

PRI PRI Asphalt Technologies, Inc.

Development of the Asphalt Pavement Analyzer – Reflective Crack Resistance (APA-RCR) Test Method

SEAUPG Annual Meeting
November 17-20, 2008
Birmingham, Alabama

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Background

- Geosynthetic fabrics have been used in pavement construction for the last twenty five years.
- A variety of geosynthetic fabrics are used today:
 - Glass mat based
 - Polyester mat based
 - Hybrid fabrics
- A simple performance test is required!

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Experimental (Continued)


- APA was selected because of its widespread use in the industry and by state agencies.
- Can handle 6" Cores and Slabs
- Sample geometry can be easily modified to create desired strains for crack propagation.
- Test can be performed in a short period of time.

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Experimental - Sample Preparation

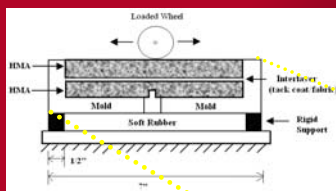
- Slabs were prepared using Slab Compactor
 - Prepared in two lifts to simulate construction
- 12.5 mm SUPERPAVE Mix Design
 - Air Voids 7 +/-1%
 - Binder PG 64-22
 - Tack Coat (CRS-2 (0.02 gal/yd²) – Control, PG 64-22 (0.23 gal/yd²) – Fabrics)
- Slab was cored and cut to final dimensions




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Experimental - Test Assembly



- Loading – 120 psi
- Rate – 1 Hz
- Temp – 77±2°F
- Time – 10,000 cycles

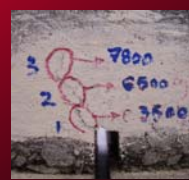


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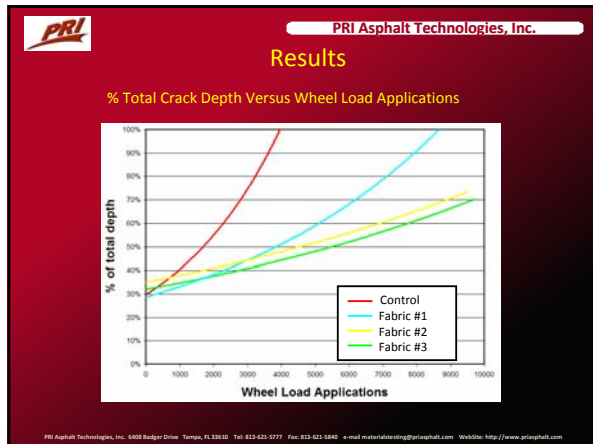
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Experimental Results

- Crack propagation was monitored both with video and LVDTs.



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- ### Conclusions
- The APA-RCR was able to differentiate the performance of the various fabrics.
 - This method can also be used to evaluate:
 - Tack Coats (type and application rate)
 - Crack Sealants
 - Stress absorbing membranes
 - Various overlay designs
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Thank You!

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