



# Methods of testing cement —

## Part 0: General introduction

UDC 666.94.01

# Cooperating organizations

The Cement, Gypsum, Aggregates and Quarry Products Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Association of Consulting Engineers\*  
 Autoclaved Aerated Concrete Products Association  
 British Precast Concrete Federation Ltd.\*  
 British Quarrying and Slag Federation\*  
 British Railways Board  
 British Ready Mixed Concrete Association\*  
 British Steel Industry\*  
 Cement Admixtures Association\*  
 Cement and Concrete Association\*  
 Cement Makers' Federation\*  
 Chemical Industries Association  
 Concrete Society Limited\*  
 Department of the Environment (Building Research Station)\*  
 Department of the Environment (Housing and Construction)  
 Department of the Environment (PSA)\*  
 Department of the Environment (Transport and Road Research Laboratory)\*  
 Department of Transport  
 Federation of Civil Engineering Contractors\*  
 Federation of Stone Industries  
 Greater London Council\*  
 Gypsum Products Development Association  
 Institute of Quarrying  
 Institution of Civil Engineers\*  
 Institution of Municipal Engineers  
 Institution of Structural Engineers\*  
 Institution of Water Engineers and Scientists  
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 Sand and Ballast Hauliers and Allied Trades Alliance  
 Sand and Gravel Association Limited  
 Society of Chemical Industry\*

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Brick Development Association  
 Department of the Environment  
 Electricity Supply Industry in England and Wales

This British Standard, having been prepared under the direction of the Cement, Gypsum, Aggregates and Quarry Products Standards Committee, was published under the authority of the Executive Board on 30 June 1978

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The following BSI references relate to the work on this standard:  
 Committee reference CAB/1  
 Draft for approval 77/12979

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## Amendments issued since publication

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# Foreword

This British Standard has been prepared under the direction of the Cement, Gypsum, Aggregates and Quarry Products Standards Committee.

This is a general foreword to the whole standard, individual forewords being included in each of the Parts of BS 4550.

It should be appreciated that, whilst the main purpose of this standard is to provide cross-references for cement specifications, it is also intended as a complete British Standard for methods of testing cement and some of the tests may not be referred to in other British Standards for cements.

Publication of BS 4550 "Methods of testing cement" enables the standards listed below to be revised by the deletion of the appendices or cross-references relevant to methods of testing cement, thus avoiding repetition in the expanding range of cement standards:

This will ensure that, if changes are made in any of the test methods, the standards remain in step.

BS 12-2:1971, *Portland cement (ordinary and rapid-hardening)*.

BS 146-2:1973, *Portland-blastfurnace cement*.

BS 915-2:1972, *High alumina cement*.

BS 1370-2:1974, *Low heat Portland cement*.

BS 4027-2:1972, *Sulphate-resisting Portland cement*.

BS 4246-2:1974, *Low heat Portland-blast-furnace cement*.

BS 4248:1974, *Supersulphated cement*.

BS 5224:1976, *Specification for masonry cement*.

Part 0 of BS 4550 "Methods of testing cement" is a general introduction; Part 1 lays down methods of sampling cement; Part 2 describes methods of chemical testing of cement; Part 3 specifies methods of physical testing of cement; Part 4 specifies the standard coarse aggregate for concrete cubes; Part 5 specifies the standard sand for concrete cubes; and Part 6 specifies the standard sand for mortar cubes.

Each of the Parts, and in the case of Part 3, each of the sections, of this standard, is issued separately. It is intended that Part 2, now in one document, should be reprinted in due course, in Sections. The Parts and Sections of this standard can be purchased separately or together, except for Part 2, in a loose leaf binder.

The six Parts of BS 4550 "Methods of testing cement" consist of the following.

## Part 1: Sampling

1. Scope
2. General
3. Size of samples
4. Representation
5. Sampling methods
6. Storage and delivery of samples
7. Certificate of sampling

**Part 2: Chemical tests**

1. General
2. A scheme for the analysis of Portland cements
3. Insoluble residue
4. Total silica
5. Ammonium hydroxide group (so-called  $R_2 O_3$ )
6. Total calcium oxide
7. Alumina
8. Iron oxide
9. Magnesia
10. Sulphuric anhydride
11. Sulphur present as sulphide
12. Total sulphur
13. Loss-on-ignition
14. Minor constituents and free lime
15. Pozzolanicity test for pozzolanic cements
16.  $Na_2O$  and  $K_2O$  by flame photometry
17. Chloride

**Part 3: Physical tests**

- Section 3.1 Introduction
- Section 3.2 Density test
- Section 3.3 Fineness test
- Section 3.4 Strength tests
- Section 3.5 Determination of standard consistence
- Section 3.6 Test for setting times
- Section 3.7 Soundness test
- Section 3.8 Test for heat of hydration

**Part 4: Standard coarse aggregate for concrete cubes**

1. Scope
2. References
3. Source
4. Sampling
5. Grading

**Part 5: Standard sand for concrete cubes**

1. Scope
2. References
3. Source
4. Sampling
5. Moisture content
6. Grading
7. Air-entraining characteristics
8. Marking

**Part 6: Standard sand for mortar cubes**

1. Scope
2. References
3. Source
4. Sampling
5. Moisture content
6. Grading
7. Content of acid-soluble matter
8. Marking

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**Summary of pages**

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

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

## References

The titles of the standards publications referred to in each Part of this standard are listed at the end of each Part. In the case of Part 3, the titles of the standards publications referred to in each Section are listed at the end of each Section.



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