

Testing aggregates —

Part 121: Method for determination of soundness

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- Aggregate Concrete Block Association
- Association of Consulting Engineers
- Association of Consulting Scientists
- Association of Lightweight Aggregate Manufacturers
- Brick Development Association
- British Aggregate Construction Materials Industries
- British Cement Association
- British Ceramic Research Ltd
- British Civil Engineering Test Equipment Manufacturers' Association
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- Department of the Environment (Building Research Establishment)
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- Department of Transport
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- Institution of Water and Environmental Management (IWEM)
- Mortar Producers' Association Limited
- Sand and Gravel Association Limited
- Society of Chemical Industry

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Foreword

This Part of BS 812 has been prepared under the direction of the Cement, Gypsum, Aggregates and Quarry Products Standards Policy Committee. It forms part of a general revision of the 1975 edition of BS 812. As each test, or collection of tests, is prepared it is intended to issue it as a separate Part or Section of this standard.

This Part of BS 812 contains the test procedures for the determination of the “soundness” of aggregates. Soundness tests were not included in previous editions of BS 812 but have now been included because there is a need, in some circumstances, for a test to identify certain aggregates which are apparently suitable for use, when tested by the test procedures described in other Parts of this standard (e.g. the mechanical strength tests described in BS 812-110¹⁾, BS 812-111¹⁾, BS 812-112¹⁾ and BS 812-113¹⁾, but which fail in service.

The definitive method is based on finding the degree of degradation that occurs when test portions of an aggregate in the size range 10.0 mm to 14.0 mm are subjected to cycles of immersion in saturated magnesium sulphate solution followed by oven-drying. The degree of degradation is expressed as the magnesium sulphate soundness value. Appendix A recommends procedures for carrying out the test on test portions of aggregate in size ranges other than the one used in the definitive method.

The sulphate soundness test has a long history. It is reported that it first appeared in France around 1818 as a test for classifying the resistance of building stone to deterioration under freeze-thaw conditions. In North America it has been incorporated in the ASTM book of standards, designation C88, since 1931. It did not come into widespread use in the United Kingdom until the late 1970s.

Current experience of the use of the test in the UK relates mainly to aggregates in materials forming the surfacing of airfields/airports and of highway pavements.

It is intended that advice on the applicability of this test for given situations and on the selection of limits will be included in future Parts of this standard. Similarly it is intended that advice on calibration will be included in Part 100¹⁾.

It is intended that other British Standards should call up BS 812 test methods as the basis for compliance. Nevertheless it is *not* intended that all aggregates should be subjected regularly to all the listed tests. Specifications in other standards should call up only relevant test methods.

Reference should be made to BS 812-101 for general guidance on testing aggregates, precision of test methods and variance arising from sampling errors. A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover 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.

¹⁾ In preparation.