

English Version

Bituminous mixtures - Test methods - Part 50: Resistance to scuffing

Mélanges bitumineux - Méthodes d'essai - Partie 50 :
Résistance aux arrachements superficiels

Asphalt - Prüfverfahren - Teil 50: Widerstand gegen
Oberflächenverschleiß

This Technical Specification (CEN/TS) was approved by CEN on 14 August 2017 for provisional application.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (CEN/TS 12697-50:2018) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by DIN.

This document supersedes CEN/TS 12697-50:2016.

In comparison with the previous edition, the following modifications have been made:

- General: Several editorial changes has been performed for clarity and increased consistency of used terms, definitions, symbols, abbreviations and units. NOTES are amended to normal text were appropriate;
- The clause numbers for Terms, definitions, symbols and abbreviations [3], [3.1], [3.2] and Principle [4] has been altered to be in line with current template for standards;
- [3.2] Completion of symbol, D and definition for the diameter of the tested core specimen, in 0,1 mm;
- [3.2] Amended definitions for the following symbols: T , A , M_0 , M_1 , V_0 , V_1 , ΔV were “slab” has been altered to “specimen” since mass and volume parameters are also valid for core specimen;
- [3.2] Amended definition from “loss of volume” to “increase of texture” for the symbol ΔV to be in line with Clause 7;
- [5.3] Standard dimensions for slabs deleted and transferred to A.1.1 (only valid for ARTe). Completion with reference to Annexes A to D;
- [5.3] Text describing the variation of thickness of specimen transferred to A.1.1. NOTE describing preparation of slabs deleted.
- [5.4] NOTE (describing ageing procedures) completed with reference to CEN/TS 12697-52;
- [6] Abbreviations for the listed devices are completed with the full title for clarification;
- [7] Conformity of definition for ΔV to read “increase of texture” for consistency;
- [8] The word “slab” amended to “specimen” were appropriate for consistency;
- [8] bullet f). Completed with alternative report of diameter and thickness of the tested cores;
- [Annexes A to D] Titles completed with respective full title for clarification;
- [Annexes A and B] Amended from (Normative) to (Informative) for consistency. All annexes are only referred to informatively;
- [A.1.3] Requirement for two smooth unprofiled PIARC tires is replaced by a general requirement of two smooth profiled 165/75 R14C radial 97/95 tires. NOTE deleted;
- [A.1.3] Tyre pressure corrected from (200 ± 10) kPa to (230 ± 10) kPa;
- [C.2.10] Tolerance for dimension of cores amended from (150 ± 1) mm to (150 ± 2) mm for consistency;

- [C.3.3] New clause (Specimen preparation) introduced for clarity and readability;
- [C.3.4] New clause (Performance of the test) introduced for clarity and readability;
- [C.3.4] 2nd indent: Thickness of rubber mat changed from (5 ± 1) mm to (3 ± 1) mm;
- [D.1.2] Reference to DIN 53516 deleted. Replaced with clarification that the abrasion resistance for the tyre is expressed as relative volume loss, in accordance with Method A of ISO 4649 where the standard reference compound Nr.One is used;
- [D.2.3.1] Bullet a) Incorrect reference to (EN 12697-1). Replaced by (EN 13036-1).

A list of all parts in the EN 12697 series can be found on the CEN website.

This Technical Specification was prepared with the aim of having a 3-year lifetime.

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Introduction

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning a load applicator given in subclause D.1.2.

CEN takes no position concerning the evidence, validity and scope of this patent right.

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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. CEN shall not be held responsible for identifying any or all such patent rights.

1 Scope

This European Technical Specification specifies a test method for determining the resistance to scuffing of asphalt mixtures which are used in surface layers and are loaded with high shear stresses in road or airfield pavement. These shear stresses occur in the contact area between tyre and pavement surface and can be caused by cornering of the vehicle. Due to these shear stresses, material loss will occur at the surface of these layers. The test is normally performed on asphalt layers with a high amount of air voids (e.g. porous asphalt), but can also be applied on other asphaltic mixtures. Test specimens are used either produced in a laboratory or cut from the pavement.

NOTE The test is developed to determine the resistance to scuffing for noise reducing surface layers where raveling is the normative damage criterion. The test can also be performed on other surface mixtures with a high resistance to permanent deformation. In case a mixture has a low resistance to permanent deformation, rutting can occur during the test. This can influence the test results.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12697-6, *Bituminous mixtures - Test methods for hot mix asphalt - Part 6: Determination of bulk density of bituminous specimens*

EN 12697-29, *Bituminous mixtures - Test method for hot mix asphalt - Part 29: Determination of the dimensions of a bituminous specimen*

EN 12697-33, *Bituminous mixtures - Test methods for hot mix asphalt - Part 33: Specimen prepared by roller compactor*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following term and definition applies.

3.1.1

material loss

amount of material that has been lost from the surface of the slab due to the test

Note 1 to entry: The amount of material loss can be determined in 3 different ways:

- visually and/or by taking pictures;
- by weighing the mass of the slab before and after the test: the difference in mass per area is a measure for the resistance to scuffing of the tested asphalt mixture;
- by scanning the surface of the slab before and after the test. The scans provide a 3D picture from the surface of the slab. After subtracting mathematically the 3D picture after the test from the one before the test, an accurate 3D overview of the material loss can be generated. The calculated volume of this 3D overview of the material loss is an accurate value for the resistance to scuffing of the tested asphalt mixture.

Note 2 to entry: If permanent deformation occurs during the test, the results of the surface scan will be compensated for this phenomenon.