institute

Joe F. Barnes, P.E.
Senior Research Fellow
Texas Transportation Institute

Texas Transportation Institute
Texas A&M University
College Station, Texas
September 2007

Texas A & M Report
Texas Transportation Institute & Texas A & M University Findings

Figure 2-8  Schematic Diagram of TTI Overlay Tester System

Control  FiberMat
Penn State Study Field Cores

FiberMat Interlayer

Crack Terminates

No Treatment

Crack Propagates Through Overlay
Laboratory Evaluation

FiberMat® has shown to enhance the performance of an overlay by 30% (due to it’s improved fatigue and tensile stress characteristics)

FiberMat® has shown to reduce wheel-track cracking by a rate of 300%
FiberMat® on the NCAT Test Track,
Lee Road - Rt. 159 & US-280

2012 NCAT Pavement Test Track

- PG Study Planning Meeting
NCAT FiberMat® Activity
FiberMat® has been placed on three locations at NCAT

1. NCAT Test Track- Summer of 2012
   1. Section W2-FiberMat® type A

2. NCAT Lee Rd 159- Summer of 2012
   1. Section L2- FiberMat® type A
   2. Section L14 – FiberMat® type B (Cape seal – FiberMat® / Micro)
   3. Section L17 – FiberMat® type A
   4. Section L18 – FiberMat® type B – (Interlayer – FiberMat® / Thin lift HMA)

   1. Section U24- FiberMat® type A
   2. Section U25 – FiberMat® type B (Cape seal – FiberMat® / Micro)
   3. Section U36 – FiberMat® type B (Interlayer _ FiberMat / Thin Lift HMA)

4. MnROADS – Starting the Summer of 2016
NCAT Test Track Section W2 - FiberMat® type A
Photos taken summer of 2015 after 10M easls

W2 is located in the west turn of the track

Still performing after 10,000,000 esals
NCAT Website - www.pavetrack.com/performance
FiberMat® Operation

Trailer mounted 13 foot wide unit
FiberMat® Storage Area

Fiber Storage

4 Pallets of fiberglass packaged in 48 sonotubes

Enough fiber for 40,000 + sq. yds. without refilling
FiberMat® Operation
Computer Controlled

Regulate production on the fly
Manage width in one foot increments
from 13’ wide to 2’ wide

Steerable trailer
FiberMat® Cutter Assemblies

Easy to work on with folding bars

1st Spray bar

2nd Spray bar

Cutter Assemblies

Underside of application unit
Chopped Glass Fibers

1st layer of Emulsion

Air Box with Cut Fiber Strands

The FiberMat® Trailer

Chopped Glass Fibers

2nd layer of Emulsion
Cut Fiberglass strands are placed between two layers of Emulsion

An aggregate is placed on to protect the layers of Mat
The Ultimate Crack Inhibiting Membrane

The Right treatment, to the Right road at the Right time.
When should FiberMat® be used?

- When existing surface is showing signs of distress such as . . .
  - Alligator, fatigue and reflective cracking

- FiberMat is used...
  - As a stress Absorbing Membrane
  - As a Stress Absorbing Membrane Interlayer - (SAMI) with a Wearing Course
  - As a replacement for the textile and grid markets (paving fabrics)
What’s a Good Candidate?
Drainage should be good
Ruts should be filled prior to commencement of work
Cracks larger than ¼” should be filled before FiberMat® is applied. Crack filling and pothole repair should be done in the fall the previous year.
The surface should be structurally sound
Surface should be swept to remove all debris (leaves, loose stone, dirt, etc.)
FiberMat® wins head-to-head comparison with Paving Fabric
Route 609 Hopewell, VA

Prior to the FiberMat® Process
Route 609 Hopewell, VA
During the FiberMat® Process
Virginia Beach Boulevard
Virginia Beach, VA
Virginia Beach Boulevard
Virginia Beach, VA
Recyclability

FiberMat® has been proven to be 100% Recyclable
FiberMat® was designed to . . .

- enhance tensile strength and reduce reflective cracking.
- be quickly applied and easily shaped.
- have great wearing as well as tensile properties.
- be used at various levels in the pavement structure.
Seal cracks and waterproof the pavement
Improve tensile strength and delay reflective cracking
Improve friction characteristics of existing pavement
Used anywhere within the various levels of the pavement structure
Quickly & Easily placed and shaped
100% Recyclable
How does FiberMat® add value to your new pavement?

- Slows reflective cracking
- Improved Chip Retention
- Extended Life of the surface treated road
- Extended Life of the HMA Surface
- Prevents water intrusion into sub-base
FiberMat® placed on Compacted Road Gravel

Double Gravel Seal with FiberMat Yellowknife N.W.T. (2010)

Gravel Seal Installation, Alberta (2012)

Around the World it’s called – Otta Seal
FiberMat® placed on FDR
Any Questions?