

BS 8870:2022



BSI Standards Publication

**Materials for roads — High friction
surfacing — Specification**

bsi.

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2022

Published by BSI Standards Limited 2022

ISBN 978 0 59 05134 6

ICS 3.08.20

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

Committee reference B/510/2

Draft for comment 20/30396725 DC

Amendments/corrigenda issued since publication

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

Contents

	Page
Foreword	iii
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Product types	4
4.1 Cold applied	4
4.2 Hot applied	4
5 Constituents	4
5.1 Binder types	4
<i>Table 1 — Thermosetting binder properties</i>	5
<i>Table 2 — Thermoplastic binders and products properties</i>	5
5.2 Aggregate requirements	5
<i>Table 3 — Aggregate specification for HFS products</i>	6
6 Laboratory testing	6
6.1 General	6
6.2 Manufacture of slabs	6
6.3 Product application	7
6.4 Pre-TAIT testing	7
<i>Table 4 — Laboratory tests</i>	8
6.5 Reporting	8
7 Site performance – type approval installation trial (TAIT)	9
7.1 General	9
7.2 Site requirements	9
7.3 Product requirements	9
7.4 Performance designation	10
<i>Table 5 — Performance designation for combination of traffic and site categories</i>	10
7.5 Product installation	10
<i>Table 6 — Surface shear strength of asphalt substrate (including surface dressing and microsurfacing)</i>	11
<i>Table 7 — Rate of spread for hot and cold applied products (in the TAIT)</i>	12
7.6 Product performance (in the TAIT)	12
<i>Table 8 — Minimum requirements for newly laid products</i>	13
<i>Table 9 — Minimum requirements after two-year period</i>	13
<i>Table 10 — Maximum visual defects after two-year period</i>	14
7.7 Data recorded	14
8 Asseveration of quality (AoQ)	15
Annex A (normative) Determination of modified PSV of HFS aggregate – Test method	16
Annex B (normative) Test to determine resistance to wear of HFS aggregate using a modified wet micro-Deval test	17
<i>Figure B.1 — Diagram of typical apparatus</i>	18
Annex C (normative) Requirements for asphalt and concrete slabs	20
Annex D (normative) Procedure for conditioning by heat ageing samples for scuffing test	21
Annex E (normative) Test procedure for determination of the degree of erosion and visual observations	23
<i>Figure E.1 — Typical Grid Placement for scuffing test</i>	24
<i>Figure E.2 — Typical Grid Placement for wear test</i>	24

	<i>Table E.1 — Assessment of rating of grid squares</i>	24
	<i>Table E.2 — Example of erosion index report</i>	25
Annex F	(informative) Example test method for predicting the minimum average target rate of spread for cold applied products	25
Annex G	(informative) Example test method for measuring the average rate of spread of installed HFS products	26
Annex H	(normative) Test method for preparing HFS samples for laboratory testing	27
Annex I	(normative) Procedure for freeze-thaw conditioning	30
Annex J	(normative) Procedure for diesel susceptibility conditioning	32
Annex K	(normative) Procedure for the determination of thermal expansion	33
Annex L	(normative) Scuffing test	36
Annex M	(normative) Surface shear strength test	39
Annex N	(normative) Wear test	42
Annex O	(informative) Transition period	45
Annex P	(informative) Example of a witness certificate for the TAIT	46
Annex Q	(informative) Example of an asseveration of quality	47
	<i>Table Q.1 — Example of an asseveration of quality</i>	47
	Bibliography	48

Summary of pages

This document comprises a front cover, an inside front cover, pages I to IV, pages 1 to 48, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard 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/510/2, *Surface Treatments*, 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 committee manager.

Information about this document

Test laboratory accreditation. Users of this British Standard are advised to consider the desirability of selecting test laboratories to undertake testing of the high friction surfacing (HFS) nature accredited to BS EN ISO 17025.

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, or by contacting the Customer Services team.

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

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”).

Requirements in this standard are drafted in accordance with *Rules for the structure and drafting of UK standards*, subclause G.1.1, which states, “Requirements should be expressed using wording such as: ‘When tested as described in Annex A, the product shall ...’”. This means that only those products that are capable of passing the specified test will be deemed to conform to this standard.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient’s own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute 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 performance and control procedures for high friction surfacing (HFS) products containing calcined bauxite aggregate for the surface treatment of roads and other trafficked areas.

This British Standard is applicable to both hot applied and cold applied HFS products.

NOTE Data are being collected to enable the precision for the test methods (see [Annex A](#) – [Annex N](#)) to be determined.

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 document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 7941-2](#), *Surface friction of pavements – Part 2: Test method for measurement of surface skid resistance using the GripTester braked wheel fixed slip device*

BS EN 932-2, *Tests for general properties of aggregates – Part 2: Methods for reducing laboratory samples*

BS EN 932-5, *Tests for general properties of aggregates – Part 5: Common equipment and calibration*

BS EN 933-1:2012, *Tests for geometrical properties of aggregate – Part 1: Determination of particle size distribution – Sieving method*

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

[BS EN 1097-8:2020](#), *Tests for mechanical and physical properties of aggregates – Part 8: Determination of the polished stone value*

BS EN 1463-1:2009, *Road marking materials – Retroreflecting road studs – Part 1: Initial performance requirements*

BS EN 12272-2, *Surface dressing – Test methods – Part 2: Visual assessment of defects*

BS EN 12274-8, *Slurry surfacing – Test methods – Part 8: Visual assessment of defects*

BS EN 12697-22, *Bituminous mixtures – Test method – Part 22: Wheel tracking*

BS EN 12697-27, *Bituminous mixtures – Test method – Part 27: Sampling*

BS EN 12697-33, *Bituminous mixtures – Test method – Part 33: Specimen prepared by roller compactor*

BS EN 13036-1, *Road and airfield surface characteristics – Test methods – Part 1: Measurement of pavement surface macrotexture depth using a volumetric patch technique*

BS EN 13036-4, *Road and airfield surface characteristics – Test methods – Part 4: Method for measurement of slip/skid resistance of a surface: The pendulum test*

BS EN ISO 4788, *Laboratory glassware – Graduated measuring cylinders*

BS EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

BS EN ISO 13473-1, *Characterization of pavement texture by use of surface profiles – Part 1: Determination of mean profile depth*

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.