RPF Task Group on Bituminous Materials (BitMat Committee)

Road Pavement Forum

November 2017 Pretoria

Steph Bredenhann

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Objective and Role of Committee

- Objectives
  - Providing direction to the various working groups
  - Act as national standard committee for bituminous materials
- Role
  - Review documents drawn up by the working groups and offer input
  - Coordinate and manage the various working groups and determine if more work is required
  - Reports by the conveners of the numerous sub-groups working on current initiatives will be presented and discussed with regards to progress, feedback, challenges, program, etc

Active Projects

- TRH1 Revision: Prime coats and curing membranes (Gerrie van Zyl)
- TRH3 Revision: Seal design (Gerrie van Zyl)
- TRH8/Sabita Manual 35 – implementation
- TRH21 Asphalt recycling – implementation
- TG1 Update: Modified binders: add S-R2/A-R2 binders
- TG2 Update: Bituminous stabilisation (Kim Jenkins)
- TG3 Update: Asphalt reinforcement (Phillip Joubert)
- Performance-grade Binder Implementation (Steph Bredenhann)
- Sabita Manual 19: Bitumen-rubber asphalt mixes – implementation
- Sabita Manual 33: EME Working Group (Johan van Heerden)
- Cold mix asphalt (Dennis Rossmann)
- Trackless tack (Dennis Rossmann)
- SABS Affirmations

EME Working Group: Objective

- Promote the correct use and application of EME
- Facilitate the appropriate design of mixes for various environments
- Correct linkage with pavement design procedures
- Sabita Manual 33 should be revised accordingly

EME Working Group Actions

- Identify categories of application of EME in terms of operating environments
- Examine appropriate “curing” periods prior to opening to traffic
- Minimum surfacing thickness/type in terms of sound practice
- A quick test method to gauge the suitability of the intended binder
- Recommendations on the appropriate values of structural design inputs for a set of environmental conditions. (e.g. flexural stiffness values to be adopted for a range of ambient temperatures)
- A coordinated effort should be made to obtain field data representative of the application categories identified and to report on the condition/performance of the EME
- HWTT criteria currently in Sabita Manual 35 should be affirmed for EME to replace the SST-CH for routine design
- A laboratory test programme should be formulated to update transfer functions for performance criteria

TG1 Update: Add S-R2 and A-R2 Binders

- In current TG1 only S-R1 and A-R1 specified
- No specific provision for new technology, but there is a protocol for introducing a new binder
  - Laboratory testing
  - Field trials
- Now there are more than one supplier that warrants a rethink

TG1 Update: Draft specification (to be approved)

Property		Unit	Test Method	S-R2	A-R2
Softening point[1]		°C	MB-17	65–80	65–80
Dynamic viscosity @ 190°C		dPa.s	MB–13		
Dynamic viscosity @ 170°C*		dPa.s	MB–13	10 - 40	10 - 40
Compression recovery	5 min.	%	MB-11	>70	>70
	1 hour			>70	>70
	24 hours			>40	>40
Resilience @ 25°C		%	MB–10	10 - 40	10 - 40
Flow at 70°C		mm	MB–12	0 - 40	0 - 40

Note: In P-G Specification no additional requirements necessary as specification is "binder blind"

TG1 Update: Application

CONVENTIONAL A-R1	A-R2
200°C	180°C
175-180˚C	140-150°C
135°C minimum	100° minimum
4-8 hours @ 190-200°C (12-15hours)	~14 days @ 150°C

SA PG Binder Specifications (BitSpec Subcommittee)

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Implementation Plan

- Introduction to industry on 25th January 2016
- Workshops to inform indu March 2016
  - 15th in Johannesburg
  - 16th in Cape Town
  - 17th in Durban
  - 18th in Port Elizabeth
- Bitumen Rh gy Masterclass
  - 21-23 Jun n Pretoria
  - Intern experts
  - Followed up April 2017 in Cape Town
- Two-year parallel implementation
  - Include data analyses and research

Completed

Ongoing

Two-year parallel Implementation

- Data analysis
  - Majority of SA bitumens analysed
- Research
  - 5 Masters at Stellenbosch University – 4 finalising
  - 1 PhD at CSIR – completion early in 2018
- Fingerprinting
  - still to be done, but actions identified
- SANS Specification in progress but behind schedule
- Interim implementation is COTO and Client pro-formas
- Implementation in July 2018 still on track, getting tight

Thanks