



SLOVENSKI STANDARD
SIST EN 12697-15:2004
01-junij-2004

6]li a Ybg_Yna Ygj`E`DfYg_i gbY`a YrcXY`nUj fc Y`UgZU`IbY`na Ygj`E`%` "XY`.
I [cHJ` `Ub`Y`cV i h`j cgh`bUgY[fY[UY`c

Bituminous mixtures - Test methods for hot mix asphalt - Part 15: Determination of the segregation sensitivity

Asphalt - Prüfverfahren für Heißasphalt - Teil 15: Bestimmung der Entmischungsneigung

STANDARD PREVIEW

Mélanges bitumineux - Méthode d'essai pour enrobés a chaud - Partie 15: Détermination de la sensibilité a la ségrégation

[SIST EN 12697-15:2004](https://standards.iteh.ai/catalog/standards/sist/52322d2-6f4-4cae-a516-04940393acd/sist-en-12697-15-2004)

Ta slovenski standard je istoveten z: EN 12697-15:2003

ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

SIST EN 12697-15:2004 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 12697-15:2004

<https://standards.iteh.ai/catalog/standards/sist/52322df2-6fc4-4cae-a516-0f4940393acd/sist-en-12697-15-2004>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12697-15

March 2003

ICS 93.080.20

English version

Bituminous mixtures - Test methods for hot mix asphalt - Part 15: Determination of the segregation sensitivity

Mélanges bitumineux - Méthode d'essai pour enrobés à
chaud - Partie 15: Détermination de la sensibilité à la
ségrégation

Asphalt - Prüfverfahren für Heißasphalt - Teil 15:
Bestimmung der Entmischungsneigung

This European Standard was approved by CEN on 28 November 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

SIST EN 12697-15:2004

<https://standards.iteh.ai/catalog/standards/sist/52322df2-6fc4-4cae-a516-0f4940393acd/sist-en-12697-15-2004>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	page
Foreword.....	3
1 Scope	6
2 Normative references	6
3 Terms and definitions.....	6
4 Significance and use	6
5 Principle	7
6 Apparatus	7
7 Preparation of test portion.....	8
8 Procedure	9
9 Analysis	9
10 Calculation.....	9
10.1 The binder segregation value.....	9
10.2 The aggregate segregation value.....	10
10.3 The mixing quality value.....	10
11 Test report	11
12 Precision.....	11
Bibliography	12

SIST EN 12697-15:2004

<https://standards.iteh.ai/catalog/standards/sist/52322df2-6fc4-4cae-a516-0f4940393acd/sist-en-12697-15-2004>

Foreword

This document (EN 12697-15:2003) 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 September 2003, and conflicting national standards shall be withdrawn at the latest by August 2005.

This European Standard is one of a series of standards as listed below.

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: Bitumen recovery: Rotary evaporator.*

EN 12697-4, *Bituminous mixtures — Test methods for hot mix asphalt — Part 4: Bitumen 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 by hydro-static method.*

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: Compactability.*

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

prEN 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 12697-15:2003 (E)

prEN 12697-18, *Bituminous mixtures — Test methods for hot mix asphalt — Part 18: Binder drainage from porous asphalt.*

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

prEN 12697-20, *Bituminous mixtures — Test methods for hot mix asphalt — Part 20: Indentation using cube or marshall specimens.*

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

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

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

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

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

prEN 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.*

prEN 12697-30, *Bituminous mixtures — Test methods for hot mix asphalt — Part 30: Specimen preparation, impact compactor.*

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

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

prEN 12697-33, *Bituminous mixtures — Test methods for hot mix asphalt — Part 33: Specimen preparation, slab compactor.*

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

prEN 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.*

prEN 12697-37, *Bituminous mixtures — Test methods for hot mix asphalt — Part 37: Hot sand test for the adhesivity.*

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

prEN 12697-39, *Bituminous mixtures — Test methods for hot mix asphalt — Part 39: Bind content by ignition.*

prEN 12697-40, *Bituminous mixtures — Test methods for hot mix asphalt — Part 40: Void content, compaction and hydraulic conductivity of material in the layer.*

prEN 12697-41, *Bituminous mixtures — Test methods for hot mix asphalt — Part 41: Resistance to de-icing fluid.*

prEN 12697-42, *Bituminous mixtures — Test methods for hot mix asphalt — Part 42: Content of foreign matters in reclaimed asphalt.*

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

prEN 12697-44, *Bituminous mixtures — Test methods for hot mix asphalt — Part 44: Binder content of mixtures with modified binders.*

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

No existing European Standard is superseded.

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

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 12697-15:2004](https://standards.iteh.ai/catalog/standards/sist/52322df2-6fc4-4cae-a516-0f4940393acd/sist-en-12697-15-2004)

<https://standards.iteh.ai/catalog/standards/sist/52322df2-6fc4-4cae-a516-0f4940393acd/sist-en-12697-15-2004>

EN 12697-15:2003 (E)**1 Scope**

This European Standard specifies a test method for the determination of the mixing quality and the tendency of segregation in composition of hot bituminous mixtures. This test method is considered suitable for design purposes and for client information.

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).

EN 933-1, *Test for geometrical properties of aggregates — Part 1: Determination of particle size distribution - Sieving method.*

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

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

3 Terms and definitions

<https://standards.iteh.ai/catalog/standards/sist/52322df2-6fc4-4cae-a516-0f4940393acd/sist-en-12697-15-2004>

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

3.1 mixing quality

homogeneity of the composition of a bituminous mixture immediately after mixing

3.2 segregation

variability of the aggregate grading and the correlated binder content variability in a well mixed bituminous mixture, due to differential movements of coarse and fine aggregate particles when handling the mixture

3.3 segregation value

difference in bitumen content or sieving result between the fine and the coarse parts of a segregated mixture

4 Significance and use

The homogeneity of the quality level of a bituminous pavement is among others determined by the homogeneity of the composition of the bituminous mixtures applied. The homogeneity of a bituminous mixture in the pavement is influenced by the mixing quality during production and by its segregation sensitivity during handling. The latter is influenced by the mixture composition in terms of type and amount of aggregate and binder. Some segregation is inherent to the nature of bituminous materials. Undue segregation is caused by e. g. not appropriate mixing, improper loading of the hopper, lorry or finisher.

This test method provides useful information on the homogeneity quality of a bituminous mixture. The test data provide information on the efficacy of the mixing procedure and on the sensitivity of the mixture for segregation in its composition during the handling so that appropriate measures may be taken to minimise such segregation where considered necessary.

The test is useful for mixtures that tend to segregate. In general this are the mixtures with $D \geq 16$ mm having a flow time from the conical bin of less than 15 s.

NOTE This test may not be significant for gummy mixtures containing additives like polymers, fibres etc.

5 Principle

A hot sample of the bituminous mixture is placed in a heated conical hopper. The bottom slide board of the hopper is opened and the mixture falls down onto a platform. A conical stockpile is formed. A deadfall in the platform under the centre of the stockpile is opened. The interior finer part of the stockpile flows through the opening. The opening is then expanded further and an intermediate part flows through the expanded opening. The bitumen content and the grading of the finer interior part and the remaining coarser part of the bituminous mixture are determined.

The binder segregation value is calculated as the difference between the bitumen content of the finer interior part and the remaining coarser part. The aggregate segregation value is calculated per sieve for the coarse aggregate sieves as the difference of the sieve result between the finer part and the coarser part. The mixing quality value is calculated as the difference of the binder content between the mastic subpart of the finer part and of the coarser part.

For more detailed information the intermediate part could be analysed to calculate the differences between the three parts in the same way.

6 Apparatus

iTeh STANDARD PREVIEW
(standards.iteh.ai)

6.1 Segregator (see Figure 1). A mechanical device shall facilitate the displacement of the bottom slide board.

NOTE It is advised that the segregator can be disassembled in order to preheat the storage bin.

6.2 At least three containers with a diameter of 500 mm or more.

6.3 Balance with an accuracy of $\pm 0,2$ kg.

6.4 Heating arrangement for the storage bin of the segregator capable of maintaining temperatures up to 200 °C with an accuracy of ± 2 °C, e. g. a drying oven capable of accommodating the storage bin or electric cables for the heating of the storage bin.

6.5 Stopwatch.

6.6 Thermometer, to measure bituminous mixtures in a range of 150 °C to 200°C, with an accuracy of ± 2 °C.