



**SLOVENSKI STANDARD**  
**oSIST prEN 13108-9:2010**  
**01-junij-2010**

---

**Bitumenske zmesi - Specifikacije materialov - 9. del: Zelo tanke plasti bitumenskega betona (UTLAC)**

Bituminous mixtures - Material specifications - Part 9: Bituminous mixture for Ultra-thin layer Asphalt Concrete (UTLAC)

Asphaltmischgut - Mischgutanforderungen - Teil 9: Asphaltmischgut für extrem dünne Asphaltbetonschichten (UTLAC)

Mélanges bitumineux - Spécifications des matériaux - Partie 9: Béton bitumineux ultra-mince (BBUM)

**ITh STANDARD PREVIEW**  
**(standards.iteh.ai)**  
oSIST prEN 13108-9:2010  
<https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pr-en-13108-9-2010>

**Ta slovenski standard je istoveten z: prEN 13108-9**

---

**ICS:**

93.080.20      Materiali za gradnjo cest      Road construction materials

**oSIST prEN 13108-9:2010**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN 13108-9:2010](#)

<https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pren-13108-9-2010>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 13108-9**

March 2010

---

ICS 93.080.20

English Version

**Bituminous mixtures - Material specifications - Part 9:  
Bituminous mixture for Ultra-thin layer Asphalt Concrete  
(UTLAC)**

Mélanges bitumineux - Spécifications des matériaux -  
Partie 9: Béton bitumineux ultra-mince (BBUM)

Asphaltmischgut - Mischgutanforderungen - Teil 9:  
Asphaltmischgut für extrem dünne Asphaltbetonschichten  
(UTLAC)

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 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland 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

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

Page

Foreword.....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms, definitions, symbols and abbreviations .....	7
3.1 Terms and definitions .....	7
3.2 Symbols and abbreviations .....	8
4 Requirements for constituent materials.....	8
4.1 General.....	8
4.2 Binder.....	8
4.2.1 General.....	8
4.2.2 Selection of binder.....	9
4.2.3 Binder in mixtures with reclaimed asphalt .....	9
4.3 Aggregate .....	9
4.3.1 Coarse aggregate.....	9
4.3.2 Fine aggregate .....	9
4.3.3 All-in aggregates.....	9
4.3.4 Added filler .....	9
4.4 Reclaimed asphalt .....	10
4.5 Additives.....	10
5 Requirements for the mixture.....	10
5.1 General.....	10
5.2 Composition, grading, binder content and additives .....	10
5.2.1 Composition.....	10
5.2.2 Grading .....	11
5.2.3 Binder content.....	12
5.2.4 Additives.....	13
5.3 Coating and homogeneity.....	13
5.4 Void content .....	13
5.5 Water sensitivity .....	14
5.6 Resistance to abrasion by studded tyres .....	14
5.7 Reaction to fire.....	15
5.8 Resistance to fuel for application on airfields.....	15
5.9 Resistance to de-icing fluid for application on airfields.....	15
5.10 Temperature of the mixture .....	16
5.11 Durability .....	16
6 Evaluation of conformity.....	16
7 Identification.....	17
Annex A (normative) Calculations of the penetration or the softening point of the binder of a mixture when reclaimed asphalt is used.....	18
A.1 General.....	18
A.2 Calculation of the penetration of the binder of a mixture.....	18
A.3 Calculation of the softening point of the binder of a mixture .....	18
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Construction Products Directive.....	20
ZA.1 Scope and relevant characteristics .....	20

<b>ZA.2</b>	<b>Procedure(s) for attestation of conformity of Bituminous mixtures for Ultra-thin layer</b>	
	<b>Asphalt Concrete.....</b>	<b>21</b>
<b>ZA.2.1</b>	<b>System(s) of attestation of conformity.....</b>	<b>21</b>
<b>ZA.2.2</b>	<b>EC Certificate and Declaration of conformity.....</b>	<b>22</b>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN 13108-9:2010](https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pren-13108-9-2010)

<https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pren-13108-9-2010>

## Foreword

This document (prEN 13108-9:2010) has been prepared by Technical Committee CEN/TC 227 “Road materials”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document 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*

prEN 13108-9, *Bituminous mixtures — Material specifications — Part 9: Bituminous mixtures for UTLAC*

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 superseded.

Annex A, which is 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.

Annex ZA, which is informative, contains provisions in accordance with the CPD.

## Introduction

The ultimate aim is to specify the required fundamental properties of the bituminous mixtures. However, as specifications for Asphalt Concrete for Ultra-thin layers have traditionally been based empirically on compositional recipes combined with specifications for the constituent materials with additional requirements based on performance related tests and as insufficient experience is available with fundamental testing of Asphalt Concrete for Ultra-thin layers, this document for the moment specifies empirical requirements only.

Asphalt Concretes for Ultra-thin layers is to be used for surface courses with a thickness of 10 mm to 20 mm.

UTLAC is a hot mix asphalt road surface course laid on a bonding layer, at a nominal thickness between 10 and 20 mm with properties suitable for the intended use. The method of bonding is an essential part of the process and the final product is a combination of the bonding system and the bituminous mixture.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN 13108-9:2010](https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pren-13108-9-2010)

<https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pren-13108-9-2010>

## prEN 13108-9:2010 (E)

## 1 Scope

This document specifies requirements for the bituminous mixtures for Ultra thin layers Asphalt Concrete (UTLAC) for use on roads, airfields and other trafficked areas.

The grading curve of the bituminous mixture for UTLAC is generally gap graded and the upper sieve size of the mix is not less than 5 mm and not greater than 11 mm.

This document 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.

NOTE Asphalt Concrete very thin layer mixtures with chemical modified binders not covered by EN 13924 are not covered by this document.

The method of bonding is out of the scope of this document.

## 2 Normative references

The following referenced documents are indispensable for the application 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 1097-6, *Test 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 bitumen*

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 12697-13, *Bituminous mixtures — Test methods for hot mix asphalt — Part 13: Temperature measurement*

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

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

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

EN 14023, *Bitumen and bituminous binders — Specifications for polymer modified bitumen*



ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

### 3 Terms, 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 A course may be laid in one or more layers.

##### 3.1.4

##### **surface course**

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

##### 3.1.5

##### **binder course**

part of the pavement between the surface course and the base

##### 3.1.6

##### **regulating course**

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

##### 3.1.7

##### **base**

main structural element of a pavement

NOTE The base may be laid in one or more courses, described as "upper" base, "lower" base, etc.

##### 3.1.8

##### **Bituminous mixture for Ultra-thin layer Asphalt Concrete**

##### **BB/UTLAC**

asphalt for surface courses with a thickness of 10 mm to 20 mm, in which the aggregate particles are generally gap-graded to form a stone to stone contact and to provide an open surface texture

##### 3.1.9

##### **mix formulation**

composition of a single mixture expressed as a target composition

NOTE A target composition may be expressed in two ways (see 3.1.10 and 3.1.11).

**prEN 13108-9:2010 (E)****3.1.10****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.

**3.1.11****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.

**3.1.12****additive**

constituent material, which can be added in small quantities to the mixture, e.g. inorganic or organic fibres or polymers, to influence the mechanical properties, the workability or the colour of the mixture

**3.2 Symbols and abbreviations**

UTLAC Asphalt Concrete for Ultra-thin layers

BB/UTLAC Bituminous mixture for UTLAC

D upper sieve size of the aggregate in the mixture, in millimetres (mm)

**(standards.iteh.ai)**

**4 Requirements for constituent materials**

[oSIST prEN 13108-9:2010](https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pren-13108-9-2010)

**4.1 General**

<https://standards.iteh.ai/catalog/standards/sist/55533bcd-0d10-41a2-9d36-937aa8e5747d/osist-pren-13108-9-2010>

Only constituent materials with established suitability shall be used.

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

- European Standard;
- European Technical Approval;
- specifications for materials based on a demonstrable history of satisfactory use in asphalt. Evidence shall be provided on their suitability. This evidence may be based on research combined with evidence from practice.

NOTE In the European asphalt industry it is common practice to use additives like inorganic or organic fibres, pigments, waxes etc., which are not covered by a European Standard or ETA. This document allows the use of those materials.

**4.2 Binder****4.2.1 General**

The binder shall be a paving grade bitumen or a modified bitumen. The paving grade bitumen shall conform to EN 12591, the modified bitumen to EN 14023 or to be a hydrocarbon binder declared by the manufacturer. Natural asphalt conforming to EN 13108-4, Annex B, may be added.

#### 4.2.2 Selection of binder

The grade of the bitumen, the type and grade of the modified bitumen, and the amount and category of natural asphalt shall be as specified.

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

NOTE Given the wide variety of climates, traffic loads, used materials etc. it can be necessary to select on a regional level specific binders.

When modified bitumen is used to improve properties that are not covered by the empirical specification 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 functional characteristics. The proof may be based on earlier research.

NOTE EN 14023 is a grading system and is only meant to characterise the modified bitumen. The modified bitumen specifications are not functionally based, and it is not possible to combine these specifications with empirical asphalt specifications to demonstrate functional behaviour. The proof required would normally be a Type Testing on a similar mixture incorporating the modified binder showing fulfilment of the relevant property. The grade of the bitumen, the type and grade of the modified bitumen, the grade of the hard grade bitumen and the amount and category of natural asphalt may be selected.

#### 4.2.3 Binder in mixtures with reclaimed asphalt

When using more than 10 % by mass of the total mixture of reclaimed asphalt from mixtures in which mainly 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 specified, the binder shall conform to the following requirements.

- The penetration or the softening point of the binder in the resulting mixture, calculated from the penetrations or the softening points of the added binder and the recovered binder from the reclaimed asphalt, shall meet the penetration or softening point requirements of the specified grade. The calculation shall be executed according to the methods described in Annex A. Either the penetration or the softening point requirement shall be specified.

### 4.3 Aggregate

#### 4.3.1 Coarse aggregate

Coarse aggregate shall conform to EN 13043 as appropriate for the intended use.

#### 4.3.2 Fine aggregate

Fine aggregate shall conform to EN 13043 as appropriate for the intended use.

#### 4.3.3 All-in aggregates

All-in aggregate shall conform to EN 13043 as appropriate for the intended use.

#### 4.3.4 Added filler

Filler aggregate shall conform to EN 13043 as appropriate for the intended use. The amount of added filler shall be as specified.

NOTE 1 Filler includes materials as cement and hydrated lime.