Priority One – Crack Sealing

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Why you need to crack seal!
Incompressible Intrusion
“Working” vs. “Non-working” cracks

- Working
  - > 3 mm
  - Thermal
- Non-working
  - < 3 mm
  - Longitudinal
  - Fatigue
  - Block
Two different treatments

• Crack sealing
  • Rout and Seal
  • Goal sealed year round

• Crack filling
  • Blow & Go, Clean & Seal
  • Cracks will open in winter
  • Reseal in warm weather
Crack Sealing

- In thermal cracks
- Routed reservoirs
- Pavements in good condition
  - > 20’ transverse crack spacing, minor severity of other cracking
- Sealants that are flexible and extensible at lowest temperature encountered
Thermal Crack
Rout Size Recommendation

Configuration A
Standard Reservoir-and-Flush

Configuration B
Standard Recessed Band-Aid

Configuration C
Shallow Recessed Band-Aid
Routing

• Rout at least 1/8” from each crack face
• Keep centered over crack
• Reduce spalling by using as many cutters as possible
Check Width & Depth
Clean reservoir
Melting Sealant

- Follow Manufacturer’s recommendations
  - Recommended pouring temperature
  - Maximum temperature
  - # of heating cycles
  - How long
- Temperature at the end of wand
- Recommend sampling out of wand
MAXIMUM AIR PRESSURE -100 PSI
MAXIMUM AIR FLOW -180 CFM

MATERIAL THERMOMETER

TANK OUTLET VALVE

- TURN AIR OFF AT COMPRESSOR BEFORE ATTEMPTING TO CONNECT OR DISCONNECT AIR FREE TO AIR CLEANOUT PORT
- WEAR APPROVED FACE SHIELD

-NOTE
OPEN VALVE TO FULL ON POSITION DURING OPERATION
CLOSE
Single Fill Method Flush
Double Fill Method
Double Fill Method

- Flush filled with thin narrow OB
- 2 Kettles needed
- 1\textsuperscript{st} fill reservoir \(\frac{1}{2}\) to \(\frac{2}{3}\) full
  - Allow couple minutes for sealant to cool and set
- 2\textsuperscript{nd} finish filling reservoir and create OB
Crack Filling Treatment

• In longitudinal, block, fatigue and closely spaced transverse cracks (< 20’ spacing)
• In wheel paths and high traffic areas
• Stiffer using more “traffic resistant” product
• Routed or non-routed reservoirs, over-band application
Crack Type – Longitudinal
Fatigue Crack
Not a Candidate for Crack Sealing
Pick Best Sealant for Climate

Three Step Sealant Selection

1. Determine whether to Crack Seal, Crack Fill or Joint Seal by using the Pavement Evaluation Guide link below.

2. Select your Temperature Model by selecting the "High" and "Low" temperatures in your region using the temperature guide maps below.

3. Cross reference the high and low temperature on the charts below to determine the proper sealant for your application. (Click on your selection)
Sealants

- Crumb rubber
  - Clean and seal
- Low modulus
  - Clean and seal
  - Rout and seal
- Extra low modulus
  - Rout and seal
  - Transverse cracks only!!!
Cohesive Failure
Basic Needs for All Installations

• Clean - most important
• Dry
• Intact pavement
• Proper temperature (pavement 40°F and application of sealant at manufacturer’s recommended temperature)
Cleaning Methods

- Routing - cuts new bonding surface
- Compressed air - sufficient pressure and velocity
- Vacuum - in combination with compressed air
- Heat lance - used to condition pavement
Clean Cracks
Sealant Application – Over-band

• Maximum 1/8” thick
• Maximum 3/4” over-band on each side of crack
• Over-band – best performance (SHRP/FHWA)
Neat Application
Recommended Over-band Appearance (Non-Rout/Clean & Fill)
Not Recommended
Asking Water to Jump the Crack
Don’t forget edge joints
Summary – Why Crack Treatment?

• Prevents water intrusion into subbase
• Prevents incompressible intrusion
• Improves ride quality smoothness
• Slows down pavement deterioration
• COST-EFFECTIVE
Questions?
Thank You!