NTPEP Joint and Crack Sealant Evaluation Update

2006 MPPP Meeting

Presented by Jim McGraw
NTPEP Oversight Committee
Purpose of NTPEP...

“NTPEP pools the physical and professional resources of State DOTs to coordinate national evaluation on proprietary, engineered products of common interest, including a wide array of highway safety products, construction and maintenance materials.”
Data Mine

Reference
The reference section allows users to view and download the PMM reference documents. The reference documents are classified by year, thus providing access to previous as well as latest references.

Search
Search the specific pavement marking product by selecting appropriate Properties of the product. Select attributes like Manufacturer, Color, Component used or even you can search products based upon their reflectivity or color data.

Explore
Explore reports of specific PMM Products. Reports are organized by each Test Deck site as well as they are organized by comparative charts for the product properties.

Visualize
Draw x-y Color graphs as well as property vs. time graphs for PMM Products. Specifications can be overlaid on the graph to provide you visual clarity if a product satisfies the standards or not.

Export
Interested in further analysis of NTPEP's PMM Data? Download selected data as Microsoft Excel spreadsheet or Microsoft Access database.
Joint Sealers for PCC Pavements

• Mn/DOT hosted the first NTPEP field evaluation of Concrete Joint Sealers in September ‘03.

• 3 yr field and lab evaluation

• 18 Products will be tested from 9 manufacturers.
Water Infiltration

Water Infiltration -
\[ \%L = \left( \frac{L_f}{L_{tot}} \right) \times 100 \]

No Water Infiltration:
\[ \%L = 0\% < \%L < 1\% \]

Low Severity Water Infiltration: 1\% < \%L < 10\%

Medium Severity Water Infiltration: 10\% < \%L < 30\%

High Severity Water Infiltration: \%L > 30
Subjective Rating for Debris Retention

Photos used to establish visual rating system
Seal Condition Number (SCN)

- SCN – water infiltration and debris retention.
- Low, medium, or high severity distress
- SCN = 1(L) + 2(M) + 3(H)
Silicone Joint Sealants

- 6-Non Sag Silicone
- 6-Self Leveling Silicone
- 2- 2 Component Silicone
Hot-Pour

- 3- ASTM D6690-Type IV- Low Modulus
- 30-60% Resilience for Minnesota Climate
- 1- Coal Tar-PVC
JS-PCC Second Year Results
Cohesion/Adhesion Loss

- Hot Pour/NS/SL – 3%
- 1/8” – 51%
- Neoprene - 0.5%
- Unsealed
2005 Crack Sealant Evaluation

- September 2005
- 12 Hot-Pour Sealants
  - Type II/IV
  - Mn/DOT 3723/3725
- 7 Manufacturers
- 5 Contractors
- Mn/DOT/NCPP
2005 Crack Sealant Evaluation

- 2001 3” OL/6”BOC
- Rubblized Concrete
- 25-30’ crack spacing
- No secondary cracks
- 1/16 – crack opening
- 21,900 AADT
2005 Crack Sealant Evaluation

- Overband/Band-Aid
  - 3 ½ - 4” width
  - 1/16- 1/8” thick

- Routing
  - 9- 1” x 1”
  - 1- ¾” x ¾”
  - 2- 1” x ½”

- Lab Testing
- Tracking/RV
CS November Review

- Rout Filling/tape
- Wheel Track Wear
- Nov. Crack Opening-1/8”
Allied Research- Joint Sealant

- Extend Evaluation time
- 1-Neoprene
- 3- Unsealed
- 1/8” Mn/DOT 3723
- Redo Mn/DOT APL
Allied Research- Crack Sealant

Control – no sealing

¾” x ¾”- Low Mod

¾” x ¾”- 3405
NTPEP Sealant Technical Committee

- Next - Add Crack Filling
- Add other locations
- Loop Detector Sealant
PB-CS Selection
Construction Practices
Best Practice
New QPL/APL
Training Video
- Pre-con Meeting
- Certification
Benefits to Mn/DOT

- Quick and Cheap Method to evaluate Construction and Maintenance products
- Easy method to generate Approved Product Lists
- Keep current on new technologies
- Networking with National Experts
- Advance expertise within Mn/DOT
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Questions?