SLOVENSKI STANDARD
SIST EN 13108-20:2006

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Bitumenske zmesi - Specifikacije materialov - 20. del: Tipski preskus

Bituminous mixtures - Material specifications - Part 20: Type Testing

Asphaltmischgut - Mischgutanforderungen - Teil 20: Erstprüfung

Mélanges bitumineux - Spécifications des matériaux - Partie 20: Épreuve de formulation

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Bituminous mixtures - Material specifications - Part 20: Type Testing

Mélanges bitumineux - Spécifications des matériaux - Partie 20: Épreuve de formulation

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This European Standard was approved by CEN on 12 October 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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Foreword

This European Standard (EN 13108-20:2006) 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of an identical text or by endorsement, at the latest by July 2006, and conflicting national standards shall be withdrawn at the latest by January 2008.

This European Standard is one of a series of standards as listed below:

EN 13108-1, *Bituminous mixtures — Material specifications — Part 1: Asphalt Concrete.*

EN 13108-2, *Bituminous mixtures — Material specifications — Part 2: Asphalt Concrete for very thin layers.*

EN 13108-3, *Bituminous mixtures — Material specifications — Part 3: Soft Asphalt.*

EN 13108-4, *Bituminous mixtures — Material specifications — Part 4: Hot Rolled Asphalt*.

EN 13108-5, *Bituminous mixtures — Material specifications — Part 5: Stone Mastic Asphalt.*

EN 13108-6, *Bituminous mixtures — Material specifications — Part 6: Mastic Asphalt.*

EN 13108-7, *Bituminous mixtures — Material specifications — Part 7: Porous Asphalt.*

EN 13108-8, *Bituminous mixtures — Material specifications — Part 8: Reclaimed asphalt.*

EN 13108-20, *Bituminous mixtures — Material specifications — Part 20: Type Testing.*

EN 13108-21, *Bituminous mixtures — Material specifications — Part 21: Factory Production Control.*

No existing European Standard is directly superseded although EN 12697-9 is now redundant.

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.

Introduction

This European Standard for Type Testing has been written as part of the system for the Evaluation of Conformity of asphalt mixtures. It is designed to be used in conjunction with the product standards EN 13108-1 to -7 and is called up by these standards as part of Evaluation of conformity. The Type Testing procedures have the function of providing assurance that a particular mix formulation complies with each of the specified requirements in the product standard. The Type Testing procedure is designed to be applied to all harmonised elements of harmonised European Standards for bituminous mixtures whether or not regulatory marking is to be applied. The system can also be extended to non-harmonised elements.

1 Scope

This European Standard specifies Type Testing procedures for use for the validation of bituminous mixtures for use in roads, airfields and other trafficked areas.

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 933-1, *Test for geometrical properties of aggregates — Part 1: Determination of particle size distribution — Sieving method*

EN 933-10, *Test for geometrical properties of aggregates — Part 10: Assessment of fines — Grading of fillers (air jet sieving)*

EN 1097-6, *Tests for mechanical and physical properties of aggregates — Part 6: Determination of particle density and water absorption*

EN 1097-7, *Tests for mechanical and physical properties of aggregates — Part 7: Determination of the particle density of filler — Pyknometer method*

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

EN 1427, *Bitumen and bituminous binders — Determination of the softening point — Ring and ball method*

EN 12595, *Bitumen and bituminous binders — Determination of kinematic viscosity*

EN 12596, *Bitumen and bituminous binders — Determination of dynamic viscosity by vacuum capillary*

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: Bitumen recovery: Rotary evaporator*

EN 12697-4, *Bituminous mixtures — Test methods for hot mix asphalt — 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 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 12697-11, *Bituminous mixtures — Test methods for hot mix asphalt — Part 11: Determination of the affinity between aggregate and bitumen*

EN 12697-12, *Bituminous mixtures — Test methods for hot mix asphalt — Part 12: Determination of the water sensitivity of bituminous specimens*

EN 12697-16, *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 12697-24:2004, *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 12697-30, *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 gyrator compactor*

EN 12697-32, *Bituminous mixtures — Test methods for hot mix asphalt — Part 32: Laboratory compaction of bituminous mixtures by vibratory 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 12697-39, *Bituminous mixtures — Test methods for hot mix asphalt — Part 39: Binder content by ignition*

EN 12697-41, *Bituminous mixtures — Test methods for hot mix asphalt — Part 41: Resistance to de-icing fluids*

EN 12697-43, *Bituminous mixtures — Test methods for hot mix asphalt — Part 43: Resistance to fuel*

EN 13043, Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas

EN 13108-21:2005, *Bituminous mixtures — Material specifications — Part 21: Factory Production Control*

prEN 13924, *Bitumen and bituminous binders - Specifications for hard paving grade bitumens*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
technical specifications
harmonised European Standards and European Technical Approvals for asphalt mixtures

3.2
mix formulation
composition of a single mixture expressed as a target composition

NOTE A target composition can be expressed in two ways, see 3.3 and 3.4.

3.3
input target composition
expression of a mix formulation in terms of the constituent materials, the grading curve and the percentage of bitumen added to the mixture

NOTE This will usually be the result of a laboratory mix design and validation.

3.4
output target composition
expression of a mix formulation in terms of the constituent materials and the mid point grading and soluble binder content to be found on analysis

NOTE This will usually be the result of a production validation.

4 Requirements

4.1 Type Testing

For each mix formulation the Type Testing procedure shall be carried out to provide proof that the formulation meets the relevant requirements in the product standard (see Note 1).

An Initial Type Test is the complete set of tests or other procedures, determining the performance of samples of bituminous mixtures representative of the product type.

Initial Type Testing shall be performed to show conformity with the product standard on first use for bituminous mixtures being put onto the market.

Where raw materials are used whose characteristics have already been determined, by the material supplier on the basis of conformity with other technical specifications, these characteristics need not be reassessed provided that the raw material's performance remain the same.

NOTE 1 Products CE marked in accordance with appropriate harmonised European specifications may be presumed to have the performances stated with the CE marking, although this does not replace the responsibility of the producers to ensure that the bituminous mixture as a whole has the necessary performance values to meet the declared values.

NOTE 2 The European Standards for bituminous mixtures each contain a number of requirements for physical and mechanical properties. Some of these are expressed as direct measurements of mechanical properties such as stiffness or deformation resistance, whilst others are in the form of surrogate properties such as bitumen content or voids content. The producer, when carrying out this type testing procedure, should provide proof for each relevant requirement in the particular specification with which he is demonstrating conformity.

The results of the Type Testing shall be presented in a Type Test report containing all of the information required by this European Standard.

Where the family approach is adopted, as permitted in the product standards, its use shall be restricted to correlation between mix formulations with similar volumetrics and identical other than for binder grade. In such case it may be assumed that harder grades of bitumen will produce deformation resistance and stiffness, at least as good as those with softer grades (see Note 3). It may also be assumed that a change only in binder grade will not affect the permeability of Porous Asphalt.

NOTE 3 For example, Asphalt Concrete with a binder 70/100 might fulfil specific requirements for resistance to deformation. Changing only the binder to a harder grade, such as 40/60, will not adversely affect this property. Additional testing for that property in that case will not be necessary to claim the same performance category.

The Type Testing procedure is also required to be carried out at a frequency of at least once every five years as part of the procedure to demonstrate ongoing conformity as part of Factory Production Control as specified in EN 13108-21, 4.1.

4.2 Validity

4.2.1 Period of validity

A mix Type Testing report is valid for a single mix formulation and remains valid for the purposes of Initial Type Testing unless there are changes in raw materials as described in 4.2.2 or 4.2.3.

NOTE EN 13108-20, 4.1, requires mix formulations to be revalidated using the Type Testing Procedure at intervals not greater than five years.

4.2.2 Changes in aggregate

A new Type Test shall be required under the following circumstances:

a) if there is a change in the type of coarse aggregate constituting:

— change in the category of coarse aggregate, as defined in EN 13043, for one of the following properties: shape, percentage of semi-crushed aggregate, resistance to fragmentation, resistance to wear, resistance to abrasion by studded tyres (where appropriate);

— change in petrographic type;

— change in particle density (weighted mean) greater than 0,05 Mg/m^3;

b) if there is a change in the source, the grading category or, where appropriate, the angularity category of fine aggregate;

c) if there is a change in the mineralogical type of filler.

4.2.3 Change in bitumen

A change in bitumen grade shall result in a new Type Test.

5 Constituent materials

The Type Testing procedure shall include tests to demonstrate that all constituent materials, including any reclaimed asphalt addition, conform to the appropriate requirements. The requirements are detailed in Annex A.

The tests for geometrical properties of the aggregate constituents, penetration/softening point/viscosity of the binder and grading, binder content and binder properties of reclaimed asphalt shall be carried out on the constituents actually used in Type Testing.