NCAT Pavement Test Track

Experience with Rejuvenators



Why Rejuvenators?

- 2 AC tanks (neat, polymer) common in many markets
- Aged(+) binder quality not the same as virgin binder
- Volumetrics don't necessarily relate to mix quality
- BMD for cracking, rutting performance indicators
- Recycling agents for aged/higher RAP contents
- Difference between softeners and rejuvenators
- Agency assurance for long term benefits.



National Center for Asphalt Technology

- 1986 partnership between the NAPA Research and Education Foundation and Auburn University
- Provide innovative, relevant, & implementable research, technology deployment, & education that advances safe and sustainable asphalt pavements

NCAT Pavement Test Track operational since 2000.
 MnRQAD

History with Rejuvenators

2015 - N7_{Delta S}
 2016 - CSAH-8₂₉, US-169₂₂
 2018 - N7_{Delta S}, S1_{Evoflex}, N3_{Anova}
 2021 - S1_{Evoflex}, N8_{EcoBlend}, R8_{BioMAG}, R9_{ReCharge}, R10_{Delta S}





















Rejuvenator Implementation

- Role of balanced mix design (BMD) in process
 - Critical aging for mix design approval
 - Plant aging for production threshold

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- Verify critical aging in control strip/startup
- No aging for construction quality testing
- Minimum value consideration of statistics
- Local threshold criterion for design/construction
- Binder content and gradation tolerances/PWL.

2021 NCAT Pavement Test Track

Traffic continuation on N3 Anova experiment (3→6 years)
Traffic continuation of S1 Evoflex section (3→6 years)
New N8 with Evoflex (base) and EcoBlend (surface) (vs S1)
Off-ramp rejuvenated cold recycling (RCR) experiment







Takeaways

 Start with volumetrics, end with performance Prevent failures AND incentivize innovation/ sustainability Role of recycling agents (rejuvenators versus softeners) Start with construction tests, work back to design approval Aging for design approval, unaged for fast construction 4-hour turnaround from sample pull to test results <u>Everyone should be studying their mixes, options, costs !</u> MnROAD



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