

PD 6691:2022



BSI Standards Publication

**Guidance on the use of BS EN 13108,
Bituminous mixtures**

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Published by BSI Standards Limited 2022

ISBN 978 0 539 05022 6

ICS 93.080.20

The following BSI references relate to the work on this document:

Committee reference B/510/1

Draft for comment 21/30437969 DC

Amendments/corrigenda issued since publication

Date

Text affected

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Foreword

Publishing information

This Published Document is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 March 2022. It was prepared by Subcommittee B/510/1, *Asphalt products*, under the authority of Technical Committee B/510, *Road materials*. A list of organizations represented on these committees can be obtained on request to the committee manager.

This publication is not to be regarded as a British Standard.

Supersession

PD 6691:2021 supersedes PD 6691:2015+A1:2016, which is withdrawn.

Relationship with other publications

This Published Document gives non-contradictory, complimentary information for use in the UK with the BS EN 13108 series of standards.

Use of this document

As a guide, this Published Document takes the form of guidance and recommendations. It should not be quoted as if it were a specification or a code of practice.

It has been assumed in the preparation of this Published Document that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The guidance in this Published Document is presented in roman (i.e. upright) type. Any recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

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0 Introduction

0.1 Overview of BS EN 13108

[BS EN 13108](#) is based on a common format and common principles. The overall principle is to provide a way for the target composition of a mixture to be declared in a consistent way and demonstrate that, at that target composition, it has certain declared properties. Each mixture formulation needs a declaration of the properties which are being claimed, derived through a product Type Testing procedure. In the simplest case it can be just grading and binder content. In more complex situations it can include properties, such as stiffness, deformation resistance and fatigue resistance. The demonstration of performance and conformity of the mixture on an ongoing basis requires the producer to undertake factory production control. This is a quality management procedure involving defined inspection and test regimes, and conformity criteria to prove that the mixture conforms to the declared target composition within defined tolerances.

[BS EN 13108](#) offers a degree of choice in many aspects, such as target composition, types of constituents, properties, and means of specimen preparation for product type testing. In many cases, this choice is indicated by the words “in documents related to the application of a product”. For [BS EN 13108](#) to be practicably workable in the UK there needs to be consistency amongst these choices so that producers know what to declare through product type testing and purchasers know what to ask for. This Published Document gives the recommended choices for the mixtures most commonly used in the UK.

As a result of many years of practical experience, the UK has successfully specified asphalt mixtures using an empirical/recipe based approach. The European standards permit the specification of asphalt mixtures either by nominating certain performance requirements and/or by nominating target gradings and target binder contents. Where it is appropriate and practicable, the UK does specify some of the asphalt mixtures used in higher stressed applications by including performance requirements. Examples of these are stiffness to ensure heavy traffic loadings do not damage the pavement construction, and deformation resistance to minimize rutting in the upper asphalt pavement layers. These additional requirements supplement the declared target grading and target binder content.

This Published Document makes recommendations for the selection of appropriate target gradings and target binder contents along with any supplementary performance characteristics based on best construction practice and national climatic conditions in the UK at the time of writing.

The example specifications covered by [Annex B](#) to [Annex E](#) provide important requirements for the particular types of asphalt mixture. These include specific requirements for all the ingredients used in their manufacture, tables which identify boundaries for the nominated target aggregate gradings, recommended grades of bitumen, and target binder contents which take account of the differing characteristics of the aggregates used in their manufacture. The proposed target binder contents ensure that the mixture provides the appropriate characteristics to permit effective compaction during laying and adequate performance under use/trafficking.

Where appropriate to the application and as required by the use/trafficking of the pavement, suitable performance categories are identified.

[BS EN 13108](#) contains requirements only for the loose mixture, i.e. “in the back of the truck”. The requirements for the laying of asphalts are retained in [BS 594987](#), and conformity to [BS 594987](#) is essential to ensure the durability of the finished work.

NOTE Guidance on the laying of mastic asphalt is not contained in this Published Document. Advice may be obtained from the Mastic Asphalt Council.¹⁾

[BS EN 13108](#) includes provisions for the use of reclaimed asphalt in asphalt mixtures. BS EN 13108-8 provides a means of defining and classifying the properties of reclaimed asphalt to be used as a component in asphalt. This Published Document gives guidance on a means of regulating the use of reclaimed asphalt.

0.2 Assessment and verification of constancy of performance

From 1 July 2013 the Construction Products Regulation 2013 [1] was fully implemented across all EU member states. It is a requirement of [BS EN 13108](#) product standards that an asphalt product supplied in conformity with one of the parts of [BS EN 13108](#) is assessed for product type and for conformity utilizing Part 20 and Part 21. This process is now called assessment and verification of constancy of performance (AVCP) but was referred to as Evaluation of Conformity in the BS EN 13108:2006 series. The end result of the AVCP process is the CE marking of the product confirming that it meets the performance requirements as detailed in the declaration of performance.

BS EN 13108-20 identifies the way in which the performance of a mixture composition to the requirements of the product standards is to be determined. This is referred to as Type Testing.

BS EN 13108-20 calls up test methods from the BS EN 12697 series of asphalt testing standards. Separate guidance on these test methods is given in PD 6692.

BS EN 13108-21 specifies procedures to be adopted during production to ensure product constancy and conformity with declared performance. This is referred to as Factory Production Control.

Revisions to all Parts of the BS EN 13108 series have been published, dated 2016. However, the product standards, Parts 1-7 (and 9) have not received citation in the Official Journal of the European Union (OJEU) and therefore cannot be used for the purposes of CE marking.

Parts 8, 20 and 21, dated 2016, are however not harmonized and do not require citation for that purpose and therefore are available for application, and adopted in this Published Document.

Following the end of the EU exit transition period on 31 December 2020, there are different options available relating to product marks that manufacturers, and others in the supply chain, will need to apply. The rules governing these marks depend on where the product is intended to be used. Where previously these were referred to as CE marking, this is now addressed generically in the UK as Conformity Assessed (CA) Marking (see [Annex A](#)).

0.3 Mathematical nomenclature

To accord with European nomenclature protocols, the nature of mathematical notation adopted in this Published Document is that employed in the European Standard.

When denoting a decimal fraction, European notation employs a comma (,). For example, the “six point three” millimetre sieve (6.3 mm) is denoted as 6,3 mm.

¹⁾ Available at <https://masticasphaltcouncil.co.uk>

1 Scope

This Published Document gives guidance on the use of BS EN 13108:2006 and/or BS EN 13108:2016 as explained in [Annex A](#).

[Clause 1](#) to [Clause 8](#) of this Published Document give general guidance and background information on BS EN 13108:2016.

[Annex A](#) contains guidance on matters arising from the publication of BS EN 13108:2016 without Citation in the OJEU as well as some consequences of the UK's departure from the European Union in relation to Conformity Assessed Marking.

[Annex B](#) contains an example specification which gives the UK choice for specifying asphalt concrete in accordance with BS EN 13108-1:2006.

[Annex C](#) contains an example specification which gives the UK choice for specifying hot rolled asphalt in accordance with BS EN 13108-4:2006.

[Annex D](#) contains an example specification which gives the UK choice for specifying stone mastic asphalt in accordance with BS EN 13108-5:2006.

[Annex E](#) contains an example specification which gives the UK choice for specifying mastic asphalt in accordance with BS EN 13108-6:2006.

This Published Document is applicable to mixtures for use on roads and other paved areas, including airfields. As well as the recommendations for Béton Bitumineux pour chaussées Aéronautiques (BBA) in this document, additional provisions for airfields are specified elsewhere including those provided by Defence Infrastructure Organisation (DIO).²⁾

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions of this document³⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 2000-49](#), *Methods of test for petroleum and its products – Determination of needle penetration of bituminous material*

[BS 594987:2015](#), *Asphalt for roads and other paved areas – Specification for transport, laying, compaction and product type testing protocols*

BS EN 1097-6, *Tests for mechanical and physical properties of aggregates. Determination of particle density and water absorption*

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

BS EN ISO 9001, *Quality management systems – Requirements*

BS EN 12591:2009, *Bitumen and bituminous binders – Specifications for paving grade bitumens*

BS EN 12697 (all parts),⁴⁾ *Bituminous mixtures – Test methods*

BS EN 13043:2002, *Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas*

²⁾ Available at: <https://www.gov.uk/government/publications/specifications>

³⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

⁴⁾ This document contains specific references to Parts 3, 5, 6, 8, 12, 13, 18, 20, 22, 24, 26, 30, 31, 33, 35, 37 and 43 of [BS EN 12697](#).