SLOVENSKI STANDARD
SIST EN 12697-32:2004+A1:2007

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Bitumenske zmesi - Preskusne metode za vroļ e asfaltne zmesi - 32. del: Laboratorijska zgostitev bitumenskih zmesi z vibracijskim zgoģļ evalnikom

Bituminous mixtures - Test methods for hot mix asphalt - Part 32: Laboratory compaction of bituminous mixtures by vibratory compactor

Asphalt - Prüfverfahren für Heißasphalt - Teil 32: Laborverdichtung von Asphalt mit einem Vibrationsverdichter

Mélanges bitumineux - Méthodes d'essais pour mélange hydrocarboné a chaud - Partie 32 : Compactage en laboratoire de mélanges bitumineux par compacteur vibratoire

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English Version

Bituminous mixtures - Test methods for hot mix asphalt - Part 32: Laboratory compaction of bituminous mixtures by vibratory compactor

Matériaux enrobés - Méthodes d'essai pour enrobés à chaud - Partie 32: Compactage en laboratoire de mélanges bitumineux par compacteur vibratoire

Asphalt - Prüfverfahren für Heißasphalt - Teil 32: Laborverdichtung von Asphalt mit einem Vibrationsverdichter

This European Standard was approved by CEN on 21 November 2002 and includes Amendment 1 approved by CEN on 16 May 2007.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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

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Contents

Foreword

This document (EN 12697-32:2003+A1:2007) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2008 and conflicting national standards shall be withdrawn at the latest by January 2008.

This document includes Amendment 1, approved by CEN on 2007-05-16.

This document supersedes EN 12697-32:2003.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟨A1⟩ ⟨A1⟩.

This European Standard is one of a series of standards as follows:

EN 12697-1, *Bituminous mixtures — Test methods for hot mix asphalt — Part 1: Soluble binder content*

EN 12697-2, *Bituminous mixtures — Test methods for hot mix asphalt — Part 2: Determination of particle size distribution*

EN 12697-3, *Bituminous mixtures — Test methods for hot mix asphalt — Part 3: Binder recovery: Rotary evaporator*

EN 12697-4, *Bituminous mixtures — Test methods for hot mix asphalt — Part 4: Binder recovery: Fractionating column*

EN 12697-5, *Bituminous mixtures — Test methods for hot mix asphalt — Part 5: Determination of the maximum density*

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

EN 12697-7, *Bituminous mixtures — Test methods for hot mix asphalt — Part 7: Determination of bulk density of bituminous specimens by gamma rays*

EN 12697-8, *Bituminous mixtures — Test methods for hot mix asphalt — Part 8: Determination of void characteristics of bituminous specimens*

EN 12697-9, *Bituminous mixtures — Test methods for hot mix asphalt — Part 9: Determination of the reference density*

EN 12697-10, *Bituminous mixtures — Test methods for hot mix asphalt — Part 10: Compactibility*

EN 12697-11, *Bituminous mixtures — Test methods for hot mix asphalt — Part 11: Determination of the affinity between aggregate and binder.*

EN 12697-12, *Bituminous mixtures — Test methods for hot mix asphalt — Part 12: Determination of the water sensitivity of bituminous specimens*

EN 12697-13, *Bituminous mixtures — Test methods for hot mix asphalt — Part 13: Temperature measurement*

EN 12697-14, *Bituminous mixtures — Test methods for hot mix asphalt — Part 14: Water content*

EN 12697-15, *Bituminous mixtures — Test methods for hot mix asphalt — Part 15: Determination of the segregation sensitivity*

EN 12697-16, *Bituminous mixtures — Test methods for hot mix asphalt — Part 16: Abrasion by studded tyres*

EN 12697-17, *Bituminous mixtures — Test methods for hot mix asphalt — Part 17: Particle loss of porous asphalt specimen*

EN 12697-18, *Bituminous mixtures — Test methods for hot mix asphalt — Part 18: Binder drainage*

EN 12697-19, *Bituminous mixtures — Test methods for hot mix asphalt — Part 19: Permeability of specimen*

EN 12697-20, *Bituminous mixtures — Test methods for hot mix asphalt — Part 20: Indentation using cube or Marshall specimen*

EN 12697-21, *Bituminous mixtures — Test methods for hot mix asphalt — Part 21: Indentation using plate specimens*

EN 12697-22, *Bituminous mixtures — Test methods for hot mix asphalt — Part 22: Wheel tracking*

EN 12697-23, *Bituminous mixtures — Test methods for hot mix asphalt — Part 23: Determination of the indirect tensile strength of bituminous specimens*

EN 12697-24, *Bituminous mixtures — Test methods for hot mix asphalt — Part 24: Resistance to fatigue*

EN 12697-25, *Bituminous mixtures — Test methods for hot mix asphalt — Part 25: Cyclic compression test*

EN 12697-26, *Bituminous mixtures — Test methods for hot mix asphalt — Part 26: Stiffness*

EN 12697-27, *Bituminous mixtures — Test methods for hot mix asphalt — Part 27: Sampling*

EN 12697-28, *Bituminous mixtures — Test methods for hot mix asphalt — Part 28: Preparation of samples for determining binder content, water content and grading*

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

EN 12697-30, *Bituminous mixtures — Test methods for hot mix asphalt — Part 30 Specimen preparation by impact compactor*

EN 12697-31, *Bituminous mixtures — Test methods for hot mix asphalt — Part 31: Specimen preparation by gyratory compactor*

EN 12697-32, *Bituminous mixtures — Test methods for hot mix asphalt — Part 32: Laboratory compaction of bituminous mixtures by a vibratory compactor*

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

EN 12697-34, *Bituminous mixtures — Test methods for hot mix asphalt — Part 34: Marshall test*

EN 12697-35, *Bituminous mixtures — Test methods for hot mix asphalt — Part 35: Laboratory mixing*

EN 12697-36, *Bituminous mixtures — Test methods for hot mix asphalt — Part 36: Determination of the thickness of a bituminous pavement*

EN 12697-37, *Bituminous mixtures — Test methods for hot mix asphalt — Part 37: Hot sand test for the adhesivity of binder on precoated chippings for HRA*

EN 12697-38, *Bituminous mixtures — Test methods for hot mix asphalt — Part 38: Common equipment and calibration*

EN 12697-39, *Bituminous mixtures — Test methods for hot mix asphalt — Part 39: Binder content of by ignition*

EN 12697-40, *Bituminous mixtures — Test methods for hot mix asphalt — Part 40: In situ drainability*

EN 12697-41, *Bituminous mixtures — Test methods for hot mix asphalt — Part 41: Resistance to deicing fluids*

EN 12697-42, *Bituminous mixtures — Test methods for hot mix asphalt — Part 42: Amount of coarse foreign matters in reclaimed asphalt*

EN 12697-43, *Bituminous mixtures — Test methods for hot mix asphalt — Part 43: Resistance to fuel*

The applicability of this European Standard is described in the product standards for bituminous mixtures.

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Annex A is normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard describes a test method for the preparation of bituminous test specimens using a vibratory compaction technique.

This European Standard is applicable to loose mixtures and cores and is used to establish a reference density for a bituminous mixture in accordance with the procedures described in EN 12697-9, or the ease of compaction as described in EN 12697-10.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

A1⟩ EN 12697-6:2003+A1 ⟨A1, *Bituminous mixtures — Test methods for hot mix asphalt — Part 6: Determination of bulk density of bituminous specimen by hydro-static method.*

EN 12697-9, *Bituminous mixtures — Test methods for hot mix asphalt — Part 9: Determination of the reference density.*

EN 12697-10, *Bituminous mixtures — Test methods for hot mix asphalt — Part 10: Compactibility.*

EN 12697-14, *Bituminous mixtures — Test methods for hot mix asphalt — Part 14: Water content.*

EN 12697-27, *Bituminous mixtures — Test methods for hot mix asphalt — Part 27: Sampling.*

A1⟩ EN 12697-30:2004+A1, *Bituminous mixtures — Test methods for hot mix asphalt — Part 30: Specimen preparation by impact compactor.* ⟨A1

A1⟩ EN 12697-35:2004+A1, *Bituminous mixtures — Test methods for hot mix asphalt — Part 35: Laboratory mixing.* ⟨A1

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
bulk density
mass in air per unit volume of the compacted specimen at ambient temperature

3.2
refusal density
mass per unit volume, including voids, of the compacted specimen after having been further compacted to refusal

3.3
percentage refusal density
ratio of the initial bulk density of the compacted specimen to its refusal density, expressed as a percentage

4 Principle

After the mixing, preparation and conditioning of a bituminous specimen in the laboratory, the heating of a core extracted from the road surface to compaction temperature, or the conditioning of plant-mixed material, the material or core is placed in a standard mould with attached base plate and collar and compacted by a vibratory hammer.

If required the specimen is compacted to refusal and the refusal density is determined in accordance with EN 12697-9.

After completion of compaction, the bulk density of the compacted specimen is determined in accordance with A1 EN 12697-6:2003+A1 A1.

NOTE For loose material prepared or compacted in the laboratory, or plant mixed material compacted in the laboratory, the refusal density is an indication of the potential maximum density which may be achieved under field conditions.

5 Materials

5.1 Sealing compound.

5.2 Paper discs, to prevent the ends of the specimen from sticking to the base plate or the tamping foot.

5.3 Silicone grease, for use as a release agent.

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5.4 Inert void filling material.

6 Apparatus

6.1 Drying oven, to maintain a temperature of between 25 °C and 45 °C

6.2 Balance.

6.3 Water bath.

6.4 Split core mould and base plate (see Figure 1).

6.5 One spare base plate

NOTE Only one spare base plate is needed for a complete set of moulds.

6.6 Heating oven, with fan-assisted circulation.

6.7 Electric vibrating hammer, conforming to annex A and suitable for laboratory compaction. The hammer shall have a power consumption of 750 W to 1 000 W and shall operate at a frequency of 20 Hz to 50 Hz.

6.8 A 50 mm or 75 mm wide point stripping knife and a pallet knife.

6.9 A (102 ± 2) mm diameter tamping foot and a (146 ± 2) mm diameter tamping foot, for use with the electric vibrating hammer (see 6.7).

6.10 A 300 mm steel rule.

6.11 A pair of external callipers.

6.12 A stopwatch or clock.