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

Bituminous mixtures - Test methods for hot mix asphalt - 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

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

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This European Standard was approved by CEN on 13 October 2012.

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Content

Page

Foreword 3

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Principle 7

5 Apparatus 7

6 Preparation of the sample 7

7 Procedure 7

8 Expression of results 8

9 Test report 8

10 Precision data 9

Annex A (informative) **Amount of foreign matter in finer fractions** 10

A.1 General 10

A.2 Additional definitions 10

A.3 Apparatus 10

A.4 Preparation of the sample 10

A.5 Procedure 11

A.6 Expression of results 11

A.7 Test report 11

Foreword

This document (EN 12697-42:2012) 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of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

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

This document supersedes EN 12697-42:2005.

Compared with EN 12697-42:2005, the following significant changes have been made:

— definition of coarse foreign matter includes 8 mm minimum size;

— solvent for hydrocarbons made less specific;

— classifications for material brought directly into line with those in EN 13108-8;

— source of reclaimed asphalt to be reported clarified;

— annex for analysis of finer material added.

WARNING — The methods described in this European Standard 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 emphasised that adequate training should be given to staff employed in the usage of these substances.

EN 12697, *Bituminous mixtures — Test methods for hot mix asphalt* contains the following parts:

— *Part 1: Soluble binder content*

— *Part 2: Determination of particle size distribution*

— *Part 3: Bitumen recovery: Rotary evaporator*

— *Part 4: Bitumen recovery: Fractionating column*

— *Part 5: Determination of the maximum density*

— *Part 6: Determination of bulk density of bituminous specimens*

— *Part 7: Determination of bulk density of bituminous specimens by gamma rays*

— *Part 8: Determination of void characteristics of bituminous specimens*

— *Part 9: Determination of the reference density*

— *Part 10: Compactability*

— *Part 11: Determination of the affinity between aggregate and bitumen*

— *Part 12: Determination of the water sensitivity of bituminous specimens*

— *Part 13: Temperature measurement*

— *Part 14: Water content*

— *Part 15: Determination of the segregation sensitivity*

— *Part 16: Abrasion by studded tyres*

— *Part 17: Particle loss of porous asphalt specimen*

— *Part 18: Binder drainage*

— *Part 19: Permeability of specimen*

— *Part 20: Indentation using cube or cylindrical specimens (CY)*

— *Part 21: Indentation using plate specimens*

— *Part 22: Wheel tracking*

— *Part 23: Determination of the indirect tensile strength of bituminous specimens*

— *Part 24: Resistance to fatigue*

— *Part 25: Cyclic compression test*

— *Part 26: Stiffness*

— *Part 27: Sampling*

— *Part 28: Preparation of samples for determining binder content, water content and grading*

— *Part 29: Determination of the dimensions of a bituminous specimen*

— *Part 30: Specimen preparation by impact compactor*

— *Part 31: Specimen preparation by gyratory compactor*

— *Part 32: Laboratory compaction of bituminous mixtures by a vibratory compactor*

— *Part 33: Specimen prepared by roller compactor*

— *Part 34: Marshall test*

— *Part 35: Laboratory mixing*

— *Part 36: Determination of the thickness of a bituminous pavement*

— *Part 37: Hot sand test for the adhesivity of binder on precoated chippings for HRA*

— *Part 38: Common equipment and calibration*

— *Part 39: Binder content by ignition*

— *Part 40: In situ drainability*

— *Part 41: Resistance to de-icing fluids*

— *Part 42: Amount of coarse foreign matter in reclaimed asphalt* (the present document)

— *Part 43: Resistance to fuel.*

— *Part 44: Crack propagation by semi-circular bending test*

— *Part 45: Saturation ageing tensile stiffness (SATS) conditioning test*

— *Part 46: Low temperature cracking and properties by uniaxial tension tests*

— *Part 47: Determination of the ash content of natural asphalts*

— *Part 48: Interlayer bonding — Torque bond test (TBT), Shear bond test (SBT), Tensile Adhesion Test (TAT)*[1)]

— *Part 49: Determination of friction after polishing*[1)]

— *Part 50: Resistance to scuffing* [1)]

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1) In preparation.

1 Scope

This European Standard 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 categorise 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 categorise all foreign materials but rather to ensure that the amount of coarse foreign materials are minimised.

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 932-1:1996, *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 for hot mix asphalt — Part 27: Sampling*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 932-1:1996 and the following apply.

3.1
reclaimed asphalt
asphalt made reusable by milling of asphalt road layers, by crushing of lumps torn up from asphalt pavements and asphalt from surplus production

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

3.4
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 1 Cold asphalt produced with cut-back bitumen may be hard to distinguish from "asphalt". However, in that case, the cold asphalt may be considered as “asphalt”: any cut-back in the reclaimed asphalt will affect binder. Distinction is favourable as the presence of flux may influence the final binder properties to an unwanted level or may lead to safety risks during the production of recycling asphalt.

NOTE 2 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: