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**SANS 3001-PD1:2016**

Edition 1

# **SOUTH AFRICAN NATIONAL STANDARD**

## **Civil engineering test methods**

### **Part PD1: Determination of permanent deformation and moisture sensitivity in asphalt mixes with the MMLS3**

**WARNING**

**This document references other documents normatively.**

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### Table of changes

Change No.	Date	Scope

## Acknowledgement

The SABS Standards Division wishes to acknowledge the valuable assistance of the Committee of Transport Officials (COTO), the Institute for Transport Technology, the Department of Civil Engineering, Stellenbosch University, the South African Road Pavement Forum, and the South African National Roads Agency Limited (SANRAL).

## Foreword

This South African standard was approved by National Committee SABS/TC 081/SC 08, *Construction materials, products and test methods – Bitumen and bituminous products*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in December 2016.

SANS 3001 consists of various parts under the general title *Civil engineering test methods*.

Parts PD of the SANS 3001 series contain methods for the testing of permanent deformation in asphalt surfaces and the performance of bituminous pavement surfaces.

Annexes A and B are for information only.

**Compliance with this document cannot confer immunity from legal obligations.**

## Introduction

This test method was originally issued in 2008 as a best practice protocol guideline (DPG1) for use by practitioners in the asphalt industry in South Africa. The method encapsulates a wide range of research and applications relating to the one-third-scale model mobile load simulator (MMLS3) testing system. Some details are contained in the list of references in the bibliography. Users are advised to use referenced companion tools and equipment where and when appropriate.

This document has been developed to assess the effect of wheel loads on asphalt and bituminous surfacings for roads and to predict pavement rutting performance using the MMLS3 test.

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## **Civil engineering test methods**

### **Part PD1:**

Determination of permanent deformation and moisture sensitivity in asphalt mixes with the MMLS3

## **1 Scope**

**1.1** This part of SANS 3001 describes a method to measure deformation performance and susceptibility to moisture damage of bituminous road pavement mixtures, using simulated traffic loading with the one-third-scale model mobile load simulator (MMLS3) load trafficking system under controlled environmental conditions.

**1.2** This part of SANS 3001 is applicable to asphalt surfacings and asphalt road base mixtures that contain penetration grade bitumen and modified binders.

**1.3** Bituminous surfacing (seals) and mixtures with emulsion and foamed bitumen as binder have also been evaluated with the MMLS3, but are not covered in this part of SANS 3001.

## **2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. Information on currently valid national and international standards can be obtained from the SABS Standards Division.

### **2.1 Standards**

ASTM D3387-11, *Standard test method for compaction and shear properties of bituminous mixtures by means of the U.S. Corps of Engineers gyratory testing machine (GTM)*.

SANS 3001-AS1, *Civil engineering test methods – Part AS1: Making of asphalt briquettes for Marshall tests and other specialized tests*.

TMH5, *Sampling methods for roads construction materials*.

### **2.2 Other publications**

Manual 13, 1997. *LAMBS – The design and use of large aggregate mixes for bases*. Cape Town: SABITA.

MLS Test Systems, 2016. *MMLS3 Operator's Manual*, MLS Test Systems (Pty) Ltd, Stellenbosch.