BS 7979:2016

BSI Standards Publication

Specification for limestone fines for use with Portland cement

bsi.

...making excellence a habit.™

Publishing and copyright information

Published by BSI Standards Limited 2016

ISBN 978 0 580 91808 7

ICS 91.100.10

The following BSI references relate to the work on this document:
Committee reference B/516/6
Draft for comment 15/30330848 DC

Publication history

First published, July 2001
Second (present) edition, January 2016

Amendments issued since publication

Date	Text affected

Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 14, 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 January 2016. It was prepared by Subcommittee B/516/6, *Cement specifications*, under the authority of Technical Committee B/516, *Cement and lime*. A list of organizations represented on these committees can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 7979:2001, which is withdrawn.

Information about this document

This new edition of BS 7979 incorporates technical changes only. It does not represent a full review or revision of the standard, which will be undertaken in due course.

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.

Requirements in this standard are drafted in accordance with *Rules for the structure and drafting of UK standards*, subclause **J.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 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, chemical composition and mechanical and physical properties of limestone fines for use in combination with CEM I Portland cement strength class 42.5 or higher conforming to BS EN 197-1 as a component of concrete, mortar or grout. It also specifies requirements for marking, provision of information, sampling and testing for acceptance at delivery, and conformity criteria for the manufacturer's autocontrol system.

Guidance on the use of limestone fines is given in Annex A.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this British Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

BS 6100-9, *Building and civil engineering – Vocabulary – Part 9: Work with concrete and plaster*

BS EN 196-1, *Methods of testing cement – Part 1: Determination of strength*

BS EN 196-2:2013, *Methods of testing cement – Part 2: Chemical analysis of cement*

BS EN 196-3:1995, *Methods of testing cement – Part 3: Determination of setting time and soundness*

BS EN 196-7:2007, *Methods of testing cement – Part 7: Methods of taking and preparing samples of cement*

BS EN 197-1, *Cement – Part 1: Composition, specifications and conformity criteria for common cements*

BS EN 451-2, *Method of testing fly ash – Part 2: Determination of fineness by wet sieving*

BS EN 933-9, *Tests for geometrical properties of aggregates – Part 9: Assessment of fines –Methylene blue test*

BS EN 933-10, *Tests for geometrical properties of aggregates – Part 10: Assessment of fines – Grading of filler aggregates (air jet sieving)*

BS EN 1744-1, *Tests for chemical properties of aggregates – Part 1: Chemical analysis*

BS EN 13639, *Determination of total organic carbon in limestone*

3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS 6100-9 and the following apply.

3.1 additive
constituent, other than those specified in **4.2**, which is added to facilitate the production of limestone fines

3.2 characteristic value
value of a required property outside which lies a specified percentage, P_k, of all the values of the population

3.3 limestone fines
fine powder obtained from the processing of limestone

NOTE Specially selected calcareous materials with an appropriate particle size distribution can improve the physical properties (such as workability) and reduce bleeding of the concrete.

3.4 lot
quantity of limestone fines, produced under conditions presumed uniform

3.5 single result limit value
value which, for any single test result, in the case of an upper limit is not to be exceeded or in the case of a lower limit is a minimum to be reached

3.6 spot sample
sample taken at one time and from one place

NOTE A spot sample may be obtained by combining one or more immediately consecutive incremental samples.

4 Composition

4.1 General

Limestone fines shall be correctly prepared, i.e. selected, homogenized and comminuted depending on their state of production or delivery.

During the production of limestone fines and their control, the composition and requirements specified in this British Standard shall be maintained.

Limestone fines shall be subjected to the conformity assessment specified in Annex B.

4.2 Chemical composition

4.2.1 Calcium carbonate

When determined in accordance with the method given in BS EN 196-2:2013, **4.5.12** or **4.5.14**, for calcium oxide, and expressed as calcium carbonate, the calcium carbonate content shall be not less than a mass fraction of 75% of the limestone fines.

*NOTE The preferred method for this test is given in BS EN 196-2:2013, **4.5.12**.*

4.2.2 Chloride

When determined in accordance with BS EN 196-2:2013, Clause **4**, the chloride content shall be not greater than a mass fraction of 0.1% of the limestone fines.

NOTE BS 8500-1 gives recommendations for the maximum total chloride content of concrete mixes for various applications.

4.2.3 Total sulfur

When determined in accordance with BS EN 1744-1, the total sulfur content (expressed as sulfate, SO_4) shall be not greater than a mass fraction of 1% of the limestone fines.

4.2.4 Clay content

When determined in accordance with BS EN 933-9, the methylene blue adsorption (which indicates the clay content) shall be not greater than 1.2 g blue per 100 g of limestone fines.

4.2.5 Organic material content

When determined in accordance with BS EN 13639, the organic material content shall be not greater than a mass fraction of 0.5% of the limestone fines.

4.2.6 Additives

The total quantity of additives shall not exceed a mass fraction of 1% of the limestone fines.

Additives shall be acceptable for use only if they are known not to promote corrosion of the reinforcement or impair the properties of the limestone fines or of the concrete or mortar made from the combination of the limestone fines and cement.

5 Moisture content

When determined in accordance with Annex C, the moisture content shall be not greater than a mass fraction of 0.5% of the limestone fines.

6 Compressive strength

6.1 Limestone fines with CEM I Portland cement of strength class 42.5

When tested in accordance with BS EN 196-1, a combination consisting of 80% CEM I Portland cement of strength class 42.5 conforming to BS EN 197-1, and 20% limestone fines, shall have the following compressive strength:

a) at 7 days: $\geq$16.0 N/mm^2;

b) at 28 days: $\geq$32.5 N/mm^2 and $\leq$52.5 N/mm^2.

6.2 Limestone fines with CEM I Portland cement of strength class 52.5

When tested in accordance with BS EN 196-1, a combination consisting of 80% CEM I Portland cement of strength class 52.5 conforming to BS EN 197-1, and 20% limestone fines, shall have the following compressive strength:

a) at 2 days: $\geq$10.0 N/mm^2;

b) at 28 days: $\geq$42.5 N/mm^2 and $\leq$62.5 N/mm^2.

NOTE The recommended procedure for determining conformity to strength class criteria for combinations of limestone fines and CEM I Portland cement is given in BS 8500-2:2015, Annex A.

7 Physical properties

7.1 Fineness

When determined in accordance with BS EN 451-2 or BS EN 933-10, the fineness of the limestone fines expressed as the proportion by mass retained on a 45 µm test sieve shall not exceed 10.0%.

In case of dispute, wet sieving to BS EN 451-2 shall be the reference method.

7.2 Initial setting time

When determined in accordance with BS EN 196-3, a paste of standard consistence made from a combination consisting of 80% CEM I Portland cement of strength class 42.5 or higher conforming to BS EN 197-1, and 20% limestone fines, shall have an initial setting time of not less than 75 min.

7.3 Soundness

When determined in accordance with BS EN 196-3, a paste of standard consistence made from a combination consisting of 80% CEM I Portland cement of strength class 42.5 or higher conforming to BS EN 197-1, and 20% limestone fines, shall have an expansion of not more than 10 mm.

8 Marking

Limestone fines shall be marked on the bag or the delivery note, and on any test report, with the following particulars:

a) name, trademark or other means of identification of the manufacturer to facilitate traceability to the works in which the limestone fines were produced;

b) name of the material, i.e. limestone fines;

c) number and date of this British Standard, i.e. BS 7979:2016 [1)].

9 Information to be provided by the manufacturer

9.1 Test report

If a test report is requested by the purchaser, it shall contain the following information [2)]:

a) calcium carbonate content of the limestone fines (see **4.2.1**);

b) chloride content of the limestone fines (see **4.2.2**);

c) compressive strength of the combination (see Clause **6**);

d) fineness of the limestone fines (see **7.1**);

e) initial setting time of the combination (see **7.2**);

f) soundness of the combination (see **7.3**);

g) source of the CEM I Portland cement used in the tests, and its setting time and compressive strength at either two days (class 42.5) or seven days (class 52.5) and 28 days when tested in the laboratory which is testing its combination with the limestone fines.

1) Marking BS 7979:2016 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.

2) The test report should be available from the manufacturer.

9.2 Additional information

The following information shall also be supplied to the purchaser, if requested at the time of ordering:

a) declared mean alkali content, expressed as the sodium oxide equivalent, determined in accordance with BS EN 196-2, which will not be exceeded without prior notice from the manufacturer;

b) an indication of the variability of the chloride content when its mean level exceeds a mass fraction of 0.05% (see **4.2.2**);

c) total sulfur content (see **4.2.3**);

d) clay content (see **4.2.4**);

e) organic material content (see **4.2.5**).

10 Sampling and testing for acceptance inspection at delivery

10.1 If, at the request of the purchaser, the manufacturer carries out sampling and testing for assessment of conformity at delivery, the procedures specified in to **10.2**, **10.3** and **10.4** shall be followed.

10.2 A spot sample of the limestone fines shall be taken in accordance with BS EN 196- 7:2007, **6.2**, **6.3**, **6.4** or **6.5** either before, or at the time of, delivery. A laboratory sample shall be prepared and packed in accordance with BS EN 196-7:2007, Clauses **8** and **9**. A sampling report shall be completed at the time of sampling and shall be attached to the laboratory sample in accordance with BS EN 196-7:2007, Clause **10**.

*NOTE 1 Testing may be delayed for up to 3 months from the time of sampling, provided that there is confirmation that the sample has been stored continuously as specified in BS EN 196-7:2007, **9.2**.*

*NOTE 2 When the limestone fines in combination with cement are tested for strength (see Clause **6**), it is recommended that the pit or quarry from which the CEN Standard sand (see BS EN 196-1) is obtained, and the compaction procedure to be used, should be those in use by the manufacturer at the time the limestone fines were originally tested.*

NOTE 3 The source of CEN Standard sand and the compaction procedure can influence the strength achieved (see BS EN 196-1).

10.3 When the chemical composition of the limestone fines is analyzed (see **4.2**), the sample shall be prepared by the procedure described in BS EN 196-2.

10.4 When tested in accordance with the methods specified in Table 1, the sample shall conform to the values specified in Clauses **4**, **5**, **6** and **7**, within the limits specified in Table 1.

Table 1 **Acceptance inspection limits**

Property	Test method specified in	Deviation [A] not in excess of
Composition		
Calcium carbonate content	BS EN 196-2:2013, **4.5.12** [B]	– 5.0%
Chloride content	BS EN 196-2	+ 0.01%
Total sulfur content	BS EN 1744-1	+ 0.1%
Clay content	BS EN 933-9	+ 0.1 g/100 g
Organic material content	BS EN 13639	+ 0.1%
Moisture content		
Moisture content	Annex C	+ 0.1%
Compressive strength		
2 day strength (lower limit)	BS EN 196-1	– 2.0 N/mm^2
7 day strength (lower limit)	BS EN 196-1	– 2.0 N/mm^2
28 day strength (lower limit)	BS EN 196-1	– 2.5 N/mm^2
Physical properties		
Fineness	BS EN 451-2 or BS EN 933-10	+ 0.5%
Initial setting time	BS EN 196-3	– 15.0 min
Soundness	BS EN 196-3	+ 1.0 mm

[A] The deviation from the requirements specified in Clauses **4**, **5**, **6** and **7** shall not be in excess of the values shown.

[B] The calcium oxide determined by this method shall be expressed as calcium carbonate.

Annex A (informative) Product guidance

A.1 General

Guidance on the use of limestone fines in combination with Portland cement, is given in BS 8500.

Limestone fines conforming to this British Standard can be expected, when batched and mixed in appropriate proportions with CEM I Portland cement class 42.5 or higher conforming to BS EN 197-1, aggregate and water, to be capable of producing concrete, mortar, or grout with similar properties to concrete, mortar or grout made with Portland-limestone cement conforming to BS EN 197-1.

Research has shown that the 32.5 strength class of Portland limestone cement can be used for a wide range of applications in concretes designed for the same standard cube strength, when they are likely to have similar performance to concretes made with other common cements conforming to BS EN 197-1.

The use of limestone fines in combination with CEM I Portland cement, to produce a 32.5 standard strength class for use in standardized prescribed concrete, is described in BS 8500-2.

Research has also shown that Portland limestone cement can be used in conditions of freezing and thawing provided that air entrainment is used and that the cement is used in accordance with BS 8500-1.

Research and field experience have shown that a source of calcium carbonate above a minimum quantity in concrete can cause thaumasite sulfate attack to occur where the concrete is exposed to cold, wet, sulfate-bearing environments. Limestone fines in combination with CEM I Portland cement should be restricted to use in sulfate exposure conditions in accordance with the recommendations in BS 8500-1.

More detailed guidance on the use of limestone fines and Portland limestone cement is available in BS 8500-1, BRE Digest 363 [1] and the Thaumasite Expert Group report [2].

Limestone fines in combination with CEM I Portland cement should be restricted to use in chloride-bearing environments in accordance with the recommendations in BS 8500-1.

The use of limestone fines in combination with CEM I Portland cement is unlikely to adversely affect the resistance of the concrete to fire or abrasion.

A.2 Safety warning

Dry limestone fines or cement in normal use have no harmful effect on dry skin, but can cause irritation when mixed with water. Precautions should therefore be taken to prevent dry limestone fines and cement from entering the eyes, mouth and nose, and to prevent skin contact with wet cement.

Repeated skin contact with wet cement over a period may cause irritant contact dermatitis. Although no connection has been established between limestone fines and dermatitis, this possibility cannot be ruled out. The abrasiveness of the particles of cement, limestone fines and aggregate in concrete, mortar or grout can contribute to this effect. Continued contact during a working day can lead to alkali burns with ulceration, but this is not common.

When working in places where dry limestone fines become airborne, protection for the eyes, mouth and nose should be worn.

When working with wet concrete, mortar or grout, waterproof or other suitable protective clothing should be worn such as long sleeved shirts, full length trousers, waterproof gloves and wellington boots. Clothing contaminated with cement, concrete, mortar or grout should be removed and washed before further use.

If wet cement enters the eye it should immediately be washed out thoroughly with clean water and medical treatment should be sought without delay. Wet concrete, mortar or grout on the skin should be washed off immediately.

A.3 Storage

To protect the limestone fines after delivery, bulk silos should be waterproof and internal condensation minimized.

Limestone fines conforming to this standard supplied in paper bags should be stored clear of the ground and interlocked for stability, stacked not more than eight bags high and protected by a waterproof structure. Deliveries should be controlled and used as soon as possible in order of receipt.

Annex B (normative) Conformity assessment

B.1 General

Limestone fines shall be deemed to conform to this standard if, when evaluated on the basis of continual sampling using spot samples taken at the point of release, and on the basis of the test results obtained on all autocontrol samples taken during the control period specified in **B.2**, they meet the statistical conformity criteria specified in **B.3**.

B.2 Minimum testing frequencies

The control period shall be not less than six months and not more than 12 months. During this period, samples shall be tested at regular intervals, the minimum frequencies of which shall be as specified in Table B.1.

Table B.1 **Minimum testing frequencies**

Property	Number of samples/ frequency of testing	Test method specified in
Composition		
Calcium carbonate content	1 per month	BS EN 196-2:2013, **4.5.12** [A)]
Chloride content	1 per month	BS EN 196-2
Total sulfur content	1 per month	BS EN 1744-1
Clay content	1 per month	BS EN 933-9
Organic material content	1 per month	BS EN 13639
Compressive strength		
2-day, 7-day and 28-day strength	1 per week	BS EN 196-1
Physical properties		
Fineness	2 per week	BS EN 451-2 or BS EN 933-10
Initial setting time	1 per week	BS EN 196-3
Soundness	1 per week	BS EN 196-3

[A)] The calcium oxide determined by this method shall be expressed as calcium carbonate.

B.3 Statistical conformity criteria

B.3.1 General

Conformity shall be determined by statistical criteria based on:

a) the required characteristic values for chemical composition, mechanical and physical properties specified in Clauses **4**, **5**, **6** and **7**;

b) the percentile, P_k, on which the definition of the characteristic value is based, as specified in Table B.2;

c) the allowable probability of acceptance, CR, as specified in Table B.2.

NOTE 1 International or national regulations can require the autocontrol of limestone fines to be monitored by an officially recognized testing laboratory.

Conformity with the requirements of this standard shall be verified either by variables or by attributes, as specified in Table B.2.

Table B.2 **Conformity criteria**

Property	Method of inspection	Percentile, P_k, on which the characteristic value is based	Allowable probability of acceptance, CR
2-day, 7-day and 28-day strength (lower limit, *L*)	By variables (see **B.3.2**)	5%	5%
28-day strength (upper limit, *U*)	By variables (see **B.3.2**)	10%	5%
Chemical composition and physical properties (all limits)	By attributes (see **B.3.3**) (by variables is allowed [see **B.3.2**])	10%	5%

NOTE 2 Conformity evaluation by a procedure based on a finite number of test results can produce only an approximate value for the proportion of results outside the characteristic value in a population. The larger the sample size (number of test results), the better the approximation. The selected probability of acceptance CR controls the degree of approximation by the sampling plan.

B.3.2 Inspection by variables

NOTE For this method of inspection the test results are assumed to be normally distributed.

When inspecting by variables, the property being tested shall be deemed to conform to the relevant Clause of the standard when the following conditions are met:

$$\bar{x} - k_A \times s \geq L$$

and:

$$\bar{x} - k_A \times s \leq U$$

where:

$\bar{x}$ is the arithmetic mean of the totality of the autocontrol test results in the control period;

s is the standard deviation of the totality of the autocontrol test results in the control period;

k_A is the acceptability constant;

L is the specified lower limit;

U is the specified upper limit.

The acceptability constant k_A depends on the percentile P_k on which the characteristic value is based, on the allowable probability of acceptance CR and on the number n of the test results. Values of k_A are listed in Table B.3.

Table B.3 **Acceptability constant k_A**

Number of test results, n[A)]	Acceptability constant k_A	
	P_k = 5%	P_k = 10%
20 to 21	2.40	1.93
22 to 23	2.35	1.89
24 to 25	2.31	1.85
26 to 27	2.27	1.82
28 to 29	2.24	1.80
30 to 34	2.22	1.78
35 to 39	2.17	1.73
40 to 44	2.13	1.70
45 to 49	2.09	1.67
50 to 59	2.07	1.65
60 to 69	2.02	1.61
70 to 79	1.99	1.58
80 to 89	1.97	1.56
90 to 99	1.94	1.54
100 to 149	1.93	1.53
150 to 199	1.87	1.48
200 to 299	1.84	1.45
300 to 399	1.80	1.42
≥400	1.78	1.40

A) Calculated values of k_A valid for intermediate values of n can also be used.

NOTE Values given in this table are valid for CR = 5%.

B.3.3 Inspection by attributes

When inspecting by attributes, the number of test results, C_D, below or above the characteristic value, as appropriate to the property being assessed, shall be compared with the acceptance number, C_A, given in Table B.4.

When inspecting by attributes, the property being tested shall be deemed to conform to the relevant Clause of the standard when the following conditions are met.

For the lower limit, L:

$C_D \leq C_A$

For the upper limit, *U*:

$C_D \geq C_A$

Table B.4 **Values of C_A**

Number of test results, *n* [A)]	C_A for P_k = 10%
20 to 39	0
40 to 54	1
55 to 69	2
70 to 84	3
85 to 99	4
100 to 109	5
110 to 123	6
124 to 136	7

[A)] If the number of test results is $n < 20$ (for P_k = 10%) a statistically-based conformity criterion is not possible. Despite this, a criterion of $C_A = 0$ shall be used in cases where $n < 20$. If the number of test results is $n > 136$, C_A can be calculated as follows:$C_A = 0.075\ (n - 30)$.

NOTE Values given in this Table are valid for CR = 5%.

B.3.4 Single result conformity criteria

In addition to the statistical conformity criteria applicable to the requirements in Clauses **4**, **5**, **6** and **7**, conformity to this standard requires that each result remains within the single result limit values specified in Table B.5.

Table B.5 **Limit values for single results**

Property	Upper or lower limit	Single result limit value
Composition		
Calcium carbonate content (%)	Lower	70
Chloride content (%)	Upper	0.11
Total sulphur content (%)	Upper	1.1
Clay content (g/100 g)	Upper	1.3
Organic material content (%)	Upper	0.6
Moisture content		
Moisture content (%)	Upper	0.6
Compressive strength		
2-day strength (N/mm^2)	Lower	8.0
7-day strength (N/mm^2)	Lower	14.0
28-day strength (N/mm^2)	Lower	30.0
Physical properties		
Fineness (%)	Upper	10.5
Initial setting time (min)	Lower	60
Soundness (mm)	Upper	10

Annex C (normative) Method of determining the moisture content

C.1 Principle

The moisture content of the limestone fines is determined by heating in an oven at (105 ±5) °C and determining the loss in mass by weighing.

C.2 Apparatus

C.2.1 *Ventilated electric oven*, capable of being controlled to (105 ±5) °C.

C.2.2 *Balance*, capable of weighing 100 g to the nearest 0.001 g.

C.2.3 *Shallow container*, of about 20 g capacity, made of non-corrodible material and capable of withstanding temperatures up to 150 °C without loss in mass.

C.2.4 *Desiccator*, containing a desiccant.

C.3 Sample preparation

Thoroughly remix a spot sample taken in accordance with BS EN 196-7 and reduce it by quartering and subdividing to obtain two laboratory samples each of approximately 25 g mass.

NOTE It is recommended that the bulk of the sample is retained in an airtight container for reference purposes until testing is completed.

C.4 Procedure

Weigh, to the nearest 0.01 g, approximately 10 g of the limestone fines. Spread it in the shallow container (**C.2.3**), which has previously been dried, and dry it in the oven (**C.2.1**) at (105 ±5) °C for (60 ±5) min. Allow the container and dried sample to cool to room temperature in the desiccator (**C.2.4**).

Re-weigh the sample to determine the loss in mass.

C.5 Calculation

Calculate the moisture content, C, of each test sample as a percentage from the following equation:

$$C = \frac{m-d}{d} \times 100$$

where:

m is the mass of the test sample before drying, in grams (g);

d is the mass of the dried test sample, in grams (g).

C.6 Test report

Record the moisture content as the mean of two test results as a percentage to the nearest 0.1%.

Bibliography

Standards publications

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

BS 8500-1, *Concrete – Complementary British Standard to BS EN 206 – Part 1: Method of specifying and guidance for the specifier*

BS 8500-2, *Concrete – Complementary British Standard to BS EN 206 – Part 2: Specification for constituent materials and concrete*

BS EN 206, *Concrete – Specification, performance, production and conformity*

Other documents

[1] BUILDING RESEARCH ESTABLISHMENT Digest 363, *Sulfate and acid resistance of concrete in the ground*, 2001. London:Construction Research Communications Limited (by permission of the Controller of HMSO and the Building Research Establishment) [3)].

[2] THAUMASITE EXPERT GROUP, *The thaumasite form of sulfate attack:Risks, diagnosis, remedial works and guidance on new construction*, 1999. London: Department of the Environment, Transport and the Regions [4)].

[3)] Available from Construction Research Communications Limited, 151 Rosebery Avenue, London EC1R 4QX.

[4)] Available from the DETR Publications Unit, Unit 21, Goldthorpe Industrial Estate, Goldthorpe, Rotherham S63 9BL, or from The Stationery Office.

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.