
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 für Heißasphalt - Teil 42: Fremdstoffgehalt in Ausbauasphalt

Mélanges bitumineux - Méthodes d'essai pour mélange hydrocarboné à chaud - Partie 42: Quantité de matériaux étrangers présents dans les agrégats d'enrobés

<https://standards.iteh.ai/catalog/standards/sist/17a88dfe-e6e4-4129-80ff-4371024a8b5a/sist-prEN-12697-42:2019>

Ta slovenski standard je istoveten z: prEN 12697-42

ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

oSIST prEN 12697-42:2019

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12697-42

August 2019

ICS 93.080.20

Will supersede EN 12697-42:2012

English Version

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

Mélanges bitumineux - Méthodes d'essai pour mélange
hydrocarboné à chaud - Partie 42: Quantité de
matériaux étrangers présents dans les agrégats
d'enrobés

Asphalt - Prüfverfahren für Heißasphalt - Teil 42:
Fremdstoffgehalt in Ausbauasphalt

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 227.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Content	Page
European foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Principle	5
5 Apparatus	5
6 Preparation of the sample	5
7 Procedure	6
8 Expression of results	7
9 Test report	7
10 Precision data	7
Annex A (informative) Amount of foreign matter in finer fractions	8
A.1 General	8
A.2 Apparatus	8
A.3 Preparation of the sample	8
A.4 Procedure	9
A.5 Expression of results	9
A.6 Test report	9

European foreword

This document (prEN 12697-42:2019) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12697-42:2012.

The main technical changes with respect to EN 12697-42:2012 are listed below:

- (Title) No longer exclusively for hot mix asphalt;
- (ge) NOTES adjusted according to ISO/IEC Directives – Part 2:2016, 24.5;
- (2) Dated reference to EN 932-1 deleted and title corrected for EN 12697-27;
- (3) Introductory sentence amended according to CEN/CENELEC Internal Regulations Part 3:2017 and dated reference to EN 931-1 deleted;
- (3.1) Definition of reclaimed asphalt harmonized with EN 13108-8:2016;
- (3.3) Additional definition for finer foreign matter in Annex A, clause A.2 transferred to 3.3. The following clauses renumbered accordingly.

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 should 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.

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 asphalt.

NOTE 1 For the use of reclaimed asphalt in asphalt mixtures, it is important to know the components in the reclaimed asphalt and to what extent coarse foreign matter is present that can influence the properties of the asphalt mix.

NOTE 2 The method is not intended to categorize all foreign materials but rather to ensure that the amount of coarse foreign materials are minimized.

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, *Test for general properties of aggregates — Part 1: Methods for sampling*

EN 933-2, *Test 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 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 <http://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, and cold asphalt produced with cut-back bitumen

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, and cold asphalt produced with cut-back bitumen

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 to weight to 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 materials. 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.

NOTE Cold asphalt produced with cut-back bitumen can be hard to distinguish from “asphalt”. However, in that case, the cold asphalt can be considered as “asphalt”: Any cut-back in the reclaimed asphalt will affect binder. Distinction is favourable as the presence of flux can influence the final binder properties to an unwanted level or can lead to safety risks during the production of recycling asphalt.

Because of the strong influence of the analyst on the test result, executing the test twice by two independent analyses is required.

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.

NOTE 1 If necessary, washing the material with water before inspection can be helpful in order to facilitate the inspection.

NOTE 2 In case of doubt, the presence of concrete can be proved by use of hydrochloric acid, and asphalt by use of dichloromethane.

7.3 The mass of asphalt, cold asphalt produced with cut-back bitumen and coarse foreign matter not derived from asphalt (divided into side materials and other materials), shall each be determined to an accuracy of 1 g.

7.4 Calculate the content of asphalt, cold asphalt produced with cut-back bitumen and coarse foreign matter not derived from asphalt (divided into side materials and other materials) in the sub-sample, as a percentage by mass, to an accuracy of 0,1 % by mass.

7.5 If the mass of coarse foreign matter obtained from the sub-samples by each independent analysis differs from that obtained by the other independent analysis 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 material derived from asphalt, coarse foreign matter derived from asphalt and coarse foreign matter not derived from asphalt, expressed as the average of the results of both analyses, to an accuracy of 0,1 % by mass.

9 Test report

The test report shall include the following information:

- a) identification of the feedstock;
- b) source of reclaimed asphalt (mixture and locations from which the feedstock has been derived, if known);
- c) tonnage of the feedstock;
- d) content of material derived from asphalt, coarse foreign matter derived from asphalt and coarse foreign matter not derived from asphalt, expressed as the average of the results of both independent analyses, to an accuracy of 0,1 % by mass;
- e) date on which and the time at which the test was carried out.

10 Precision data

Precision data are not available.

Annex A

(informative)

Amount of foreign matter in finer fractions

A.1 General

Generally, the finer fractions of foreign matter in a sample of reclaimed asphalt are assumed to be similar to that of the coarse foreign matter. However, there are situations which cast doubt on that assumption, including:

- when the reclaimed asphalt is exposed to significant amounts of small wind-blown detritus;
- when the reclaimed asphalt has been transported in vehicles previously used for a material of predominant size less than 8 mm without adequate cleaning; and
- when the reclaimed has been stored alongside a material of predominant size less than 8 mm.

In such circumstances, testing a smaller fraction may be considered to be prudent.

Testing for smaller fractions of foreign matter will be considerably more difficult than testing for coarse foreign matter, and it is assumed that the repeatability and reproducibility will be significantly greater (although no precision studies have been undertaken as yet). Therefore, undertaking such tests is only required when strictly necessary.

A.2 Apparatus

A.2.1 Equipment defined in Clause 5.

A.2.2 **Sieve**, with a nominal aperture size of 4 mm, conforming to EN 933-2

NOTE It is possible to use a sieve with a nominal dimension of 6,3 mm or 5,6 mm.

A.3 Preparation of the sample

A.3.1 The reclaimed asphalt on the feedstock shall be visually inspected for the presence of finer foreign materials. When finer foreign matter is present, take a representative sample of reclaimed asphalt from the feedstock.

A.3.2 Sieve the sample using the sieves described in 5.1 and A.2.2. Take the portion of the sample passing the first sieve but remaining in the second sieve and divide it into two sub-samples by means of the sampling divider. Both sub-samples shall contain between 100 and 200 particles.

NOTE 1 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.

NOTE 2 The sample retained on the sieve when determining the coarse foreign material can be used for determining the finer foreign material after removing the undersized. The sample can be reduced to the correct number of particles by splitting the sample and discarding half, repeating as necessary.