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BSI Standards Publication

Bituminous mixtures — Material specifications

Part 7: Porous Asphalt

bsi.

National foreword

This British Standard is the UK implementation of EN 13108-7:2016. It supersedes BS EN 13108-7:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/510/1, Asphalt products.

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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of an identical text or by endorsement, at the latest by December 2016, and conflicting national standards shall be withdrawn at the latest by March 2018.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:

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.

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.

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 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

3.1.5
binder course
structural course of a pavement between the surface course and the base

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

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 $B_{\text{min } 4,0}$ 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.

4 Requirements for constituent materials

4.1 General

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.)

NOTE 2 When applying a recipe approach to the mixture, using a too great a proportion of modified bitumen or an additive could lead to an incorrect decision in respect to the addition of the new bitumen.

4.3 Aggregates

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

Added filler shall conform to EN 13043 as appropriate for the intended use and may include materials such as cement, limestone and hydrated lime. Based on the experience in the place of use the type and amount of added filler may be defined in document related to the application of the product.

NOTE The expression "as appropriate for the intended use" in 4.3.1 to 4.3.4 means that the selection of the requirements and the particular category depends on a number of conditions. These conditions include traffic density, climatic conditions, the construction of the course in which the mixture will be used, and economic considerations.

4.4 Reclaimed asphalt

The use and the amount of reclaimed asphalt and the mix group and/or the courses from which the reclaimed asphalt has been or will be derived may be defined in documents related to the application of the product.

The properties of reclaimed asphalt declared in accordance with EN 13108-8 shall conform to requirements that may be selected appropriate for the intended use.

NOTE The expression "appropriate for the intended use" means that the selection of the requirements and the particular category depends on a number of conditions. These conditions include traffic density, climatic conditions, the construction of the course in which the mixture will be used, and economic considerations.

The upper sieve size *D* of the aggregate in the reclaimed asphalt shall not exceed the upper sieve size *D* of the mixture. The aggregate properties of the reclaimed asphalt or of the mixed aggregates from the reclaimed asphalt with the other aggregates shall fulfil the requirements for aggregate defined in documents related to the application of the mixture.

When required, the amount of reclaimed asphalt, the mix group from which the reclaimed asphalt has been or will be derived shall be declared in the Type Test report.

4.5 Additives

The nature and properties of all additives shall be declared and they shall conform to the requirements referred to in 4.1. For specific applications and based on the experience in the place of use the amount of additives may be defined in documents related to the application of the product.

NOTE Chemical and organic additives can be used for example, to reduce production temperatures by influencing the viscosity of the binder. This might have an effect on other relevant mixture properties.

5 Requirements for the mixture

5.1 General

The mix formulation shall be declared in the Type Test report according to EN 13108-20, including:

— The target percentages passing the specified sieves. The target grading shall be declared for the sieve 1,4 *D* and the sieves as defined in 5.2.2.1 or 5.2.2.2;

— the target binder content and where relevant, the binder content from reclaimed asphalt and/or binder content in natural asphalt;

— the percentage(s) of additive(s).

The target binder content comprises the total of added binder (including any additives in solution in the binder), binder in reclaimed asphalt and binder in natural asphalt.

At the target composition the mixture shall conform to the appropriate requirements in accordance with this European Standard.

The test results in accordance with EN 13108-20:2016, 7.5, shall be made available.

5.2 Composition, grading, binder content

5.2.1 Composition

The grading shall be expressed in percentages by mass of total aggregate. The binder and additive content shall be expressed in percentages by mass of the total mixture. The percentages passing the sieves, with exception of the sieve 0,063 mm shall be expressed to 1 %. The binder content, the percentage passing sieve 0,063 mm and any additive content shall be expressed to 0,1 %. Where appropriate the additive content shall be expressed to 0,01 %.

5.2.2 Grading

5.2.2.1 General grading requirements

The requirements for the overall grading limits of the target composition are given in Table 1 for the sieves 1,4 *D*, *D*, 2 mm and 0,063 mm. The target composition of the mix shall be within these overall limits. See also 5.6 for conflicting requirements..

The sieves to be used shall be either basic sieve set plus set 1 or the basic sieve set plus set 2, according to EN 13043. A combination of sieve sizes from set 1 and set 2 is not permissible.

The target grading according to 5.1 shall be declared for the sieves 1,4 *D*, *D*, 2 mm and 0,063 mm, as a minimum. In documents related to the application of the product it may be defined that the target grading shall be further declared for a maximum of three characteristic sieves between *D* and 2 mm and a maximum of three characteristic sieves between 2 mm and 0,063 mm.

NOTE When this approach is chosen there are no further prescribed requirements for the grading on any other (characteristic) sieves. (see also 5.6 for conflicting requirements).

When required to be declared, those characteristic sieves shall be chosen from the lists identified in 5.2.2.2.

Table 1 — General grading requirements of target composition

Sieve mm	**Percentage passing by mass**
1,4 *D*[a]	100
D	90 to 100
2	5 to 25
0,063	2,0 to 10,0

[a] Where the sieve calculated as 1,4 *D* is not an exact number in the basic set plus set 1 series then the next nearest sieve in the set shall be adopted.

5.2.2.2 Grading envelope

The grading requirements as given in 5.2.2.1 may further be defined in documents related to the application of the product. (see 5.6 for conflicting requirements). When required, the grading requirements for the target composition shall be expressed in terms of a grading envelope by selection of maximum and minimum values for the percentages passing the sieves 1,4 *D*; *D*; a characteristic sieve between *D* and 2 mm, 2 mm, a characteristic sieve between 2 mm and 0,063 mm and 0,063 mm.

D and the characteristic sieve between *D* and 2 mm shall be selected from the following sieves:

— basic sieve set plus set 1: 4 mm; 5,6 mm; 8 mm; 11,2 mm; 16 mm; 22,4 mm, 31,5 mm;

— basic sieve set plus set 2: 4 mm; 6,3 mm; 8 mm; 10 mm; 12,5 mm; 14 mm; 16 mm; 20 mm, 31,5 mm.

The characteristic sieve between 2 mm and 0,063 mm shall be selected from the following sieves: 1 mm; 0,5 mm; 0,25 mm and 0,125 mm.

When defined in documents related to the application of the product, the requirements for the grading envelope may also include the percentages passing a maximum of two additional characteristic sieves between *D* and 2 mm and a maximum of two additional characteristic sieves between 2 mm and 0,063 mm, selected from the same list of sieves as for the characteristic sieves.

The target composition of the mixture shall be within this grading envelope. The ranges between the maximum and minimum values for the grading envelope shall be selected as a single value within the given limits from Table 2. The percentage passing the sieves *D*; 2 mm and 0,063 mm of the selected grading envelope shall not exceed the maximum and minimum values in Table 1.

Table 2 — Ranges between maximum and minimum percentage values for the selected grading envelope

Sieve mm	**Ranges for grading envelope**
D	10
Characteristic sieve between *D* and 2 mm	10 to 23[a]
Any additional characteristic sieves between *D* and 2 mm	10 to 20[a]
2	0 to 20[a]
Characteristic sieve between 2 mm and 0,063 mm	2 to 15[a]
Any additional characteristic sieves between 2 mm and 0,063 mm	4 to 15[a]
0,063	1,0 to 8,0[a]
[a] Value to be selected within the given minimum and maximum value (both included).	

In the case of a single point target grading meeting the requirements of Table 1 the use of the minimum range values in Table 2 is not required.

NOTE Table 1 gives the overall requirements for the grading of Porous Asphalt. Depending the experience with the combination of requirements in this standard more degrees of freedom for the manufacturer can be given for the composition and grading of Porous Asphalt. For instance the percentage passing 2 mm can be fixed (e.g. 20) with the range fixed on 0. Or the percentage can be left more open allowing a manufacturer to choose his own grading. The maximum range will be 20 (minimum 5 and maximum 25 percentage passing). Other values can be chosen based on the experience in the place of use and in accordance with this specification.

5.2.3 Minimum binder content

The minimum binder content may be defined in documents related to the application of the product and shall be selected to the nearest 0,1 %, between values of 3,0 % and 7,0 % for a mixture in which the aggregate density is assumed to be equal to 2,65 Mg/m^3.

The selected minimum binder content shall be expressed as B_{minx} where x is the minimum binder content in %.

The minimum binder content of the mixture shall be corrected by multiplying by the factor:

$$\alpha = \frac{2{,}650}{\rho} \quad (1)$$

where

ρ is the weighted mean of the particle density of the aggregates at the target grading, in megagrams per cubic metre (Mg/m^3), determined according to the appropriate clause or Annex of EN 1097–6.

The appropriate particle density according to EN 1097-6 shall be declared in the type test report.

NOTE For normal weight aggregates with water absorption less than about 1,5 % the pre-dried particle density method as defined in EN 1097–6:2013, Annex A, is applicable for aggregates passing the 63 mm test sieve

and retained on the 0,063 mm test sieve. EN 1097–6:2013, Annex G, is applicable to aggregates passing the 31,5 mm test sieve including the 0/0,063 mm size fraction.

Based on experience in the place of use for certain specific aggregates with particular granulometric characteristics the corrected minimum binder content may be adjusted appropriately. The adjustment shall be defined in documents related to the application of the product.

5.3 Properties

5.3.1 Specimens

For application of this European Standard specimens shall be in accordance with EN 13108-20:2016, 6.5.

5.3.2 Drainage capacity

5.3.2.1 General

The drainage capacity of Porous Asphalt shall be defined by the requirements for void content in relation with grading requirements either as a horizontal or as a vertical permeability. The drainage capacity shall conform either to 5.3.2.2 or to 5.3.2.3.

5.3.2.2 Void content

The range of categories of minimum and maximum void contents is defined in Table 3.

The void content shall be determined in accordance with EN 12697-8 using the conditions defined in EN 13108-20:2016, D.2. The compaction of test specimens shall be selected from EN 13108-20:2016, Table C.1.

In documents related to the application of the product, categories or classes for the void content may be defined when appropriate as maximum and minimum categories selected from Table 3.

Table 3 — Void content, V_{min} and/or V_{max}

Void content %	Minimum void content %	Maximum void content %
	Category V_{min}	Category V_{max}
14,0	$V_{min\ 14,0}$	–
16,0	$V_{min\ 16,0}$	–
18,0	$V_{min\ 18,0}$	$V_{max\ 18,0}$
20,0	$V_{min\ 20,0}$	$V_{max\ 20,0}$
22,0	$V_{min\ 22,0}$	$V_{max\ 22,0}$
24,0	$V_{min\ 24,0}$	$V_{max\ 24,0}$
26,0	$V_{min\ 26,0}$	$V_{max\ 26,0}$
28,0	$V_{min\ 28,0}$	$V_{max\ 28,0}$
30,0	–	$V_{max\ 30,0}$
32,0	–	$V_{max\ 32,0}$
No requirement	$V_{min\ NR}$	$V_{max\ NR}$

5.3.2.3 Permeability

The minimum horizontal permeability or the minimum vertical permeability of specimens shall be determined according EN 12697-19 using the conditions defined in EN 13108-20:2016, D.15.

The compaction of test specimens shall be selected from EN 13108-20:2016, Table C.1 where the range between the upper and lower limits selected shall be 2 % based on compaction degree and 3 % based on void content.

The range of categories of minimum horizontal permeability or the minimum vertical permeability is defined in one of the Table 4 or Tables 5. A combination of a requirement of Table 4 and Table 5 is not allowed.

In documents related to the application of the product, categories or classes for the horizontal or vertical permeability may be defined when appropriate as minimum categories selected from Table 4 or Table 5.

Table 4 — Minimum horizontal permeability, K_{hmin}

Minimum horizontal permeability 10^{-3} m/s	**Category** K_{hmin}
4,0	$K_{hmin4,0}$
3,5	$K_{hmin3,5}$
3,0	$K_{hmin3,0}$
2,5	$K_{hmin2,5}$
2,0	$K_{hmin2,0}$
1,5	$K_{hmin1,5}$
1,0	$K_{hmin1,0}$
0,5	$K_{hmin0,5}$
0,1	$K_{hmin0,1}$
No requirement	K_{hminNR}

Table 5 — Minimum vertical permeability, K_{vmin}

Minimum vertical permeability 10^{-3} m/s	**Category** K_{vmin}
4,0	$K_{vmin4,0}$
3,5	$K_{vmin3,5}$
3,0	$K_{vmin3,0}$
2,5	$K_{vmin2,5}$
2,0	$K_{vmin2,0}$
1,5	$K_{vmin1,5}$
1,0	$K_{vmin1,0}$
0,5	$K_{vmin0,5}$
0,1	$K_{vmin0,1}$
No requirement	K_{vminNR}

5.3.3 Resistance to permanent deformation

5.3.3.1 Resistance to permanent deformation by wheel-tracking test

The resistance to permanent deformation, in terms of rut depth and wheel-tracking slope, shall be determined in accordance with EN 12697-22 using the conditions defined in with EN 13108-20:2016, D.6.

The compaction of test specimens shall be selected from EN 13108-20:2016, Table C.1, where the range between the upper and lower limits selected shall be 2 % based on compaction degree and 3 % based on void content.

The void content of the specimens shall be specified in accordance with EN 13108-20:2016, D.2.

The ranges of categories of resistance to permanent deformation of specimens are defined in the Tables 6, 7 or 8. A combination of a requirement from Table 7 or Table 8 is not allowed.

In documents related to the application of the product, categories for the resistance to permanent deformation selected from Tables 6, 7 or 8 may be defined.

Table 6 — Large size device[a], maximum proportional rut depth, P_{max}

Large size device[a], maximum proportional rut depth %	**Category P_{max}**
2,5	$P_{max2,5}$
5,0	$P_{max5,0}$
7,5	$P_{max7,5}$
10,0	$P_{max10,0}$
15,0	$P_{max15,0}$
20,0	$P_{max20,0}$
No requirement	P_{maxNR}
[a] For designed axle loads ≥ 13 Mg.	

Table 7 — Small size device[a] procedure B conditioning in air, maximum wheel tracking slope, WTS_{AIRmax}

Small size device[a] procedure B conditioning in air, maximum wheel tracking slope mm per 10^3 load cycle	**Category WTS_{AIRmax}**
0,02	$WTS_{AIRmax\ 0,02}$
0,03	$WTS_{AIRmax\ 0,03}$
0,05	$WTS_{AIRmax\ 0,05}$
0,07	$WTS_{AIR\ max0,07}$
0,10	$WTS_{AIR\ max0,10}$
0,15	$WTS_{AIR\ max0,15}$
0,30	$WTS_{AIR\ max0,30}$
0,40	$WTS_{AIR\ max0,40}$
0,50	$WTS_{AIR\ max0,50}$
0,60	$WTS_{AIR\ max0,60}$
0,80	$WTS_{AIR\ max0,80}$
1,00	$WTS_{AIR\ max1,00}$
No requirement	$WTS_{AIR\ maxNR}$

[a] For designed axle loads < 13 Mg.

Table 8 — Small size device[a] procedure B, conditioning in air, maximum proportional rut depth, PRD_{AIRmax}

Small size device[a] procedure B conditioning in air, maximum proportional rut depth %	Category PRD_{AIRmax}
0,5	$PRD_{AIRmax0,5}$
1,0	$PRD_{AIRmax1,0}$
1,5	$PRD_{AIRmax1,5}$
2,0	$PRD_{AIRmax2,0}$
3,0	$PRD_{AIRmax3,0}$
5,0	$PRD_{AIRmax5,0}$
7,0	$PRD_{AIRmax7,0}$
9,0	$PRD_{AIRmax9,0}$
No requirement	$PRD_{AIRmax\ NR}$
[a] For designed axle loads < 13 Mg.	

5.3.3.2 Resistance to permanent deformation in tri-axial compression test

The resistance to permanent deformation, in terms of the creep rate in tri-axial compression, f_C, shall be determined in accordance with EN 12697-25 using conditions defined in EN 13108-20:2016, D.7.

The compaction of test specimens shall be selected from EN 13108-20:2016, Table C.1, where the range between the upper and lower limits selected shall be 2 % based on compaction degree and 3 % based on void content.

The void content of the specimens shall be specified in accordance with EN 13108-20:2016, D.2.

The range of categories of resistance to permanent deformation is defined in Table 9.

In documents related to the application of the product, categories for the resistance to permanent deformation selected from Table 9 may be defined.

Table 9 — Maximum creep rate, f_{cmax}

Maximum creep rate µm/m/n	**Category $f_{c\ max}$**
0,2	$f_{c\ max\ 0,2}$
0,4	$f_{c\ max\ 0,4}$
0,6	$f_{c\ max\ 0,6}$
0,8	$f_{c\ max\ 0,8}$
1,0	$f_{c\ max\ 1,0}$
1,2	$f_{c\ max\ 1,2}$
1,4	$f_{c\ max\ 1,4}$
1,6	$f_{c\ max\ 1,6}$
2,0	$f_{c\ max\ 2,0}$
4,0	$f_{c\ max\ 4,0}$
6,0	$f_{c\ max\ 6,0}$
8,0	$f_{c\ max\ 8,0}$
10,0	$f_{c\ max\ 10,0}$
12,0	$f_{c\ max\ 12,0}$
14,0	$f_{c\ max\ 14,0}$
16,0	$f_{c\ max\ 16,0}$
No requirement	$f_{c\ max\ NR}$

5.3.4 Water sensitivity

The water sensitivity expressed as an Indirect Tensile Strength Ratio or Compression Strength Ratio shall be determined in accordance with EN 12697-12 using the conditions defined in EN 13108-20:2016, D.3.

The range of categories of water sensitivity of specimens is defined in Table 10.

In documents related to the application of the product, categories for the minimum water sensitivity selected from Table 10 may be defined.

Table 10 — Minimum water sensitivity, $ITSR_{min}$ or i/C_{min}

Minimum water sensitivity %	Category $ITSR_{min}$	Category i/C_{min}
95	$ITSR_{min95}$	i/C_{min95}
90	$ITSR_{min90}$	i/C_{min90}
85	$ITSR_{min85}$	i/C_{min85}
80	$ITSR_{min80}$	i/C_{min80}
75	$ITSR_{min75}$	i/C_{min75}
70	$ITSR_{min70}$	i/C_{min70}
65	$ITSR_{min65}$	i/C_{min65}
60	$ITSR_{min60}$	i/C_{min60}
55	$ITSR_{min55}$	i/C_{min55}
50	$ITSR_{min50}$	i/C_{min50}
No requirement	$ITSR_{minNR}$	i/C_{minNR}

5.3.5 Particle loss

The maximum particle loss shall be determined in accordance with EN 12697-17 using the conditions defined in EN 13108-20:2016, D.16

The compaction of test samples shall be selected from EN 13108-20:2016, Table C.1.

The range of categories of maximum particle loss is defined in Table 11.

In documents related to the application of the product, categories for the Particle loss selected from Table 11 may be defined.

Table 11 — Maximum particle loss, PL_{max}

Maximum particle loss %	Category PL_{max}
10	PL_{max10}
15	PL_{max15}
20	PL_{max20}
30	PL_{max30}
40	PL_{max40}
50	PL_{max50}
No requirement	PL_{maxNR}

5.3.6 Low temperature properties

The maximum failure temperature shall be determined in accordance with EN 12697-46 Thermal Stress Restrained Specimen Test (TSRST) using the conditions defined in EN 13108-20:2016, D.18.

The compaction of test samples shall be selected from EN 13108-20:2016, Table C.1, where the range between the upper and lower limits selected shall be 2 % based on compaction degree and 3 % based on void content.

The void content of the specimens shall be specified in accordance with EN 13108-20:2016, D.2.

The range of categories of maximum failure temperature of specimens is defined in Table 12.

In documents related to the application of the product categories for the maximum failure temperature selected from Table 12 may be defined.

Table 12 — Maximum failure temperature, $TSRST_{max}$

Maximum failure temperature °C	Category $TSRST_{max}$
−15,0	$TSRST_{max-15,0}$
−17,5	$TSRST_{max-17,5}$
−20,0	$TSRST_{max-20,0}$
−22,5	$TSRST_{max-22,5}$
−25,0	$TSRST_{max-25,0}$
−27,5	$TSRST_{max-27,5}$
−30,0	$TSRST_{max-30,0}$
No requirement	$TSRST_{maxNR}$

5.3.7 Friction after polishing

The minimum friction after polishing shall be determined in accordance with EN 12697-49 using the conditions defined in EN 13108-20:2016, D.20.

The compaction of test specimens shall be selected from EN 13108-20:2016, Table C.1, where the range between the upper and lower limits selected should be 2 % based on compaction degree and 3 % based on void content.

The void content of the specimens shall be specified in accordance with EN 13108-20:2016, D.2.

The range of categories of minimum friction after polishing of specimens is defined in Table 13.

In documents related to the application of the product categories for the minimum friction after polishing selected from Table 13 may be defined.

Table 13 — Minimum friction after polishing, FAP_{min}

Minimum friction after polishing	Category FAP_{min}
0,30	FAP_{min30}
0,32	FAP_{min32}
0,34	FAP_{min34}
0,36	FAP_{min36}
0,38	FAP_{min38}
0,40	FAP_{min40}
0,42	FAP_{min42}
0,44	FAP_{min44}
0,46	FAP_{min46}
0,48	FAP_{min48}
0,50	FAP_{min50}
No requirement	FAP_{minNR}

5.3.8 Coating and homogeneity

The material when discharged from the mixer shall be homogenous in appearance with the aggregate completely coated with binder, and there shall be no evidence of balling of fine aggregate.

5.3.9 Reaction to fire

Where subject to regulation, the manufacturer shall declare the reaction to fire class according to EN 13501-1:2007+A1:2009, Table 2, according to the test method EN ISO 11925-2.

5.3.10 Binder drainage

The binder drainage, *BD*, shall be determined according to EN 12697-18 using the conditions defined in EN 13108-20:2016, D13.

The compaction of test samples shall be selected from EN 13108-20:2016, Table C.1.

The range of categories of binder drainage of specimens is defined in Table 14.

In documents related to the application of the product categories for the maximum binder drainage selected from Table 14 may be defined.

Table 14 — Maximum binder drainage, BD_{max}

Maximum binder drainage %	Category BD_{max}
0,0	$BD_{max0,0}$
0,3	$BD_{max0,3}$
0,6	$BD_{max0,6}$
1,0	$BD_{max1,0}$
No requirement	BD_{maxNR}

NOTE BD is used as an abbreviation instead of the abbreviation mentioned in EN 12697–18 to avoid any confusion with D as the maximum aggregate size.

5.3.11 Resistance to fuel for application on airfields

The resistance to fuel for application on airfields shall be determined according EN 12697-43 using the conditions defined in EN 13108-20:2016, D.11.

The compaction of test specimens shall be selected from EN 13108-20:2016, Table C.1, where the range between the upper and lower limits selected shall be 2 % based on compaction degree and 3 % based on void content.

The range of categories of resistance to fuel of specimens is defined in Table 15.

In documents related to the application of the product categories for the resistance to fuel for application on airfields selected from Table 15 may be defined.

Table 15 — Resistance to fuel, maximum loss of mass, Ci_{max}

Resistance to fuel, maximum loss of mass %	Category Ci_{max}
1	Ci_{max1}
2	Ci_{max2}
3	Ci_{max3}
4	Ci_{max4}
5	Ci_{max5}
6	Ci_{max6}
7	Ci_{max7}
8	Ci_{max8}
No requirement	Ci_{maxNR}

5.3.12 Resistance to de-icing fluid for application on airfields

The resistance to de-icing fluids for application on airfields shall be determined according to EN 12697-41 using the conditions defined in EN 13108-20:2016, D.12.

The compaction of test specimens shall be selected from EN 13108-20:2016, Table C.1, where the range between the upper and lower limits selected shall be 2 % based on compaction degree and 3 % based on void content.

The range of categories of resistance to de-icing fluid of specimens is defined in Table 16.

In documents related to the application of the product categories for the resistance to de-icing fluid for application on airfields selected from Table 16 may be defined.

Table 16 — Minimum retained strength, β_{min}

Minimum retained strength %	Category β_{min}
100	β_{min100}
85	β_{min85}
70	β_{min70}
55	β_{min55}
No requirement	β_{minNR}

5.3.13 Bitumen aggregate affinity for application on airfields

The bitumen aggregate affinity for application on airfields shall be determined according to EN 12697-11 using the conditions defined in EN 13108-20:2016, D.5.

The range of categories of bitumen aggregate affinity of specimens is defined in Table 17.

In documents related to the application of the product categories for bitumen aggregate affinity for application on airfields selected from Table 17 may be defined.

Table 17 — Bitumen aggregate affinity, BAA_{max}

Maximum number of aggregate particles not completely coated by binder after immersion in water	Category BAA_{max}
10	BAA_{max10}
5	BAA_{max5}
3	BAA_{max3}
1	BAA_{max1}
No requirement	BAA_{maxNR}

5.4 Temperature of the mixture

The maximum temperature requirements are intended to protect the integrity of the mixture. The maximum temperature applies at any place in the plant and shall be declared.

When using paving grade binder, the maximum temperature, measured according to EN 12697-13, shall not exceed the limits given in Table 18.

Table 18 — Maximum temperature limits of the mixture

Grade of bitumen	Maximum Temperature °C
35/50, 40/60	190
50/70, 70/100	180
100/150	170
160/220	165
250/330	160

When using modified bitumen, multigrade bitumen, additives or premix bitumen, different maximum temperatures may be applicable. These shall then be documented and declared.

The minimum temperature of the mixture at delivery shall be declared. Depending on local conditions and for specific application the minimum temperature, measured according to EN 12697-13, may be defined in documents related to the application of the product.

5.5 Regulated dangerous substances

When required, products covered by this standard shall comply with relevant regulations on dangerous substances in force in the intended place of use.

In the absence of International or European test methods, manufacturers shall verify and declare the release of dangerous substances in accordance with provisions applicable in the intended place of use of the product.

NOTE An informative database of European and national regulations on dangerous substances is available at the Construction website on EUROPA (accessed through http://ec.europa.eu/enterprise/construction/cpd-ds).

5.6 Conflicting requirements

The overall quality of a Porous Asphalt mixture can be covered by different combinations of requirements. The selection of requirements and the appropriate values shall be such that conflicting requirements are prevented.

To prevent conflicting requirements of mixtures the following combinations are not permissible:

— Requirements for resistance to permanent deformation based on rut depth and wheel-tracking slope in the wheel-tracking test (5.3.3.1) shall not be combined with resistance to permanent deformation in tri-axial compression test (5.3.3.2).

— Requirements for resistance to polishing of coarse aggregates according to EN 13043 shall not be combined with requirements for the friction after polishing of the mixture (5.3.7).

— Requirements to permanent deformation in tri-axial compression test (5.3.3.2) shall not be combined with requirements for binder content with a percentage above 3,0 and/or with additional grading requirements according to 5.2.2.2 and/or the angularity of fine aggregates (4.3.2).

6 Assessment and verification of constancy of performance — AVCP

The compliance of Porous Asphalt with the requirements of this European Standard and with the performances declared by the manufacturer in the Declaration of Performance (DoP) shall be demonstrated by:

— determination of the product type in accordance with EN 13108-20;

— factory production control by the manufacturer, including product assessment in accordance with EN 13108-21.

The result of the product type determination will, for each relevant requirement, be expressed as a numerical value. The numerical value may be presented as a category as given in the standard, a class or a value declared by the manufacturer. The manufacturer shall always retain the overall control and shall have the necessary means to take responsibility for the conformity of the product with its declared performance(s).

For the purpose of Type Testing, Porous Asphalt may be grouped into families as described in EN 13108-20, where it is considered that the selected property or properties is or are common to all the mixtures within that family.

7 Identification

The delivery ticket shall contain at least the following information relating to identification:

— manufacturer and mixing plant;

— mix identification code;

— how to obtain the full details demonstrating conformity with this European Standard;

— designation of the mixture:

PA	D	binder

where

PA is Porous Asphalt;

D is the upper sieve size;

binder is the designation of binder used.

EXAMPLE PA 11 70/100:

— Porous Asphalt with maximum aggregate size 11 mm and penetration bitumen grade 70/100.

NOTE Information concerning regulatory marking accompanies the product (for CE marking and labelling see ZA.3) but characteristics which are not necessarily part of regulatory marking, could be made available by alternative means.

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

These calculations shall be applied when paving grade bitumen has been used in the reclaimed asphalt and will be used as added binder.

A.2 Calculation of the penetration of the binder of a mixture

Use the following calculation:

$$a \lg pen_1 + b \lg pen_2 = (a + b) \lg pen_{\text{mix}} \quad \text{(A.1)}$$

where

pen_{mix} is the calculated penetration of the binder in the mixture containing reclaimed asphalt;

pen_1 is the penetration of the binder recovered from the reclaimed asphalt;

pen_2 is the penetration of the added binder;

a and b are the portions by mass of the binder from the reclaimed asphalt (a) and from the added binder (b) in the mixture; $a + b = 1$.

EXAMPLE $pen_1 = 20$; $pen_2 = 90$; $a = 0{,}25$ and $b = 0{,}75$

$0{,}25 \lg 20 + 0{,}75 \lg 90 = \lg pen_{\text{mix}}$

$\lg pen_{\text{mix}} = 1{,}790\ 94$; therefore $pen_{\text{mix}} = 62$

The recovery of binder from mixtures for testing shall be performed according to EN 12697-3 or EN 12697-4.

The penetrations of the added binder and the recovered binder shall be determined according to EN 1426.

A.3 Calculation of the softening point of the binder of a mixture

Use the following calculation:

$$T_{\text{R\&B mix}} = a \times T_{\text{R\&B 1}} + b \times T_{\text{R\&B2}} \quad \text{(A.2)}$$

where

$T_{\text{R\&B mix}}$ is the calculated softening point of the binder in the mixture containing reclaimed asphalt;

$T_{R\&B1}$ is the softening point of the binder recovered from the reclaimed asphalt;

$T_{R\&B2}$ is the softening point of the added binder;

a and *b* are the portions by mass of binder from the reclaimed asphalt (*a*) and from the added binder (*b*) in the mixture; $a + b = 1$.

EXAMPLE $T_{R\&B1} = 62$ °C; $T_{R\&B2} = 48$ °C; $a = 0{,}25$ and $b = 0{,}75$

$T_{R\&B\ mix} = 0{,}25 \times 62 + 0{,}75 \times 48 = 51{,}5$ °C

The softening points of the added binder and the recovered binder shall be determined according to EN 1427.

Annex ZA
(informative)

Relationship of this European Standard with Regulation (EU) No. 305/2011

(When applying this standard as a harmonized standard under Regulation (EU) No. 305/2011, manufacturers and Member States are obliged by this regulation to use this annex.)

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under standardization request M124 Road Construction given to CEN and CENELEC by the European Commission (EC) and the European Free Trade Association (EFTA).

When this European Standard is cited in the Official Journal of the European Union (OJEU), under Regulation (EU) No 305/2011, it shall be possible to use it as a basis for the establishment of the Declaration of Performance (DoP) and the CE marking, from the date of the beginning of the co-existence period as specified in the OJEU.

Regulation (EU) No. 305/2011, as amended, contains provisions for the DoP and the CE marking.

Table ZA.1 — Relevant clauses for Porous Asphalt for use on roads, airfields and other trafficked areas

Product:	Porous Asphalt			
Intended use:	For use on roads, airfields and other trafficked areas			
Essential Characteristics	**Requirement clauses in this and other European Standard(s)**		**Classes and/or threshold levels**	**Notes**
Adhesion of binder to aggregate	5.2.3	Target binder content	–	Declared value
	5.3.4	Water sensitivity	–	Minimum category
	5.3.5	Particle loss	–	Maximum category
	5.3.13	Bitumen aggregate affinity for application on airfields	–	Aggregate
	5.4	Temperature of the mixture	–	Declared maximum category and declared minimum value
Stiffness	5.2.2	Target grading	–	Declared values
	5.2.3	Target binder content	–	Declared value
	5.3.2.2	Void content	–	Declared minimum or maximum category, class or numerical value
	5.4	Temperature of the mixture	–	Declared maximum category and declared minimum value

Product:	Porous Asphalt			
Intended use:	For use on roads, airfields and other trafficked areas			
Essential Characteristics	**Requirement clauses in this and other European Standard(s)**		**Classes and/or threshold levels**	**Notes**
Resistance to permanent deformation	5.2.2	Target grading	–	Declared values
	5.2.3	Target binder content	–	Declared value
	5.3.2.2	Void content	–	Declared minimum or maximum category, class or numerical value
	5.3.3	Resistance to permanent deformation	–	Declared maximum categories
	5.4	Temperature of the mixture	–	Declared maximum category and declared minimum value
Resistance to fatigue	5.2.3	Target binder content	–	Declared value
	5.3.2.2	Void content	–	Declared minimum or maximum category, class or numerical value
	5.4	Temperature of the mixture	–	Declared maximum category and declared minimum value
Skid resistance	5.2.2	Target grading	–	Declared maximum category
	5.2.3	Target binder content	–	Declared minimum category
	5.3.2.2	Void content	–	Declared minimum or maximum category, class or numerical value
	5.3.7	Friction after polishing	–	Declared category or numerical value
Resistance to abrasion	5.2.2	Target grading	–	Declared values
	5.2.3	Target binder content	–	Declared value
	5.3.5	Particle loss	–	Declared maximum category
Hydraulic conductivity	5.2.2	Target grading	–	Declared values
	5.2.3	Target binder content	–	Declared value
	5.3.2.2	void content	–	Declared minimum or maximum category, class or numerical value
	5.3.2.3	Horizontal Permeability	–	Declared category
	5.3.2.3	Vertical permeability	–	Declared category
Reaction to fire[a]	5.3.9	fire class	$A1_{fl}$ to F_{fl}	Declared class
Noise absorption	5.2.2	Target grading	–	Declared values
	5.2.3	Target binder content	–	Declared value
	5.3.2.2	Void content	–	Declared minimum or maximum category, class or numerical value
	5.3.2.3	Horizontal Permeability	–	Declared category
	5.3.2.3	Vertical permeability	–	Declared category

Product:	Porous Asphalt			
Intended use:	For use on roads, airfields and other trafficked areas			
Essential Characteristics	**Requirement clauses in this and other European Standard(s)**		**Classes and/or threshold levels**	**Notes**
Durability of the above characteristics against ageing, weathering, oxidation, wear, ravelling, chemicals, wear of studded tyres, stripping, ... as relevant	All above mentioned requirement clauses are related to durability.		–	See above
	5.3.6	Low temperature property	–	Declared category or numerical value
	5.3.10	Binder drainage	–	Declared maximum category
	5.3.11	Resistance to fuel for application on airfields[b]	–	Declared category or numerical value
	5.3.12	Resistance to de-icing fluids for application on airfields[b]	–	Declared minimum category or numerical value

[a] Relevant only for Porous Asphalt intended for uses subject to reaction to fire regulations.

[b] Only relevant for application on airfields.

ZA.2 System of Assessment and Verification of Constancy of Performance (AVCP)

The AVCP systems of Porous Asphalt indicated in Table ZA.1, can be found in the EC legal acts adopted by the EC decision 1998/601/EC of 13 October 1998 (OJ L 287; p. 41) amended by the Commission decision 2001/596/EC of 8 January 2001 (OJ L 209; p. 33).

Micro-enterprises are allowed to treat products under AVCP system 3 covered by this standard in accordance with AVCP system 4, applying this simplified procedure with its conditions, as foreseen in Article 37 of Regulation (EU) No. 305/2011.

ZA.3 Assignment of AVCP tasks

The AVCP systems of Porous Asphalt as provided in Table ZA.1 are defined in Tables ZA.3.1 to ZA.3.3 resulting from application of the clauses of this or other European Standards indicated therein. The content of the tasks assigned to the notified body shall be limited to those essential characteristics, if any, as provided for in Annex III of the relevant standardization request and to those that the manufacturer intends to declare.

Taking into account the AVCP systems defined for the products and the intended uses the following tasks are to be undertaken by the manufacturer and the notified body respectively for the assessment and verification of the constancy of performance of the product.

Table ZA.3.1 — Assignment of AVCP tasks for Porous Asphalt under system 2+ and subject to reaction to fire under system 1

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared	EN 13108–21
	Determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared except reaction to fire	EN 13108–20
	Further testing of samples taken at factory according to the prescribed test plan	Essential characteristics of Table ZA.1 relevant for the intended use which are declared	EN 13108–21
Tasks for the notified product certification body	determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product	Reaction to fire	EN 13501-11:2007+A1:2009, Table 2 and EN ISO 11925-2
	Initial inspection of manufacturing plant and of FPC	Parameters related to essential characteristic of Table ZA.1, relevant for the intended use which is declared, namely reaction to fire. Documentation of the FPC	EN 13108–21
	Continuous surveillance, assessment and evaluation of FPC	Parameters related to essential characteristic of Table ZA.1, relevant for the intended use which is declared, namely reaction to fire. Documentation of FPC	EN 13108–21

Tasks		Content of the task	AVCP clauses to apply
Tasks for the notified production control certification body	Initial inspection of the manufacturing plant and of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which is declared, except reaction to fire. Documentation of the FPC	EN 13108–21
	Continuous surveillance, assessment and evaluation of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which is declared, except reaction to fire. Documentation of the FPC	EN 13108–21

Table ZA.3.2 — Assignment of AVCP tasks for Porous Asphalt under system 2+ and subject to reaction to fire under system 3

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared	EN 13108–21
	Determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which are declared except reaction to fire	EN 13108–20
	Further testing of samples taken at factory according to the prescribed test plan	Essential characteristics of Table ZA.1 relevant for the intended use which are declared	EN 13108–21
Tasks for a notified testing laboratory	Determination of the product type on the basis of type testing (based on sampling carried out by the manufacturer), type calculation, tabulated values or descriptive documentation of the product	Reaction to fire	EN 13501-11:2007+A1:2009, Table 2 and EN ISO 11925-2

Tasks		Content of the task	AVCP clauses to apply
Tasks for the notified production control certification body	Initial inspection of the manufacturing plant and of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which is declared. Documentation of the FPC	EN 13108–21
	Continuous surveillance, assessment and evaluation of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which is declared. Documentation of the FPC	EN 13108–21

Table ZA.3.3 — Assignment of AVCP tasks for Porous Asphalt under system 2+ and subject to reaction to fire under system 4

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which is declared	EN 13108–21
	determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product	Parameters related to essential characteristics of Table ZA.1 relevant for the intended use which is declared	EN 13108–20
	Further testing of samples taken at factory according to the prescribed test plan	Essential characteristics of Table ZA.1 relevant for the intended use which is declared	EN 13108–21
Tasks for the notified production control certification body	Initial inspection of the manufacturing plant and of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which is declared. Documentation of the FPC	EN 13108–21
	Continuous surveillance, assessment and evaluation of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which is declared. Documentation of the FPC	EN 13108–21

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