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BSI Standards Publication

## Bituminous mixtures — Test methods

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Part 19: Permeability of specimen

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## National foreword

This British Standard is the UK implementation of EN 12697-19:2020. It supersedes BS EN 12697-19:2012, which is withdrawn.

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

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2020  
Published by BSI Standards Limited 2020

ISBN 978 0 539 02222 3

ICS 93.080.20

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2020.

### Amendments/corrigenda issued since publication

| Date | Text affected |
|------|---------------|
|------|---------------|

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EUROPÄISCHE NORM

February 2020

ICS 93.080.20

Supersedes EN 12697-19:2012

English Version

## Bituminous mixtures - Test methods - Part 19: Permeability of specimen

Mélanges bitumineux - Méthodes d'essai - Partie 19 :  
Perméabilité des éprouvettes

Asphalt - Prüfverfahren - Teil 19: Durchlässigkeit der  
Probekörper

This European Standard was approved by CEN on 18 November 2019.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (EN 12697-19:2020) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by BSI.

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 August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12697-19:2012.

The following is a list of significant technical changes since the previous edition:

- the title no longer makes the method exclusively for hot mix asphalt;
- [ge] editorial update according to current standard template;
- [Clause 3, new clause: 3 Terms and definitions introduced. Following clauses renumbered accordingly;
- [5.2.2] accuracy of balance of  $\pm 0,5$  g introduced. (4.2.2 in previous version);
- [5.4.1] Formula (1): rounding rules for calculation introduced. (4.4.1 in previous version);
- [5.4.2] Formula (2) corrected. (4.4.2 in previous version);
- [6.2.4] accuracy of balance of  $\pm 0,5$  g introduced. (5.2.4 in previous version);
- [6.4.1] Formula (3): rounding rules for calculation introduced. (5.4.1 in previous version);
- [6.4.2] Formula (4), key for  $K_h$ : unit for the horizontal permeability corrected to (m/s). (5.4.2 in previous version);

A list of all parts in the EN 12697 series can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This document specifies a method for determining the vertical and horizontal permeability of cylindrical specimens of bituminous mixtures with interconnecting voids. The document applies to specimens cored out of the road, specimens from laboratory made slabs or laboratory specimens prepared with a compaction device provided the thickness of the specimen is not less than twice the nominal maximum particle size of the aggregate in the mixture. The nominal diameter of specimens should be either 100 mm or 150 mm unless the nominal maximum particle size of the aggregate size exceeds 22 mm, when the nominal diameter is 150 mm.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 12697-29, *Bituminous mixtures — Test methods — Part 29: Determination of the dimensions of a bituminous specimen*

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>

## 4 Principle

A column of water with a constant height is applied to a cylindrical specimen and is allowed to permeate through the specimen for a controlled time in either a vertical or horizontal direction depending upon the parameter being measured. The resultant flow rate of the water  $Q_v$  or  $Q_h$  is a calculated measure of the permeability value  $K_v$  or  $K_h$ . The test is carried out at ambient temperature.

NOTE When the void content of the same specimen is determined, the relationship between permeability and void content can be established.

## 5 Vertical permeability

### 5.1 General

In this method, only the water flow in a vertical direction through the specimen is measured.

### 5.2 Apparatus for vertical permeability

**5.2.1** Apparatus as shown in Figure 1. The dimensions shall be such to ensure the water column height is  $(300 \pm 1)$  mm. The external diameter of the tube and any fittings shall be such that no water can flow between the wall of the tube and the specimen when in place; the thickness of the tube shall be sufficient to ensure it retains its shape but shall not be more than 5 mm.

The external diameter of the tube should generally be greater than the diameter of the specimen by up to 5 mm.