SLOVENSKI STANDARD
SIST EN 12697-27:2017

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Bitumenske zmesi - Preskusne metode - 27. del: Vzorčenje

Bituminous mixtures - Test methods - Part 27: Sampling

Asphalt - Prüfverfahren - Teil 27: Probenahme

Mélanges bitumineux - Méthodes d'essai - Partie 27: Prélèvements d'échantillonnage

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EUROPEAN STANDARD

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English Version

Bituminous mixtures - Test methods - Part 27: Sampling

Mélanges bitumineux - Méthodes d'essai - Partie 27: Prélèvements d'échantillonnage

Asphalt - Prüfverfahren - Teil 27: Probenahme

This European Standard was approved by CEN on 10 April 2017.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 12697-27:2017) 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of an identical text or by endorsement, at the latest by December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

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

This document supersedes EN 12697-27:2000.

The following is a list of significant technical changes since the previous edition:

— the title no longer makes the method exclusively for hot mix asphalt;

— reduction of the individual increment sizes;

  — (4.1.2, 4.4.2): for material containing aggregate equal or smaller than 16 mm, from 3 kg to 2 kg;

  — (4.1.2, 4.4.2):for material containing aggregate larger than 16 mm, from 7 kg to 3 kg;

  — (4.3.2); from 7 kg to 3 kg;

— 4.1.1: apparatus for sampling tube introduced;

— 4.1.2.1 and 4.1.2.2: merged into Clause 4.1.2.1 (to enable introduction of sampling tube in 4.1.2.2);

— 4.1.2.1 recommendation on number of increments for mixtures with aggregate size ≥ 32 mm introduced;

— 4.1.2.2: procedure for sampling with sampling tube introduced;

— 4.6.3.1: new description for a representative sample drawing;

— 4.6.3.2: definition of a sufficient quantity of the sample dependent on the size of aggregate added;

— 4.6.4.3: definition of a sufficient quantity of the sample added;

— 4.7.2: change of the sufficient diameter for a cored sample;

— new Clause 4.10: sampling from a material hopper/paver;

— Figure 1: new type of sampling shovel added;

— Figures 3 and 4: new type of sampling tube added;

— Figure 9: example: sample drawing for collecting three bulk samples using sampling tube;

— where relevant, Notes has been converted to normal text in accordance with CEN-rules;

— notes regarding advantages/disadvantages for each method deleted.

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 — 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 — 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 specimens*

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*

prEN 12697-10, *Bituminous mixtures — Test methods — Part 10: Compactability*

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

prEN 12697-12, *Bituminous mixtures — Test methods — Part 12: Determination of the water sensitivity*

prEN 12697-13, *Bituminous mixtures — Test methods — 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 — Part 16: Abrasion by studded tyres*

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

prEN 12697-18, *Bituminous mixtures — Test methods — 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 cylindrical specimens (CY)*

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*

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

prEN 12697-24, *Bituminous mixtures — Test methods — Part 24: Resistance to fatigue*

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

prEN 12697-26, *Bituminous mixtures — Test methods — Part 26: Stiffness*

EN 12697-27, *Bituminous mixtures — Test methods — 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 vibratory compactor*

EN 12697-33, *Bituminous mixtures — Test methods for hot mix asphalt — Part 33: Specimen prepared 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 — 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 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 de-icing fluids*

EN 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*

EN 12697-44, *Bituminous mixtures — Test methods for hot mix asphalt — Part 44: Crack propagation by semi-circular bending test*

EN 12697-45, *Bituminous mixtures — Test methods for hot mix asphalt — Part 45: Saturation Ageing Tensile Stiffness (SATS) conditioning test*

EN 12697-46, *Bituminous mixtures — Test methods for hot mix asphalt — Part 46: Low temperature cracking and properties by uniaxial tension tests*

EN 12697-47, *Bituminous mixtures — Test methods for hot mix asphalt — Part 47: Determination of the ash content of natural asphalts*

prEN 12697-48, *Bituminous mixtures — Test methods — Part 48: Interlayer bonding*

EN 12697-49, *Bituminous mixtures — Test methods for hot mix asphalt — Part 49: Determination of friction after polishing*

CEN/TS 12697-50, *Bituminous mixtures — Test methods — Part 50: Resistance to scuffing*

CEN/TS 12697-51, *Bituminous mixtures — Test methods — Part 51: Surface shear strength test*

prEN 12697-52, *Bituminous mixtures — Test methods — Part 52: Conditioning to address oxidative ageing*

prEN 12697-53, *Bituminous mixtures — Test methods — Part 53: Cohesion increase by spreadability-meter method*

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

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

1 Scope

This European Standard specifies test methods for sampling bituminous mixtures for roads and other paved areas to determine their physical properties and composition.

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 58, *Bitumen and bituminous binders - Sampling bituminous binders*

EN 12697-20, *Bituminous mixtures - Test methods for hot mix asphalt - Part 20: Indentation using cube or cylindrical specimens (CY)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 58 and the following apply.

3.1
increment
single quantity of material taken from a larger body of the material under examination

3.2
bulk sample
sample obtained when increments from the material being sampled are combined to provide sufficient material for all required purposes

3.3
representative sample
sample consisting of a specified number of increments purposely taken to represent a specific quantity or area of material

Note 1 to entry: A representative sample is assumed to have the same composition as the material sampled, within the limits of precision associated with the method of sampling.

3.4
spot sample
sample of material taken in a single operation at a single place and time of the material being sampled

Note 1 to entry: If it can be assumed that the material is homogeneous, a spot sample can be regarded as a representative sample. If the material is not homogeneous, a spot sample only can be regarded as representative of a limited region around the sampling point.

3.5
laboratory sample
sample despatched to the laboratory

Note 1 to entry: It can be the whole or part of the bulk or representative sample. A laboratory sample is assumed to be of sufficient quantity for all tests required.

4 Methods of obtaining bulk samples from all materials except coated chippings

4.1 Sampling from a lorry load of material

4.1.1 Apparatus

a) sampling shovel (such as that shown in Figure 1); or

b) sampling scoop (such as that shown in Figure 2) for materials whose nominal size is 16 mm and smaller; or

c) sampling tube of stainless steel (see Figure 3 and Figure 4). Pipe size M may not be used when the nominal maximum size for aggregate is greater than 16 mm.

4.1.2 Procedure

4.1.2.1 Using a sampling shovel or scoop, take a minimum of four increments of approximately:

a) 2 kg each for material containing aggregate of nominal size equal or smaller than 16 mm;

b) 3 kg each for material containing aggregate of nominal size larger than 16 mm.

For mixtures with aggregate size ≥ 32 mm eight increments is recommended.

Take the increments from about 100 mm below the surface of the material from different positions as widely spaced as practicable but not closer than 300 mm from the side of the lorry. Remove all the surface material including any coarse material that may fall into the hole during sampling.

With some less cohesive materials the use of a metal plate, pushed into the material to facilitate digging 100 mm down is recommended to stop surface material falling into the hole.

4.1.2.2 Using a sampling tube (size M or N), take a minimum of three increments of approximately 4 kg.

To enable representative sampling the lorry should be loaded with at least half the volume with current material.

Take the increments of the material from different positions as widely spaced as practicable but not closer than 0,5 m from the side of the lorry. Push the tube horizontally in the mass and so far that the entire tube is filled. Pull out the tube and empty the contents into the packaging.

NOTE When more than one bulk sample is needed, an example of sample drawing for three bulk samples is given in Figure 9.

4.1.2.3 Combine the increments obtained to form the bulk sample.

The number of increments specified is a minimum and more may be necessary in some circumstances.

4.2 Sampling mastic asphalt during discharge from a mixer transporter

4.2.1 Apparatus

4.2.1.1 Sampling shovel (such as that shown in Figure 1).

A bucket shall not be used because of the risk of settlement of the largest aggregates during the collection operation dependant on mixture consistency.

4.2.1.2 Suitable moulds e.g. a bowl made of aluminium.

4.2.2 Procedure

Take two increments at the outlet chute of the mastic asphalt vessel after discharging one third of the mastic asphalt and immediately use these with a mould to form a slab of a size sufficient to meet the minimum required by EN 12697-20.

Line the mould with silicon paper, aluminium, polytetrafluoroethylene or similar; or lightly paint the mould with a slurry of limestone filler mixed with water, soda oleate or similar.

Avoid sampling the first and last material discharged unless the purpose of sampling is to examine this particular part of the discharge.

4.3 Sampling from the material around the augers of the paver

4.3.1 Apparatus

Sampling shovel (such as that shown in Figure 1).

4.3.2 Procedure

4.3.2.1 Using a sampling shovel, take two increments of approximately 3 kg from each side of the paver, a total of four increments. Take increments only when augers are charged throughout their length. Take the increment by pushing the shovel into the charge of material in front of the auger and removing it when full.

4.3.2.2 Combine the increments obtained to form the bulk sample.

Where easy access is obstructed by structural members of the paver, a sampling shovel blade fitted with a suitable handle approximately 2 m long may be used.

4.4 Sampling of workable material in heaps

4.4.1 Apparatus

Sampling shovel (such as that shown in Figure 1) or scoop (such as that shown in Figure 2).

4.4.2 Procedure

4.4.2.1 Using a sampling shovel or scoop, take a minimum of four increments of approximately 2 kg for material containing aggregate of a nominal size equal or smaller than 16 mm.

4.4.2.2 Using a sampling shovel, take a minimum of four increments of approximately 3 kg each for material containing aggregate of a nominal size larger than 16 mm.

4.4.2.3 Take the increments from different positions, at least 100 mm from the outer surface of the heap. Remove all the surface material including any coarse material that may fall into the hole.

4.4.2.4 Combine the increments obtained to form the bulk sample. The number of increments specified above is a minimum and more may be necessary in some circumstances.

With some less cohesive materials, the use of a metal plate pushed into the material to facilitate digging 100 mm down is recommended to stop surface material falling into the hole.