SLOVENSKI STANDARD
SIST EN 12697-42:2021

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SIST EN 12697-42:2013

Bitumenske zmesi - Preskusne metode - 42. del: Vsebnost nečistoč v asfaltnem granulatu

Bituminous mixtures - Test methods - Part 42: Amount of foreign matter in reclaimed asphalt

Asphalt - Prüfverfahren - Teil 42: Menge der Fremdpartikel in Ausbauasphalt

Mélanges bitumineux - Méthodes d'essai - Partie 42 : Quantité de matériaux étrangers présents dans les agrégats d'enrobés

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ICS:

93.080.20	Materiali za gradnjo cest	Road construction materials

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EUROPEAN STANDARD

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English Version

Bituminous mixtures - Test methods - Part 42: Amount of foreign matter in reclaimed asphalt

Mélanges bitumineux - Méthodes d'essai - Partie 42 : Quantité de matériaux étrangers présents dans les agrégats d'enrobés

Asphalt - Prüfverfahren - Teil 42: Menge der Fremdpartikel in Ausbauasphalt

This European Standard was approved by CEN on 13 December 2020.

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

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European foreword

This document (EN 12697-42:2021) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by July 2021, and conflicting national standards shall be withdrawn at the latest by July 2021.

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 12697-42:2012.

The main changes compared to the previous edition are listed below:

— The title no longer refers to hot mix asphalt;

— (Clause 1) paragraph, 4th line: “asphalt” amended to read “reclaimed asphalt”;

— (Clause 1) NOTE: The wording “asphalt mixtures” and “asphalt mix” amended to read “bituminous mixtures” and “bituminous mixture”;

— (Clause 1) NOTE 2 deleted since already described in Scope;

— (ge) NOTES adjusted according to CEN/CENELEC Internal Regulations Part 3:2019;

— (ge) for measurement and expression of results the wording “accuracy” has been amended to “to the nearest”;

— (Clause 2) dated reference to EN 932-1 deleted and title corrected for EN 12697-27;

— (Clause 3) introductory sentence amended according to CEN/CENELEC Internal Regulations Part 3:2019 and dated reference to EN 931-1 deleted;

— (3.1) definition of reclaimed asphalt harmonized with EN 13108-8:2016;

— (3.2) cold asphalt with cut-back bitumen excluded from the definition;

— (3.3) additional definition for finer foreign matter introduced. Transferred from Annex A, A.2. (cold asphalt with cut-back bitumen excluded). The following clauses renumbered accordingly;

— (5.2) reworded description for balance (editorial) in line with 7.2;

— (7.1) NOTE 1 regarding cold asphalt with cut-back bitumen deleted since there is no relevance with the purpose of this test method; NOTE 2 deleted;

— (7.2) NOTE 1 adjusted to normal text (new sub-clause 7.2.1). NOTE 2 adjusted to normal text (new sub-clause 7.2.2);

— (7.3); (7.4); (7.5); (8) simplified description with reference to 7.2;

— (Clause 9) required information completed according to CEN/CENELEC Internal Regulations Part 3:2019, Clause 18.5.8. Report of test result in line with EN 13108-8:2016, 4.1;

— (Annex A) title of Annex A amended to read “Amount of finer foreign matter” and the wording “finer foreign matter” implemented where relevant in line with definition in 3.3;

WARNING — The methods described in this document require the use of solvents that are hazardous to health and are subject to occupational exposure limits as described in relevant legislation and regulations. Exposure levels are related to both handling procedures and ventilation provision and it is emphasized that adequate training is expected to be given to staff employed in the usage of these substances.

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

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies a visual method of determining the amount and components of coarse foreign matter in reclaimed asphalt. A method for determining the amount and components of finer foreign matter in reclaimed asphalt is given in Annex A. This method does not completely categorize the foreign matter that can occur in reclaimed asphalt.

NOTE For the use of reclaimed asphalt in bituminous mixtures it is important to know the components in the reclaimed asphalt and to know to what extent coarse foreign matter is present that can influence the properties of the bituminous mixture.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 933-2, *Tests for geometrical properties of aggregates - Part 2: Determination of particle size distribution - Test sieves, nominal size of apertures*

EN 12697-27, *Bituminous mixtures - Test methods - Part 27: Sampling*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 932-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
reclaimed asphalt
processed asphalt, suitable and ready to be used as constituent material for asphalt

Note 1 to entry: Processing can include one or more of: milling, crushing, sieving (screening), blending, etc.

3.2
coarse foreign matter
matter that is greater in size than 8 mm in reclaimed asphalt not derived from asphalt pavements or surplus production

3.3
finer foreign matter
matter that is greater in size than 4 mm but smaller than 8 mm in reclaimed asphalt not derived from asphalt pavements or surplus production

Note 1 to entry: See Annex A. It is also possible to use fractions 6,3/8 mm or 5,6/8 mm, but the result will not be for the finer foreign matter as defined here. The fraction actually tested needs to be clearly associated with the result in any report.

3.4
primary source
quarry or pit from which aggregate has traditionally been used successfully in the manufacture of one or more types of asphalt

3.5
secondary source
quarry, pit or other source from which aggregate has not traditionally been used successfully in the manufacture of any type of asphalt

4 Principle

The test methodology for determining the amount and components of coarse foreign matter in reclaimed asphalt consists of the visual inspection and determination of the composition of two sub-samples, taken from a representative sample of reclaimed asphalt.

NOTE An optional method for determining the amount and components of finer foreign matter in reclaimed asphalt is given in Annex A.

5 Apparatus

5.1 **Sieve**, with a nominal aperture size of 8 mm, conforming to EN 933-2.

5.2 **Balance,** capable of weighing to the nearest 1 g.

5.3 **Sampling divider**, conforming to either EN 932-1 or EN 12697-27.

5.4 **Hydrochloric acid**, 1 mol/l.

5.5 **Solvent**, for hydrocarbons.

5.6 **Water**.

6 Preparation of the sample

6.1 The reclaimed asphalt on the feedstock shall be visually inspected for the presence of coarse foreign matters. When coarse foreign matter is present, take a representative sample of reclaimed asphalt from the feedstock. The sample shall be at least 20 kg.

6.2 Sieve the sample using the sieve described in 5.1. Take the portion of the sample remaining in the sieve and divide it into two sub-samples by means of the sampling divider.

NOTE The composition of the fraction of the sample remaining in the sieve is taken to be representative of the composition of the total amount of reclaimed asphalt from which the sample was taken.

7 Procedure

7.1 The two sub-samples shall be visually inspected for the presence of coarse foreign matter and the composition of each sub-sample shall be established as specified in 7.2. Each sub-sample shall be visually inspected and its composition determined and the two analyses shall be independent of each other.

7.2 Each sub-sample shall be sorted into:

a) Natural aggregate and material derived from asphalt;

b) Group 1 materials such as:

   1) cement concrete, including cement concrete products;

   2) bricks;

   3) sub base materials (excluding natural aggregate);

   4) cement mortar;

   5) metal.

c) Group 2 materials such as:

   1) synthetic materials;

   2) wood;

   3) plastics.

7.2.1 If necessary, wash the material with water before inspection in order to facilitate the inspection.

7.2.2 In case of doubt, the presence of concrete may be proved by use hydrochloric acid, and asphalt by use of dichloromethane.

7.3 The mass of each material according to 7.2 shall be determined to the nearest 1 g.

7.4 Calculate the content of each material according to 7.2 for each sub-sample, as a percentage by mass, to the nearest 0,1 % by mass.

7.5 If the mass of coarse foreign matter obtained from the sub-samples by each independent analysis differs by more than 5 % by mass, the cause of this difference shall be investigated.

If no explanation for a difference in mass is found, a new representative sample is taken and the test is performed once more.

8 Expression of results

Calculate the content of each material according to 7.2, expressed as the average of the results of both analyses, rounded to the nearest 0,1 % by mass.

9 Test report

The test report shall include the following information:

a) identification of the sample;

b) reference to this document;

c) identification of the feedstock;

d) source of reclaimed asphalt (mixture and location(s) from which the feedstock has been derived, if known);

e) tonnage of the feedstock;

f) content of natural aggregate and material derived from asphalt to the nearest 0,1 % by mass according to Clause 8;

g) Group 1 materials, to the nearest 0,1 % by mass according to Clause 8, such as:

   1) cement concrete, including cement concrete products;

   2) bricks;

   3) sub base materials (excluding natural aggregate);

   4) cement mortar;

   5) metal.

h) Group 2 materials, to the nearest 0,1 % by mass according to Clause 8, such as:

   1) synthetic materials;

   2) wood;

   3) plastics.

i) any deviations from the procedure;

j) any unusual features observed;

k) date and the time at which the test was carried out.

10 Precision data

Precision data are not available.