

asphalt

applications

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European Asphalt Standards
and their application in the UK



Asphalt
Information
Service

PD 6691 and the BS EN 13108 series

Wherever a reference is made to one of the European Standard asphalt* mixtures, the principle document for reference and guidance on their use and application in the UK is the BSI Published Document PD 6691¹. PD 6691 should therefore be consulted before reference is made to the BS EN 13108 series of mixture standards Parts 1, 4, 5 or 7²⁻⁵. It is essential that any Engineer, contractor or asphalt professional refers principally to PD 6691 when considering the types of asphalt mixtures required for the particular application, and their specification and use. It must be recognised that within the European Standards the boundaries for mixture composition and performance categories are extremely wide and numerous to ensure they encompass the full range of different mixtures used within the European Member States. The UK National Guidance document PD 6691 considers the UK climate, traffic loadings and important safety features such as skidding resistance, and interprets the requirements of the European Standards making them more specific and applicable to UK conditions.

** The term 'asphalt' is used in this series of publications and unless accompanied by a descriptor for example 'Asphalt Concrete' (AC), 'Hot Rolled Asphalt' (HRA) or 'Stone Mastic Asphalt' (SMA), is applied in its generic sense to refer to the range of mixtures used in the UK.*

Under the methodology of European Standard mixture specification it is the asphalt suppliers responsibility, utilising both his expertise and the guidance from PD 6691 to select a mixture composition for manufacture and supply. If it is appropriate for the type and application of the mixture, the supplier will also determine the specific performance characteristics of the mixture as identified within PD 6691 under standard test conditions.

Type Testing

To ensure that the asphalt mixture meets the requirements of PD 6691 and the European Standards, the asphalt supplier utilises a procedure known as 'Type Testing' which is detailed within PD 6691 (BS EN 13108 Part 20⁶). This procedure involves selecting the appropriate ingredients for the mixture, validating their characteristics and then identifying a target grading and target binder content for the particular mixture type and its potential application. Where performance requirements are specified for a pavements layer, trial strips of the asphalt mixture are laid and then tested. The trial strips are laid using conventional paving and compaction equipment utilising protocols which are available as Annexes to BS 594987⁷ the British Standard covering the transportation, laying and compaction of asphalt and type testing protocols. The asphalt within the trial strip is subjected to the testing outlined within PD 6691 and the relevant BS 594987 protocol and the results assessed against the required performance categories also identified within PD 6691. Following an independent and successful Third Party assessment of the Type Testing data, the Quality Management System utilised for the production and supply of the asphalt and all its associated documentation, the supplier is then permitted to CE mark his asphalt.

CE Marking



The CE mark is a legally binding certificate which contains details of all the information as required by the European Standards for Asphalt and PD 6691 for the particular company, production location and specific mixture designation and will without exception include the target grading and target binder content of the mixture. If the mixture has been assessed under Type Testing for one or more particular performance requirements, the categories against which the mixture has been proven to comply are included on the CE mark certificate against the particular requirement.

In its most basic form where no particular performance is required or quoted for the mixture, the Type Testing will involve only the selection of the target grading and target binder content which will then appear on the CE mark. Other potential performance requirements such as voids or wheel tracking, will either appear on the CE mark certificate with a statement of "NPD" (No Performance Determined) alongside or may be excluded from the certificate.

Additional information and/or performance testing criteria not required by the European Standard for Asphalt may also be included on a CE mark certificate in an area or position which indicates that they do not form part of the regulatory requirements of the CE mark. For example the target binder content on analysis could differ from that declared under Type Testing as the target value, when the Relative Density of the actual aggregate used is taken into account.

Mixture specification and Factory Production Control

Having carried out the prerequisites of Type Testing (TT) and CE marked the mixture at the target grading and binder content, the asphalt manufacturer refers to PD 6691 (BS EN 13108-21⁹) which covers the Factory Production Control (FPC) requirements. These documents contain the tolerances that the supplier applies to the target grading and target binder content for the particular type of mixture. When applied these tolerances form the specification envelope against which the manufactured asphalt will be assessed through routine Quality Control testing. If subsequent testing is contractually required to prove mixture conformity, it is this specification as provided by the asphalt supplier that must be used by the laboratory carrying out the testing to assess the mixture's compositional conformity.

Note 'Factory Production Control' embodies the elements of a Quality Management System which are focussed primarily on the production and supply processes. In the UK this is further supplemented and enhanced by the broader and more stringent requirements of the BS EN ISO 9001⁹ Quality Management System (QMS) called up by the Industry National Sector Scheme 14¹⁰. Industry Scheme 14 interprets the requirements of the ISO 9001 QMS as they specifically apply to the manufacture and supply of Asphalt in the UK.

All the detail relating to the points raised above can be found in PD 6691¹ for asphalt mixtures used in the UK.

References

Important: When referring to any of the documents listed it is essential to check that it is the latest/current edition of that document. This can be readily confirmed by checking the currency of the document on the appropriate website.

- 1 PD 6691 - Asphalt. **Guidance on the use of BS EN 13108 Bituminous Mixtures - Material specifications**. BSI, London.
- 2 British (European) Standard BS EN 13108-1 **Bituminous mixtures - Material specifications - Part 1: Asphalt Concrete**, BSI, London
- 3 British (European) Standard BS EN 13108-4 **Bituminous mixtures - Material specifications - Part 4: Hot Rolled Asphalt**, BSI, London.
- 4 British (European) Standard BS EN 13108-5 **Bituminous mixtures - Material specifications - Part 5: Stone Mastic Asphalt**, BSI, London
- 5 British (European) Standard BS EN 13108-1 **Bituminous mixtures - Material specifications - Part 7: Porous Asphalt**, BSI, London
- 6 British (European) Standard BS EN 13108-20 **Bituminous mixtures - Part 20: Type Testing**, BSI, London
- 7 British Standard BS 594987 **Asphalt for roads and other paved areas - Specification for transport, laying and compaction and type testing protocols**, BSI, London
- 8 British (European) Standard BS EN 13108-21 **Bituminous mixtures - Part 21: Factory Production Control**, BSI, London
- 9 British (European) Standard BS EN ISO 9001 **Quality Management System - Requirements**, BSI, London
- 10 **National Highways Sector Scheme 14 for Quality Management in Highway Works** - the quality management of the production of asphalt mixes - United Kingdom Accreditation Service (UKAS). www.ukas.com/informationcentre/publications/pubsforbaccaccred.asp
- 11 **BSI website for the purchase of European and British Standards and Public Documents**. www.bsiglobal.com/upload/Standards%20&%20Publications/shop.html



Information sheets in this series

- 1 The construction and surfacing of car parking areas including private drives and permeable hardstandings
- 2 The construction and surfacing of parking areas for medium and heavyweight vehicles
- 3 Resurfacing of roads and other paved areas using asphalt
- 4 Decorative and coloured finishes for asphalt surfacings
- 5 Choosing a surfacing contractor
- 6 Asphalt surfacings for high stress areas
- 7 Use of asphalt in the construction of games and sports areas
- 8 Farming applications of asphalt
- 9 Miscellaneous uses of asphalt
- 10 Airfield uses of asphalt
- 11 Construction and surfacing of footways and cycleways using asphalt
- 12 European Asphalt Standards and their application in the UK.

Booklet

'What's in a Road?'

A general review of pavement construction and the different materials that are used for the construction and maintenance of asphalt roads.

Enquiries for orders for 'What's in a Road?' should be addressed to the Mineral Products Association, details on next page.

Topics in Asphalt

- Asphalt - Road materials with quality
- Roads are 'green' with asphalt

Publications

Apart from this and the other information sheets and booklet dealing with uses of asphalt and pavement construction, a range of other publications is available from the Mineral Products Association covering aggregate production and processing, lime, ready-mixed concrete, sand and gravel and slag. A full list of these publications may be obtained from the address shown on the next page.

Further advice

General advice on the use of asphalts may be obtained from the Mineral Products Association at the address given on this information sheet. For detailed guidance on any site-specific matter, advice should be sought from local specialist surfacing contractor members of the Mineral Products Association.



The Mineral Products Association is the trade association for the aggregates, asphalt, cement, concrete, lime, mortar and silica sand industries.

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