



ROAD PAVEMENTS FORUM

7 & 8 May 2013

**Progress Report on SANS
Methods**

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Progress as at April 2013

SANS 3001: TEST METHODS STATUS	NUMBER	
	April 2012	April 2013
First Draft	1	8
Awaiting comments from Industry	1	1
Second draft	7	5
Methods with SANS	24	22
Methods already published by SANS	36	45
Total	69	81



45 No TEST METHODS + 2 Bit Specs PUBLISHED by SABS – May 2013

SANS 3001-AG1

Civil engineering test methods Part AG1: Particle size analysis of aggregates by sieving

SANS 3001-AG2

Civil engineering test methods Part AG2: Determination of the average least dimension of aggregates by direct measurement

SANS 3001-AG3

Civil engineering test methods Part AG3: Determination of the average least dimension of aggregates by computation

SANS 3001-AG4

Civil engineering test methods Part AG4: Determination of the flakiness index of coarse aggregate

SANS 3001-AG10

Civil engineering test methods Part AG10: ACV (aggregate crushing value) and 10% FACT (fines aggregate crushing test) values of coarse aggregates

SANS 3001 AG13

Civil engineering test methods Part AG13: Determination of the soundness of mudrock aggregates (Venter test)

SANS 3001 AG15

Civil engineering test methods Part AG15: Determination of rock durability using 10% FACT (fines aggregate crushing test) values after soaking in ethylene glycol

SANS 3001-AG20

Civil engineering test methods Part AG20: Determination of the bulk density, apparent density and water absorption of aggregate particles retained on the 5 mm sieve for road construction materials



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SANS 3001-AG21

Civil engineering test methods Part AG21: Determination of the bulk density, apparent density and water absorption of aggregate particles passing the 5 mm sieve for road construction materials

SANS 3001-AG22

Civil engineering test methods Part AG22: Apparent density of crushed stone base

SANS 3001 AG23

Civil engineering test methods Part AG23: Particle and relative densities of aggregate

SANS 3001-GR1

Civil engineering test methods Part GR1: Wet preparation and particle size analysis

SANS 3001-GR2

Civil engineering test methods Part GR2: Dry preparation and dry particle size analysis of gravels and sands

SANS 3001 GR3

Civil engineering test methods Part GR3: Particle size analysis of material smaller than 2mm (hydrometer method)

SANS 3001 GR5

Civil engineering test methods Part GR5: Wet preparation and air-drying of samples for plasticity index and hydrometer tests

SANS 3001-GR10

Civil engineering test methods Part GR10: Determination of the one-point liquid limit, plastic limit, plasticity index and linear shrinkage



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SANS 3001-GR11

Civil engineering test methods Part GR11: Determination of the liquid limit with the two-point method

SANS 3001-GR12

Civil engineering test methods Part GR12: Determination of the flow curve liquid limit

SANS 3001-GR20

Civil engineering test methods Part GR20: Determination of the moisture content by oven-drying

SANS 3001-GR30

Civil engineering test methods Part GR30: Determination of the maximum dry density and optimum moisture content

SANS 3001-GR31

Civil engineering test methods Part GR31: Determination of the maximum dry density and optimum moisture content of laboratory mixed cementitiously stabilized materials

SANS 3001-GR40

Civil engineering test methods Part GR40: Determination of the California bearing ratio

SANS 3001-GR50

Civil engineering test methods Part GR50: Preparation, compaction and curing of specimens of laboratory mixed cementitiously stabilized materials

SANS 3001-GR51

Civil engineering test methods Part GR51: Sampling, preparation, compaction and curing of field mixed freshly cementitiously stabilized materials including the determination of the maximum dry density and optimum moisture content



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SANS 3001-GR52

Civil engineering test methods Part GR52: Sampling and preparation of cored specimens of field compacted, matured, cementitiously stabilized material

SANS 3001-GR53

Civil engineering test methods Part GR53: Determination of the unconfined compressive strength of compacted and cured specimens of cementitiously stabilized materials

SANS 3001-GR54

Civil engineering test methods Part GR54: Determination of the indirect tensile strength of compacted and cured specimens of cementitiously stabilized materials

SANS 3001-GR55

Civil engineering test methods Part GR55: Determination of the wet-dry durability of compacted and cured specimens of cementitiously stabilized materials by hand brushing

SANS 3001-PR1

Civil engineering test methods Part PR1: Determination of uncertainty of measurement, repeatability, reproducibility and bias

SANS 3001-PR2

Civil engineering test methods Part PR2: Use and assessment of repeat, check or duplicate tests

SANS 3001-PR5

Civil engineering test methods Part PR5: Computation of soil-mortar percentages, coarse sand ratio, grading modulus and fineness modulus



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SANS 3001-PR10

Civil engineering test methods Part PR10: Checking, handling, maintenance and verification of test sieves

SANS 3001-AS1

Civil engineering test methods Part AS1: Making of asphalt briquettes for Marshall tests and other specialized tests

SANS 3001-AS2

Civil engineering test methods Part AS2: Determination of Marshall stability, flow and quotient

SANS 3001-AS10

Civil engineering test methods Part AS10: Determination of bulk density and void content of compacted asphalt

SANS 3001-AS11

Civil engineering test methods Part AS11: Determination of the maximum void-less density of asphalt mixes and the quantity of binder absorbed by the aggregate

SANS 3001-AS20

Civil engineering test methods Part AS20: Determination of the soluble binder content and particle size analysis of an asphalt mix

SANS 3001-BT10

Civil engineering test methods Part BT10: Ball penetration test for the design of surfacing seals

SANS 3001-BT11

Civil engineering test methods Part BT11: Texture depth measurement for the design of surfacing seals



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SANS 3001-BT12

Civil engineering test methods Part BT12: Determination of the in situ permeability of a bituminous surfacing (Marvil test)

SANS 3001-BT20

Civil engineering test methods Part BT20: Certification of a binder distributor

SANS 3001-BT21

Civil engineering test methods Part BT21: Validation of a binder distributor dipstick

SANS 3001-BT22

Civil engineering test methods Part BT22: Power and road speed indicator tests for a binder distributor

SANS 3001-BT23

Civil engineering test methods Part BT23: Pump system performance of a binder distributor

SANS 3001-BT24

Civil engineering test methods Part BT24: Measurement of transverse distribution ('Bucket test') for a binder distributor

SANS 4001

SANS 4001-BT1

Specifications for bituminous road materials Part BT1: Penetration grade bitumen

SANS 4001-BT2

Specifications for bituminous road materials Part BT2: Cutback bitumen



22 No TEST METHODS with SABS being prepared for Publication

SANS 3001 AG5

Civil engineering test methods Part AG5: Sand equivalent value of fine aggregates

SANS 3001 AG11

Civil engineering test methods Part AG11: Polished stone value

SANS 3001 AG12

Civil engineering test methods Part AG12: Soundness of aggregates (magnesium sulphate method)

SANS 3001 AG14

Civil engineering test methods Part AG14: Determination of the ethylene glycol durability index for rock

SANS 3001 AG16

Civil engineering test methods Part AG16: Determination of the durability mill index for aggregates

SANS 3001 AG22

Civil engineering test methods Part AG22: Determination of the apparent density of crushed stone base

SANS 3001 GR35

Civil engineering test methods Part GR35: Determination of in-place dry density (sand replacement)

SANS 3001 GR41 Civil engineering test methods Part GR41: Determination of the California Bearing Ratio of lime treated materials



22 No TEST METHODS with SABS being prepared for Publication

SANS 3001 GR56

Civil engineering test methods Part GR56: Determination of the wet-dry durability of compacted and cured specimens of cementitiously stabilized materials by mechanical brushing

SANS 3001 GR57

Civil engineering test methods Part GR57: Determining the initial stabiliser consumption of soils and gravels

SANS 3001 GR58

Civil engineering test methods Part GR58: Determination of the cement or lime content of stabilized materials by means of the back titration (acid base) method

SANS 3001 NG1

Civil engineering test methods Part NG1: Administration, handling and maintenance of a nuclear density gauge

SANS 3001 NG2

Civil engineering test methods Part NG2: The validation of standard calibration blocks

SANS 3001 NG3

Civil engineering test methods Part NG3: Calibration of a nuclear density gauge

SANS 3001 NG4

Civil engineering test methods Part NG4: Verification of a nuclear density gauge

SANS 3001 NG5

Civil engineering test methods Part NG5: Determination of in situ density using a nuclear density gauge



22 No TEST METHODS with SABS being prepared for Publication

SANS 3001 AS21

Civil engineering test methods Part AS21: The determination of the bitumen content of an asphalt mix by ignition

SANS 3001 AS22

Civil engineering test methods Part AS22: Determination of binder content of mixtures used in bituminous slurry seals

SANS 3001 AS23

Civil engineering test methods Part AS23: Determination of moisture in asphalt

SANS 4001 BT3

Specifications for bituminous road materials Part BT3: Anionic emulsion

SANS 4001 BT4

Specifications for bituminous road materials Part BT4: Cationic emulsion

SANS 4001 BT5

Specifications for bituminous road materials Part BT5: Inverted emulsion



TEST METHODS IN DRAFT – Yet to be SUBMITTED to SABS

SANS 3001 GR32

Civil engineering test methods Part GR32: Electrical conductivity and pH of saturated soil-paste

SANS 3001 PD1

Civil engineering test methods Part PD1: MMLS3 testing of asphalt mixtures

SANS 3001 PR3

Civil engineering test methods Part PR3: Inter laboratory testing

SANS 3001 BSM1

Civil engineering test methods Part BSM1: Determining the foaming characteristics of bitumen

SANS 3001 AS3

Civil engineering test methods Part AS3: Determining the indirect tensile strength of asphalt



TEST METHODS CURRENTLY BEING REVIEWED

SANS 3001 PD2

Civil engineering test methods Part PD2: MMLS3 testing of surfacing seals

5 BSM test methods from TG2

Modified Lottman moisture susceptibility

Preparation of asphalt samples for modified Lottman, air permeability, MMLS and repeated load beam tests

Gyratory compaction

PAV, DSR & BBR – Little local testing experience. It is suggested that for now the relevant ASTM test methods should be used



Outstanding Test Methods

- Concrete Durability and other cement tests?
- Statistical Assessment of Results (COLTO) – THM5
- Dynamic Shear Rheometer (DSR)
- Pressure Ageing Vessel (PAV)
 - Little local testing experience. It is suggested that for now the relevant ASTM test methods are used
- 5 BSM test methods from TG2
- Modified Lottman Moisture susceptibility
- Gyrotory compaction

**Part of new
SANS 3001
methods**



SANAS Accreditation

- **PLEASE NOTE:** Measurement of quality points in appointment of laboratories (site and main) based on increasing minimum number of tests accredited.



Comments

- SANS are working on 22 methods. It does not seem possible to get them to work faster. With the series of approval steps required the new methods take 2 years to digest and publish.
- There are about 5 minor amendments to already published SANS 3001 methods which should be issued within the next 3 months.
- New SANS methods / standards incorporated into SANRAL's pro-forma specifications from April 2012. RMC agreed at meeting of 24 April 2013 to also start using the new SANS methods / standards.
- Changes made in the detail and general procedures remain much the same, alterations in the laboratory are not difficult.



Comments

- The problem (financial implications) of re-accreditation of methods transferred for TMH1 to SANS is under discussion between SANAS and NLA. Agreed to allow the use of old TMH1 approved equipment until such time it requires replacement.

The only method that requires replacement of equipment is the Marshall test where the block has to be replaced to improve consistency in results.

- The brief to the service providers was to work on existing methods **FIRST** and not on new work.





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THANK YOU!

**“Where a road
passes,
development
follows right on
its heels”**



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