48TH ROAD PAVEMENTS FORUM

Update - Road to PG Specification – SANS 4001-BT10

Phil Hendricks, Georges Mturi, Steph Bredenhann

PURPOSE OF PRESENTATION – STATUS UPDATE

National Committee SABS/TC 081/SC 08 Construction materials, products and test methods – Bitumen and bituminous products

CHAIR GEORGES MTURI
SABS process/operations regarding development and approval of specifications
Mechanisms to ensure contentious issues are dealt with and how to table your views

FEB 2023 - Working Group to look at the conversion of SATS 3208 to SANS 4001- BT1 - Identify gabs in the standard, deal with issues arising from the industry.

CHAIR PHIL HENDRICKS
Recap on where we are
Progress since November feedback

RPF PG Binder Implementation

CHAIR STEPH BREDENHANN
Role of WG and progress since its formation
Issues on the table for the WG in period ahead

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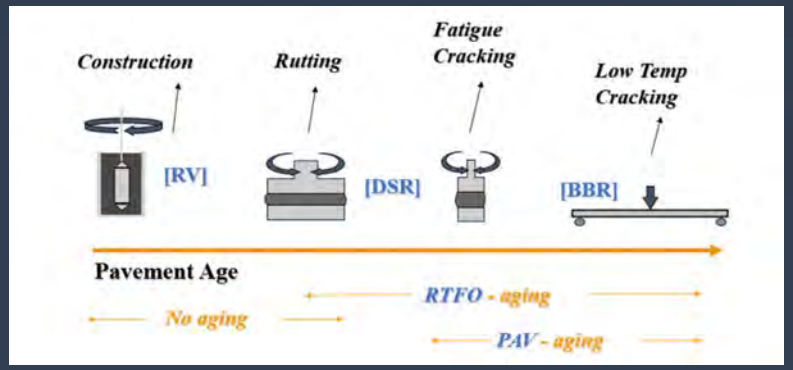
11TH CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA



Performance based tests with appropriate aging regimes

Test Property	Traffic class S	H	V	E	Test Method
Max pavement design temperature (°C)	T_{max}				
Minimum grading temperature (°C)	T_{min}				
Tests on Orginal Binder					
G* and δ at [(T_{max} + T_{min})/2+4]°C	Compulsory report only				ASTM D7175
G*/sinδ @10rad/s (kPa) @ T = T_{max} Report G* and δ separately	Compulsory report				ASTM D7175
Viscosity at 165°C (Pa.s) ≥ 30 sec^{-1}	≤ 0.9				ASTM D4402
Storage Stability at 180°C (% diff in G* at T_{max})	≤ 15				ASTM D7175
Flash Point (°C)	≥ 230				ASTM D92b
Tests on Binder After RTFO Ageing (ASTM D2872 / TG1 MB3)					
G* and δ at [(T_{max} + T_{min})/2+4]°C,	Compulsory report only				ASTM D7175
Mass Change (% m/m)	≤ 1.0				ASTM D2872 / TG1 MB3
J_{nr} at T_{max} (kPa^{-1})	≤ 4.5	≤ 2.0	≤ 1.0	≤ 0.5	ASTM D7405
Ageing ratio [G^*_{RTFO} / $G^*_{Original}$]	≤ 3.0				ASTM D7175
After RTFO & PAV Ageing (ASTM D6521)					
G* and δ at [(T_{max} + T_{min})/2+4]°C,	Compulsory report only				ASTM D7175
Maximum creep stiffness tested at temperature [S (60s) ≤ 300 MPa]	T_{min} + 10°C				ASTM D6648
Minimum m-value tested at temperature [m (60s) ≥ 0.300]	T_{min} + 10°C				
ΔT_c (°C) = $T_{c,S}$ - $T_{c,m}$	≥ -5				ASTM D7643
Ageing ratio [G^*_{PAV} / $G^*_{Original}$]	≤ 6.0				ASTM D7175

SATS 3208 to be used in parallel with the SANS 4001 – road authorities were to specify accordingly

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October 2023 – Draft report and draft specifications submitted to SC08

Response report received November 2023

SABSTC081SC08 Feedback to the Report by the SANS 4001-BT10 WG

Reply | Reply All | Forward

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Thu 16/11/2023

You forwarded this message on 16/11/2023 11:53.

SABSTC081SC08 Feedback to the Report by the SANS 4001-BT10 WG_v2.docx
.docx File

Dear Phil

Hope you are doing well.

Thank you very much for all your efforts to set up the WG, to submit a report, and in presenting the WG's feedback.

The sub-committee (SC08) members (and recommended others) have applied themselves and given a comprehensive set of comments, which is a testament to the clarity of your feedback.

I have summarized, grouped, and clarified the SC08 comments in the attached document. We have also provided the SABS views and my recommendation of the appropriate way forward (where I could).

PG Spec Experts Workshop – Oct 2024

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CATEGORY	COMMENT SUMMARY	DETAILED ISSUES
Viscosity specifications	Viscosity specification has been changed and not aligned to Sabita manual TG1 - The Use of Modified Bituminous Binders in Road Construction	The viscosity specifications of 0,6 Pa. s as per T-G1 on its highest conventional or modified binder has been changed to 0,9 Pa.s. under the SANS BT10 specification affecting the complex flow.
Economic feasibility	Does the SABS consider the economic feasibility of new standards.	Does the SABS consider the economic feasibility of new standards? SATS 3208 was costly for the industry to implement for any part of it to be changed in the near future and result in expensive equipment becoming redundant.
Availability of ALL work that informed SANS 4001-BT10	Essential information must be made publicly available on the classification R&D that was (and is presently done) for SANRAL and SABITA.	• With current project specs and testing it is essential to provide an industry perspective since Covid and advent of Import Bitumen. If we do not know where we are, how would we know where to go. • Essential information must be made publicly available on the classification R&D that was (and is presently done) for SANRAL and SABITA so everyone can have a full understanding of what the overall picture looks like. Binder Suppliers work nonstop to classify and understand where we are at with PG. Make it available before we embark on this SANS 4001-BT10 journey. • R&D was generated with taxpayers' money and should be used to protect taxpayers' interest.
Validity of work that informed SANS 4001-BT10	There is the belief that the data sets used for the drafting of the SATS 3208 and SANS 4001-BT10 are outdated. Definition and use of the minimum temperature Tmin - It will continue to disqualify perfectly good binders that has performed based on TG1 and SANS 4001-BT1 guidelines.	• Binders supplied into the market according to SANS 4001-BT1 are not meeting the PG grading requirements and are being disqualified. • Binders are not making the low temperature requirements for the minimum temperature of Tmin. • 10/20 used successfully in Europe is deemed "unsuitable" based on PG requirements and compared to material that is extinct in the RSA and global context. • The fallacy that Binder Suppliers or users can easily modify binder properties to meet the PG requirements is impractical.

- *Viscosity specification*
- *Economic feasibility?*
- *Availability of ALL work that informed SANS 4001-BT10*
- *Validity of work that informed SANS 4001-BT10*
- *Short Term Ageing: RTFO ageing*
- *$\Delta Tc = T_{c,S} - T_{c,m}$*
- *Temperature maps (T_{MAX} and T_{MIN}) and Intermediate Temperature (T_{INT}) Definition*
- *Useful Temperature Interval (UTI = T_{MAX} and T_{MIN})*

Detailed issues dealt with and in some cases plan to look at additional data in place

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POST 47TH RPF (NOV 2024) RPF PRESENTATION

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A critical issue that most delegates subsequently point out missing (or not captured) from the resolutions concerns the incorporation of crumb rubber modified binders into the specification — this matter is currently being re-discussed in the Working Group.

SABS SC08 - Working Group met on 12 February and will meet again shortly. This and other issues will be discussed, and everybody has the opportunity to engage with the WG and share their views and data. Georges will highlight the processes that the WG has to rigorously apply to ensure it meets with the expectations of SABS.

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PG WG on Implementation – Steph Bredenhann

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ROLE OF IMPLEMENTATION WG

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Develop Implementation Plan

➢Communication the plan - stakeholders

➢ Facilitate Workshops and Training Courses

➢Facilitate collaboration - SARDS / SAPEM

➢Promote PG testing and investigate further data/research sets

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SOME OF THE IMPLEMENTATION ISSUES FOR INCLUSION IN PLAN POST STELLENBOSCH

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ISSUE	RECOMMENDATION FOR PGIWG
G*sinδ	**PGIWG to develop a plan for analysis of data collected from South Africa binders to build upon the data set available internationally to support the implementation of the AASHTO M332 G*sin δ parameter. GR, Pavel Kris to be further evaluated through the elective tests for future consideration**
T_{int} used for evaluation	**PGIWG to further evaluate data from South Africa to confirm the calculations and maps presented.**
Asphalt Mix Design Form – D3	**PGIWG to provide guidance on how the "report only" items on the D3 form are be handled in future and what is the relevance of reporting them?**

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SOME OF THE IMPLEMENTATION ISSUES FOR INCLUSION IN PLAN POST STELLENBOSCH

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ISSUE	RECOMMENDATION FOR PGIWG
Site QC/QA control testing	**PGIWG to provide guidance related to site testing equipment, testing correlations.**
Material Testing	**PGIWG to discuss any revisions required to the processes currently in place to make the analysis of the results more equitable, to look at competence testing and equipment calibration issues.**
Testing Duration	**PGIWG to provide guidance on the repeatable limits for S.A. taking into consideration modified and unmodified binders.**

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