



SLOVENSKI STANDARD

SIST EN 13108-7:2016

01-november-2016

Nadomešča:

SIST EN 13108-7:2006

SIST EN 13108-7:2006/AC:2008

Bitumenske zmesi - Specifikacije materialov - 7. del: Drenažni asfalt

Bituminous mixtures - Material specifications - Part 7: Porous Asphalt

Asphaltmischgut - Mischgutanforderungen - Teil 7: Offenporiger Asphalt

Mélanges bitumineux - Spécifications sur le matériau - Partie 7: Bétons bitumineux drainant

[SIST EN 13108-7:2016](https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfde105e231/sist-en-13108-7-2016)

[https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-](https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfde105e231/sist-en-13108-7-2016)

[dfde105e231/sist-en-13108-7-2016](https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfde105e231/sist-en-13108-7-2016)

Ta slovenski standard je istoveten z: EN 13108-7:2016

ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

SIST EN 13108-7:2016

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13108-7:2016

<https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfede105e231/sist-en-13108-7-2016>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13108-7

June 2016

ICS 93.080.20

Supersedes EN 13108-7:2006

English Version

**Bituminous mixtures - Material specifications - Part 7:
Porous Asphalt**

Mélanges bitumineux - Spécifications pour le matériau
- Partie 7: Bétons bitumineux drainants

Asphaltnischgut - Mischgutanforderungen - Teil 7:
Offenporiger Asphalt

This European Standard was approved by CEN on 27 February 2016.

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 CEN-CENELEC Management Centre 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 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfede105e231/sist-en-13108-7-2016>



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

	Page
European foreword.....	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions, symbols and abbreviations	8
3.1 Terms and definitions	8
3.2 Symbols and abbreviations	10
4 Requirements for constituent materials	10
4.1 General.....	10
4.2 Binder.....	10
4.2.1 General.....	10
4.2.2 Selection of binder	11
4.3 Aggregates	12
4.3.1 Coarse aggregate	12
4.3.2 Fine aggregate	12
4.3.3 All-in aggregates.....	12
4.3.4 Added filler.....	12
4.4 Reclaimed asphalt.....	12
4.5 Additives.....	12
5 Requirements for the mixture.....	13
5.1 General.....	13
5.2 Composition, grading, binder content.....	13
5.2.1 Composition	13
5.2.2 Grading.....	13
5.2.3 Minimum binder content	15
5.3 Properties	16
5.3.1 Specimens	16
5.3.2 Drainage capacity.....	16
5.3.3 Resistance to permanent deformation.....	18
5.3.4 Water sensitivity	22
5.3.5 Particle loss	23
5.3.6 Low temperature properties	24
5.3.7 Friction after polishing	25
5.3.8 Coating and homogeneity.....	25
5.3.9 Reaction to fire.....	25
5.3.10 Binder drainage.....	25
5.3.11 Resistance to fuel for application on airfields	26
5.3.12 Resistance to de-icing fluid for application on airfields	27
5.3.13 Bitumen aggregate affinity for application on airfields.....	27
5.4 Temperature of the mixture	28
5.5 Regulated dangerous substances.....	28
5.6 Conflicting requirements	29
6 Assessment and verification of constancy of performance — AVCP	29

7	Identification.....	29
Annex A (normative) Calculations of the penetration or the softening point of the binder of a mixture when reclaimed asphalt is used.....		
A.1	General	31
A.2	Calculation of the penetration of the binder of a mixture	31
A.3	Calculation of the softening point of the binder of a mixture.....	31
Annex ZA (informative) Relationship of this European Standard with Regulation (EU) No. 305/2011		
ZA.1	Scope and relevant characteristics	33
ZA.2	System of Assessment and Verification of Constancy of Performance (AVCP)	35
ZA.3	Assignment of AVCP tasks	35

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 13108-7:2016

<https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfede105e231/sist-en-13108-7-2016>

EN 13108-7:2016 (E)**European foreword**

This document (EN 13108-7:2016) 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 2016, and conflicting national standards shall be withdrawn at the latest by March 2018.

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 13108-7:2006.

This European standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of Regulation (EU) No 305/2011 for construction products (CPR).

For relationship with Regulation (EU) No 305/2011 see informative Annex ZA which is an integral part of this European standard.

Compared with EN 13108-7:2006, the following changes have been made:

- iTeh STANDARD PREVIEW**
(standards.iteh.ai)
- <https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-4166165c251f/sist-en-13108-7-2016>
- a) new properties introduced (resistance to deformation, low temperature properties, friction after polishing);
 - b) additional optional sieves for the characterization of the grading;
 - c) for several properties additional categories are introduced;
 - d) possibility to define specific conditions in documents related to the application of the product;
 - e) CPR reference and new Annex ZA according to CPR rules.

This European Standard is one of a series 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 (BBTM)*
- 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 13108-9, *Bituminous mixtures — Material specifications — Part 9: Asphalt for Ultra-Thin Layer (AUTL)*
- EN 13108-20, *Bituminous mixtures — Material specifications — Part 20: Type Testing*
- EN 13108-21, *Bituminous mixtures — Material specifications — Part 21: Factory Production Control*

Annex A (normative) details the calculation of the penetration or the softening point in mixtures containing reclaimed asphalt from the penetrations or softening points of the added binder and the recovered binder from the reclaimed asphalt.

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 13108-7:2016](https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfede105e231/sist-en-13108-7-2016)

<https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfede105e231/sist-en-13108-7-2016>

Introduction

The aim of this European Standard is to enable specification of Porous Asphalt mixtures on a performance basis. In general, however, there are currently more empirical tests available to describe the mixtures. Depending on the experience with the combination of requirements in this European standard more or less degrees of freedom for the producer may be given.

This European Standard covers a large variety of materials for different applications, traffic and climate conditions. EN 13108-7 gives properties and listings of possible categories. It has to accommodate the road industry for all of Europe. For this reason the menu approach for properties has been chosen. The tables represent categories that are required all over Europe. For this reason numerical values in Tables do not always obey statistical rules. Based on conditions of use specific properties and categories may be defined in documents related to the application of the product. The categories defined in those documents need to take into account the reproducibility of the test when this is given in the appropriate test method.

Care should be taken to only select those tests which are relevant to the application of the asphalt and the use of the pavement and to avoid a combination of potentially conflicting requirements.

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 13108-7:2016

<https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfed105e231/sist-en-13108-7-2016>

1 Scope

This European Standard specifies requirements for mixtures of the mix group Porous Asphalt for use on roads, airfields and other trafficked areas. Porous Asphalt is used for surface courses. Porous Asphalt can be laid in more than one layer.

The mixtures of the mix group Porous Asphalt are produced on the basis of hot bitumen. Mixtures utilizing bitumen emulsion and bituminous materials based on *in situ* recycling are not covered by this standard.

This European Standard includes requirements for the selection of the constituent materials. It is designed to be read in conjunction with EN 13108-20 and EN 13108-21.

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 1097-6:2013, *Tests for mechanical and physical properties of aggregates — Part 6: Determination of particle density and water absorption*

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 12591, *Bitumen and bituminous binders — Specifications for paving grade bitumens*

EN 12697 (all parts), *Bituminous mixtures — Test methods for hot mix asphalt*

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

EN 13108-4:2016, *Bituminous mixtures — Material specifications — Part 4: Hot Rolled Asphalt*

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

EN 13108-20:2016, *Bituminous mixtures — Material specifications — Part 20: Type Testing*

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

EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13924-1, *Bitumen and bituminous binders — Specification framework for special paving grade bitumen — Part 1: Hard paving grade bitumens*

EN 13924-2, *Bitumen and bituminous binders — Specification framework for special paving grade bitumen — Part 2: Multigrade paving grade bitumens*

EN 14023, *Bitumen and bituminous binders — Specification framework for polymer modified bitumens*

EN 13108-7:2016 (E)

EN ISO 11925-2, *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2)*

3 Terms and definitions, symbols and abbreviations**3.1 Terms and definitions**

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

3.1.1**pavement**

structure, composed of one or more courses, to assist the passage of traffic over terrain

3.1.2**layer**

element of a pavement laid in a single operation

3.1.3**course**

structural element of a pavement constructed with a single material

Note 1 to entry: A course may be laid in one or more layers.

3.1.4**surface course**

upper course of a pavement which is in contact with the traffic

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.1.5**binder course**

structural course of a pavement between the surface course and the base

[SIST EN 13108-7:2016
https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfede105e231/sist-en-13108-7-2016](https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-dfede105e231/sist-en-13108-7-2016)

3.1.6**regulating course**

course of variable thickness applied to an existing course of surface to provide the necessary profile for a further course of consistent thickness

3.1.7**base**

main structural element of a pavement

Note 1 to entry: The base can be laid in one or more courses, described as “upper” base, “lower” base.

3.1.8**asphalt**

homogenous mixture of coarse and fine aggregates, filler aggregate and bituminous binder which is used in the construction of pavement layers

Note 1 to entry: Asphalt can include one or more additives to enhance the laying characteristics, performance or appearance of the mixture.

3.1.9**natural asphalt**

naturally occurring mixture of bitumen and finely divided mineral matter which is found in well-defined surface deposits and which is processed to remove unwanted components such as water and vegetable matter

Note 1 to entry: Natural asphalt is described in EN 13108-4.

3.1.10**Porous Asphalt**

asphalt prepared so as to have a very high content of interconnected voids which allow passage of water and air

3.1.11**mix formulation**

composition of a single mixture expressed as a target composition

Note 1 to entry: A target composition is expressed in one of two ways (see 3.1.12 and 3.1.13).

3.1.12**input target composition**

expression of a mix formulation in terms of the constituent materials, the grading curve and the percentage of binder added to the mixture

Note 1 to entry: This will usually be the result of a laboratory mix design and validation.

3.1.13**output target composition**

expression of a mix formulation in terms of the constituent materials and the midpoint grading and soluble binder content to be found on analysis

Note 1 to entry: This will usually be the result of a production validation.

3.1.14**additive**

constituent material, which can be added in small quantities influence specific properties of the mixture

Note 1 to entry: For example additives are used to influence the affinity of binder to aggregate, and the mechanical properties when using inorganic and organic fibres and polymers. They are also used to influence the colour of the mixture.

3.1.15**conflicting requirements**

combination of requirements or properties which are impossible to fulfil in their entirety

Note 1 to entry: This can occur by combining specific requirements for the composition and constituent materials together with more performance related tests. These are also relevant when two or more performance or test parameters are selected which measure similar properties using contradictory test methods resulting in a lack of clarity and consistency in the characteristics of the mixture.

3.1.16**premixed binder**

bitumen which is blended on the site of the asphalt mixing plant, with an additive before or during the addition of the binder to the plant mixer, which in the case of a continuous plant, will be before or during the delivery of the binder to the mixing zone of the drier drum

EN 13108-7:2016 (E)**3.1.17****category**

defined level of a property of an asphalt mixture

Note 1 to entry: The designation of a category is expressed with a symbol and a numerical value representing the level.

EXAMPLE $B_{\min} 4,0$ means that the minimum binder content shall be 4,0 %.

Note 2 to entry: Defined categories for each property are listed in EN 13108-7.

3.1.18**class**

range of levels defined by a minimum and a maximum value

3.2 Symbols and abbreviations

PA general designation of Porous Asphalt

PA *D* designation of Porous Asphalt followed by an indication of *D*, the upper sieve size of the aggregate in the mixture, in millimetres (mm)

EXAMPLE PA 16 Porous Asphalt with an upper sieve size of the aggregate of 16 mm.

iTeh STANDARD PREVIEW

4 Requirements for constituent materials (standards.iteh.ai)**4.1 General**

SIST EN 13108-7:2016

[https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-](https://standards.iteh.ai/catalog/standards/sist/8b5c247d-4014-448e-b714-38405182b113-5-2016)

Only constituent materials with established suitability shall be used. For all constituent materials information on the relevant properties shall be made available.

The establishment of suitability shall result from one or more of the following:

- European Standard;
- European Technical Assessment;
- Specifications for materials based on a demonstrable history of satisfactory use in asphalt. Evidence shall be based on research combined with evidence from practice. In documents related to the application of the product details for the assessment of this proof may be given.

There can be technical limitations regarding the future recycling possibilities. Also traceability of the nature of constituent materials can affect the potential for future recycling.

4.2 Binder**4.2.1 General**

The binder shall be a paving grade bitumen, a polymer modified bitumen, a hard paving grade bitumen, a multigrade bitumen or a blend of one of them with natural asphalt. The paving grade bitumen shall conform to EN 12591, the modified bitumen to EN 14023, the hard paving grade bitumen to EN 13924-1 and the multigrade bitumen to EN 13924-2. When natural asphalt is used, it shall conform to EN 13108-4:2016, Annex B.

Premix binders that are not covered by EN 12591, EN 14023 or EN 13924-1 and EN 13924-2 can be used provided that information is given as stated in 4.1, and that the base bitumen is conforming to EN 12591, EN 14023 or EN 13924-1 and EN 13924-2. The use of these binders may be defined in documents related to the application of the product.

4.2.2 Selection of binder

4.2.2.1 General

Depending on the conditions of use, the type and grade of bitumen and the amount and category of natural asphalt may be defined in documents related to the application of the product.

In case of a paving grade bitumen the grade shall be selected from the grades between 35/50 to 250/330 inclusively.

The type and grade of the bitumen and the amount and category of natural asphalt shall be declared in the Type Test report.

When modified bitumen is used to improve properties that are not covered by the specifications in the standard (e.g. stiffness) additional proof shall be provided. This proof shall be delivered through investigation using standards in the EN 12697 series, that the modified bitumen is suitable for improving the desired properties. The proof may be based on earlier research.

NOTE EN 14023 for modified bitumen is a framework for classification and is only meant to characterize the modified bitumen. The modified bitumen specifications are not performance based. The same applies to multigrade bitumen according to EN 13924-2.

When an additive is used to lower the production temperature for Porous Asphalt that influences the properties of the binder concrete and thereby changes relevant properties of the binder at temperatures representative for the climatic conditions in the place of use, evidence shall be provided to show what this influence of the additive is on the performance of the mix. This proof shall be based on research or evidence of satisfactory performance according to 4.1.

4.2.2.2 Mixes with reclaimed asphalt

When using more than 10 % by mass of the total mixture of reclaimed asphalt from mixtures in which only paving grade bitumen has been used and when the binder added to the mixture is a paving grade bitumen and the grade of the bitumen is selected, the following requirements may be specified.

The penetration and/or the softening point of the binder in the resulting mixture, calculated from the penetrations and/or the softening points of the added binder and the recovered binder from the reclaimed asphalt, shall meet the penetration and or softening point requirements of the selected grade. The calculation shall be performed according to Annex A (normative). In some cases the binder of the reclaimed asphalt can be so hardened that a very soft bitumen shall be chosen to fulfil these requirements. In such cases an alternative grade to that calculated according to Annex A (normative) may be defined.

When using reclaimed asphalt from mixtures in which a modified bitumen and/or an additive has been used, and/or the mixture itself contains a modified bitumen or an additive, the amount of reclaimed asphalt may be limited in documents related to the application of the product to a maximum to 10 % by mass of the total mixture.

The range of types and grades of bitumen which may be used may be defined in documents related to the application of the product.

NOTE 1 The choice for this specification depends on the choice of requirements within this European Standard. For more performance designed mixtures there might be no need to apply the pen and/ or softening point rule. (However, the pen or softening point rule is only valid for paving grade bitumen.)