

Bituminous mixtures - Test methods for hot mix asphalt - Part 11: Determination of the affinity between aggregate and bitumen

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12697-11:2005 sisaldab Euroopa standardi EN 12697-11:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 25.11.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12697-11:2005 consists of the English text of the European standard EN 12697-11:2005.</p> <p>This document is endorsed on 25.11.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This European Standard specifies procedures for the determination of the affinity between aggregate and bitumen and its influence on the susceptibility of the combination to stripping. This property is intended to be of assistance to the designer for mixture design rather than as a type test.</p>	<p>Scope:</p> <p>This European Standard specifies procedures for the determination of the affinity between aggregate and bitumen and its influence on the susceptibility of the combination to stripping. This property is intended to be of assistance to the designer for mixture design rather than as a type test.</p>
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Võtmesõnad:

English Version

Bituminous mixtures - Test methods for hot mix asphalt - Part
11: Determination of the affinity between aggregate and bitumen

Mélanges bitumineux - Essais pour enrobés à chaud -
Partie 11: Détermination de la affinité entre granulation et
bitume

Asphalt - Prüfverfahren für Heiasphalt - Teil 11:
Bestimmung der Affinität von Gesteinskörnungen und
Bitumen

This European Standard was approved by CEN on 4 August 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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Contents

Page

Foreword	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Principle	8
5 Equipment	9
5.1 Test sieves	9
5.2 Ventilated oven	9
5.3 Temperature measuring device:	9
5.4 Balance	9
5.5 Metal containers (tins)	9
5.6 Mixing bowl	9
5.7 Spatula	9
5.8 Silicone coated paper or a flat metal lid	9
5.9 Refrigerator	10
5.10 Test bottles	10
5.11 Glass-rods	10
5.12 Bottle rolling machine	10
5.13 Glass beakers	10
5.14 Test bowls	10
5.15 Lamp	11
5.16 Magnifying glass	11
6 Preparation of test specimens	11
6.1 Aggregate	11
6.2 Bitumen	12
6.3 Mixing aggregate and bitumen	12
7 Conditioning	13
8 Procedure	13
9 Calculation and expression of results	14
10 Report	14
11 Precision	15
12 Equipment	16
12.1 Shallow tray(s)	16
12.2 Mixing bowl	16
12.3 Heating apparatus	16
13 Solvent and other materials	16
14 Preparation of test specimens	16
15 Procedure	16
16 Calculation and expression of results	17
17 Report	17
18 Precision	17
19 Equipment and materials	18
19.1 Test sieves	18

19.2	Ventilated oven	18
19.3	Temperature measuring device	18
19.4	Balance	18
19.5	Metal containers (tins)	18
19.6	Mixing bowl	18
19.7	Glass and polyethylene beakers	18
19.8	Titration burette	18
19.9	Chronometer	19
19.10	Gloves	19
19.11	Netting	19
19.12	Reagents	19
19.13	Heating plate or Bunsen burner	20
19.14	Distilled or de-mineralised water	20
20	Sample preparation	20
20.1	Aggregate	20
20.2	Bitumen	20
20.3	Mixing aggregate and bitumen	20
21	Conditioning	21
22	Test procedure	21
22.1	Establishing the acid/base equivalence factor	21
22.2	Establishing the calibration curve	21
22.3	Stripping test	22
23	Calculation	23
23.1	Determination of the calibration curve	23
23.2	Calculation of the degree of bitumen coverage	24
24	Test report	25
25	Precision	25

Foreword

This European Standard (EN 12697-11:2005) 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 March 2006, and conflicting national standards shall be withdrawn at the latest by March 2006.

This European Standard supersedes EN 12697-11:2003.

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: 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: Compactability.*

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

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 specimens.*
- 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 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 pre-coated 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 by ignition.*
- prEN 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 de-icing fluids.*
- prEN 12697-42, *Bituminous mixtures — Test methods for hot mix asphalt — Part 42: Amount of foreign matter in reclaimed asphalt.*
- EN 12697-43, *Bituminous mixtures — Test methods for hot mix asphalt — Part 43: Resistance to fuel.*

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

1 Scope

This European Standard specifies procedures for the determination of the affinity between aggregate and bitumen and its influence on the susceptibility of the combination to stripping. This property is intended to be of assistance to the designer for mixture design rather than as a type test. Susceptibility to stripping, as determined by these procedures, is an indirect measure of the power of a binder to adhere to various aggregates, or of various binders to adhere to a given aggregate. The procedures can also be used to evaluate the effect of moisture on a given aggregate-binder combination with or without adhesion agents including liquids, such as amines, and fillers, such as hydrated lime or cement.

In the rolling bottle method, the affinity is expressed by visual registration of the degree of bitumen coverage on uncompacted bitumen-coated mineral aggregate particles after influence of mechanical stirring action in the presence of water.

NOTE 1 The rolling bottle test is a simple but subjective test and suitable for routine testing. It is not appropriate for aggregates that are highly abrasive.

In the static test method, the affinity is expressed by visual registration of the degree of bitumen coverage on uncompacted bitumen-coated mineral aggregate particles after storage in water.

NOTE 2 The static test is a simple but subjective test that is less precise generally but can cope with high PSV-aggregates.

In the boiling water stripping test method, the affinity is expressed by determining the degree of bitumen-coverage on uncompacted bitumen-coated aggregate after immersion in boiling water under specified conditions.

NOTE 3 The boiling water stripping test is an objective test and has a high precision. However, it is a more specialist test because it requires greater skill of the operatives and uses chemicals as reagent. The latter point may also imply extra health and safety considerations.

NOTE 4 The boiling water stripping test procedure can be used for any binder-aggregate combinations in which the mineral aggregate is calcareous, silico-calcareous or siliceous by nature.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 58, *Bitumen and bituminous binders — Sampling bituminous binders*

EN 932-1, *Tests for general properties of aggregates - Part 1: Methods for sampling*

EN 932-2, *Tests for general properties of aggregates - Part 2: Methods for reducing laboratory samples*

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

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

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