

BS 9227:2019



BSI Standards Publication

**Hydraulically bound materials for civil  
engineering purposes – Specification  
for production and installation  
in pavements**

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# Contents

	Page
<b>Foreword</b>	<b>iii</b>
1 Scope	1
2 Normative references	1
3 Terms, definitions, symbols and abbreviations	2
4 HBM	5
5 Mixture design	5
6 Preparatory works at the site	6
6.1 Preparatory works for ex-situ method	6
6.2 Preparatory works for in-situ method	6
7 Production	6
8 Transport and delivery	7
9 Installation	8
9.1 Laying and compaction	8
<i>Table 1 — Default workability period for HBM when one or more binder(s) are added at the same time</i>	9
<i>Table 2 — Default workability period for HBM when individual binder constituents are added at different times</i>	9
9.2 Joints	9
9.3 Induced cracking	10
9.4 Adverse weather conditions	10
9.5 Curing and opening to trafficking	10
<i>Table 3 — Trafficking of HBM</i>	11
10 Quality control	12
10.1 General	12
<i>Table 4 — Requirements for testing, control and checking</i>	12
10.2 Sampling	13
10.3 Nuclear density and measurement of in-situ wet density	13
10.4 Depth of induced cracking	13
10.5 Laboratory mechanical performance	14
<i>Table 5 — Laboratory mechanical performance testing requirements for HBM</i>	14
<b>Annex A</b> (informative) <b>BS EN 14227, parts 1 to 5 and 15</b>	<b>15</b>
<i>Table A.1 — Types and designation of HBGM within BS EN 14277</i>	19
<i>Table A.2 — HBM constituents with BS EN references</i>	21
<b>Annex B</b> (informative) <b>Guidance on UK application of HBM</b>	<b>26</b>
<i>Table B.1 — Indicative binder options for HBGM and HSS related to design, construction, weather and other characteristics</i>	29
<b>Annex C</b> (informative) <b>Soil/aggregate selection, investigation and preliminary assessment</b>	<b>32</b>
<b>Annex D</b> (informative) <b>Guidance on constituent selection and mix design for HBGM</b>	<b>32</b>
<i>Table D.1 — HBGM constituents</i>	33
<i>Table D.2 — Recommendations for the aggregates in HBGM</i>	33
<i>Table D.3 — Informative description and type HBGM within BS EN 14227</i>	35
<i>Table D.4 — Guidance on minimum binder and binder constituent content for HBGM</i>	37
<b>Annex E</b> (informative) <b>Guidance on the selection of constituents and mix design for RCC</b>	<b>39</b>
<i>Table E.1 — RCC constituents</i>	39
<i>Table E.2 — Typical restrictions for the aggregates for RCC</i>	40
<i>Table E.3 — Aggregates grading for RCC</i>	40

	<i>Table E.4 — Minimum cement content for RCC</i>	41
<b>Annex F</b>	(informative) <b>Guidance on the selection of constituents and mix design for HSS</b>	<b>41</b>
	<i>Table F.1 — HSS permitted constituents</i>	42
	<i>Table F.2 — Guidance on minimum binder and binder constituents content for HSS for pavement application</i>	44
<b>Annex G</b>	(informative) <b>Guidance on construction of multi-layer HBM layers for monolithic performance</b>	<b>45</b>
	<b>Bibliography</b>	<b>47</b>

### Summary of pages

This document comprises a front cover, and inside front cover, pages i to iv, pages 1 to 49, an inside back cover and a back cover.

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# Foreword

## Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 November 2019. It was prepared by Subcommittee B/510/4, *Cementitious bound materials, unbound granular materials, waste materials and marginal materials*, under the authority of Technical Committee B/510, *Road materials*. A list of organizations represented on these committees can be obtained on request to their secretary.

## Relationship with other publications

This British Standard gives non-contradictory and complementary information for the use in the UK of BS EN 14227, the European Standard that defines and specifies hydraulically bound granular materials (HBGM) and hydraulically stabilized soils (HSS), known generically as hydraulically bound mixtures in BS EN 14227 and as hydraulically bound materials (HBM) in this British Standard. These terms are used interchangeably but mean the same thing.

This British Standard has been produced in parallel to the 2018 revisions of BS 1924-1 and BS 1924-2. These British Standards detail sampling, sample manufacture and test standards; either in full or by reference to the relevant BS EN standard.

## Information about this document

BS EN 14227 provides requirements for the constituents, composition and laboratory performance classification of HBGM and HSS, but not requirements for construction. This British Standard satisfies that need and for completeness also covers roller compacted concrete (RCC). This is a new standard and introduces the following:

- production, transport and installation requirements for RCC, HBGM and HSS; and
- testing and conformity requirements for RCC, HBGM and HSS.

This British Standard is appropriate for all types of UK works that incorporate HBM (the term HBM is taken to mean HBGM, HSS and RCC), whether produced by the ex-situ or in-situ method of production. This standard supports the appropriate investigation, specification and application of HBM in pavements whether for roads, of all types and classification, ports, airfields, heavy industrial areas, narrow widening/repairs, trench reinstatement and other applications.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at [bsigroup.com/standards](https://bsigroup.com/standards), or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

## Use of this document

It has been assumed in the preparation of this British Standard 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 provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

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

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

**Contractual and legal considerations**

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

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

## 1 Scope

This British Standard specifies requirements for the production, installation, testing and conformity of hydraulically bound materials (HBM) conforming to BS EN 14227 for pavement applications, whether constructed by the ex-situ or in-situ methods. It also includes requirements for preliminary work at the laying site, needed to ensure that the substrate is fit to receive the HBM.

*NOTE 1 The term “hydraulically bound materials” (HBM) used in this British Standard is the generic term to describe the wide range of materials comprising aggregates or soil, hydraulic binders and water; including roller compacted concrete (RCC), hydraulically bound granular material (HBGM) and hydraulically stabilized soils (HSS), which are available for use in the construction and the maintenance of roads and other paved areas.*

*NOTE 2 This British Standard does not include a framework for investigating and assessing existing pavements to be recycled to produce HBM.*

This British Standard relates to HBM for use in pavements, including the pavement foundation. Applications related to earthworks or other uses of HBM are not covered within this British Standard.

*NOTE 3 The annexes of this British Standard are informative only and do not contain provisions.*

## 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 document.<sup>1</sup> For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 1924-1, *Hydraulically bound and stabilized materials for civil engineering purposes – Part 1: Sampling, sample preparation and testing of materials before treatment*

BS 1924-2:2018, *Hydraulically bound and stabilized materials for civil engineering purposes – Part 2: Sample preparation and testing of materials during and after treatment*<sup>2</sup>

BS 594987, *Asphalt for roads and other paved areas – Specification for transport, laying, compaction and product type testing protocols*

BS EN 13242, *Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction*<sup>3</sup>

BS EN 13286-41, *Unbound and hydraulically bound mixtures – Part 41: Test method for the determination of the compressive strength of hydraulically bound mixtures*

BS EN 13286-42, *Unbound and hydraulically bound mixtures – Part 42: Test method for the determination of the indirect tensile strength of hydraulically bound mixtures*

BS EN 13286-45, *Unbound and hydraulically bound mixtures – Part 45: Test method for the determination of the workability period of hydraulically bound mixtures*<sup>4</sup>

BS EN 13808:2013, *Bitumen and bituminous binders – Framework for specifying cationic bituminous emulsions*

BS EN 14227-1, *Hydraulically bound mixtures – Specifications – Part 1: Cement bound granular mixtures*

BS EN 14227-2, *Hydraulically bound mixtures – Specifications – Part 2: Slag bound granular mixtures*

<sup>1</sup> Documents that are referred to solely in an informative manner are listed in the Bibliography.

<sup>2</sup> This British Standard also gives informative references to BS 1924-2.

<sup>3</sup> This British Standard also gives informative references to BS EN 13242:2013.

<sup>4</sup> This British Standard also gives informative references to BS EN 13286-45:2003.