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**SANS 4001-BT1:2016**

Edition 1.3

# **SOUTH AFRICAN NATIONAL STANDARD**

**Civil engineering specifications**

Amdt 2

**Part BT1: Penetration grade bitumen**

**WARNING**

This standard references other documents normatively.

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### Table of changes

Change No.	Date	Scope
Amdt 1	2012	Amended to update the table on grade requirements.
Amdt 2	2014	Amended to change the title, to include requirements for two additional penetration grades, and to update a referenced standard.
Amdt 3	2016	Amended to update the table on grade requirements.

## Acknowledgement

The SABS Standards Division wishes to acknowledge the valuable assistance of the Committee of Transport Officials (COTO), the Southern African Bitumen Association (SABITA), 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 April 2016.

This document supersedes SANS 4001-BT1:2014 (edition 1.2).

A vertical line in the margin shows where the text has been technically modified by amendment No. 3.

SANS 4001 consists of various parts under the general title *Civil engineering specifications*.

Parts BT of the SANS 4001 series contain methods for the testing of bituminous products and spraying equipment.

Annex A forms an integral part of this document.

**Compliance with a standard cannot confer immunity from legal obligations.**

## Introduction

This standard was first published in 1951. It was revised in 1966 and has now again been revised under a new title in order to eliminate certain shortcomings and to bring it into line with current practice.

Major modifications in the standard, apart from the substitution of metric units for non-metric values, include the need to align compliance limits of the penetration values to the uncertainty associated with the penetration test. In order to contain these limits within reasonable ranges, the EN standard for the determination of the penetration value of bitumen has been introduced, as the uncertainty associated with this standard is considerably better than the ASTM standard used in the past. In other words the change of grades and ranges are announced by this revision.

The original standard contained an annex that dealt with the handling temperatures for the various grades and that has now been deleted as this aspect is adequately covered in readily available published guideline documents in South Africa.

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## **Civil engineering specifications**

**Amdt 2**

### **Part BT1:**

### **Penetration grade bitumen**

## **1 Scope**

This part of SANS 4001 applies to bituminous materials and covers the requirements for six penetration grades of bitumen suitable for road construction and similar purposes. **Amdt 2**

## **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.

AASHTO T102, *Standard method of test for spot test of asphaltic materials.*

ASTM D36M, *Standard test method for softening point of bitumen (ring-and-ball apparatus).*

ASTM D92, *Standard test method for flash and fire points by Cleveland open cup tester.* **Amdt 2**

ASTM D140M, *Standard practice for sampling bituminous materials.*

ASTM D2872, *Standard test method for effect of heat and air on a moving film of asphalt (rolling thin-film oven test).*

ASTM D4402M, *Standard test method for viscosity determination of asphalt at elevated temperatures using a rotational viscometer.*

EN 1426, *Bitumen and bituminous binders – Determination of needle penetration.*

## **3 Definitions and abbreviations**

For the purposes of this document, the following definitions and abbreviations apply.

### **3.1 Definitions**

#### **3.1.1**

##### **bitumen**

non-crystalline solid or viscous mixture of complex hydrocarbons that possesses characteristic agglomerating properties, softens gradually when heated, is substantially soluble in trichlorethylene, and is obtained from crude petroleum by refining processes

#### **3.1.2**

##### **lot**

that quantity of penetration grade bitumen of the same batch identification, from one manufacturer, submitted at any one time for inspection and testing