

**STANDARD METHODS OF
TESTING
AND SPECIFICATIONS FOR
CEMENT**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649251629

Standard methods of testing and specifications for cement by Anonymous

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ANONYMOUS

**STANDARD METHODS OF
TESTING
AND SPECIFICATIONS FOR
CEMENT**

Standard
Methods of Testing
and
Specifications for Cement

EDITED BY THE SECRETARY
Under the direction of Committee C on Standard Specifications for Cement
of the American Society for Testing Materials

Philadelphia
PUBLISHED BY THE COMMITTEE
1905

Eng 639,05

Pierce fund

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INTRODUCTION.

The object of this pamphlet is to assemble under one cover the recent reports of the committees on,

1. Uniform Tests of Cement.
2. Standard Specifications for Cement, and
3. Uniformity in Methods of Analysis for Limestones, Raw Materials and Portland Cements.

These remarks, concerning the steps which led to the preparation and adoption of these reports, are appended as a matter of record.

With the rapid development of the Cement Industry the attainment of a standard of specifications has been most earnestly sought.

The report of the Committee of January 7, 1885, of the American Society of Civil Engineers was the first step in this country in this direction; the report, however, within a very few years became too elastic and indefinite to serve the purpose.

In 1896, at the suggestion of Mr. Richard L. Humphrey, a series of editorials appeared in the *Engineering Record* calling attention to the inadequacy of the 1885 rules and urging the appointment of a new committee to revise them.

Following this a resolution was presented by Mr. Edward P. North at a meeting of the American Society of Civil Engineers, held November 4, 1896, requesting the Board of Direction to report on the advisability of appointing a committee to report on "The Proper Manipulation of the Tests of Cement."

The Board reported at the annual meeting of the society on January 20, 1897, and was instructed to issue a letter ballot. This vote was canvassed, and on July 1, 1897, the board appointed the committee consisting of Messrs. George F. Swain, Alfred Noble, George S. Webster, W. B. W. Howe, L. C. Sabin, O. M. Carter and H. M. York; the latter two members subsequently resigned.

At the annual meeting held on January 16, 1901, the Board of Direction was authorized to increase the membership of this committee to nine, and in accordance therewith appointed Messrs. Spencer B. Newberry, Clifford Richardson, Richard L. Humphrey and F. H. Lewis.

This Committee organized by the election of Prof. George F. Swain Chairman and Mr. Richard L. Humphrey Secretary. On the retirement of Prof. Swain from the chairmanship, under the pressure of personal affairs, Mr. George S. Webster was elected in his place.

The Committee presented to the Society a Progress Report on Uniform Tests of Cement on January 31, 1903.

Efforts were made in 1901 by the American members of the various committees on cement of the International Association for Testing Materials to secure international co-operation in the adoption of a standard specification for cement. This effort came to naught because there were no uniform methods for testing cement and because also of the inability to agree on such methods.

On June 6, 1901, the Board of U. S. Engineers, appointed by the authority of the Secretary of War, presented a report on Testing Hydraulic Cements, and to which were appended Standard Specifications for both Natural and Portland Cements.

At the annual meeting of the American Society for Testing Materials, held on June 15, 1902, the Executive Committee was authorized to appoint a Committee to report on Standard Specifications for Cement, and in accordance therewith named Messrs. Robert W. Lesley, Booth Garrett & Blair, A. W. Dow, Edward M. Hagar, Richard L. Humphrey, Lathbury & Spackman, Andreas Lundteigen, Charles F. McKenna, W. W. Maclay, Spencer B. Newberry, J. M. Porter, Clifford Richardson and George F. Swain, with power to increase its membership subject to the approval of the Executive Committee.

The Committee assembled at the call of Mr. Robert W. Lesley, Member of the Executive Committee and Temporary Chairman, on October 31, 1902, and organized by the election of Prof. George F. Swain, Chairman, Mr. George S. Webster, Vice-Chairman, and Mr. Richard L. Humphrey, Secretary.

The Committee was increased by the addition of the following members: Messrs. T. J. Brady, C. W. Boynton, Spencer Cosby, L. Henry Dumary, A. F. Gerstell, William H. Harding, F. H. Lewis, John B. Lober, Charles A. Matcham, Alfred Noble, H. W. Parkhurst, Joseph T. Richards, L. C. Sabin, H. J. Seaman, S. S. Voorhees, W. J. Wilgus, George S. Webster, H. G. Kelly, Vice-President American Railway Engineering and Maintenance of Way Association, and W. S. Eames, President American Institute of Architects.

Messrs. F. H. Bainbridge, Alfred Noble, H. W. Parkhurst and W. J. Wilgus subsequently resigned from the Committee.

The Committee postponed further action pending the report of the Committee on Uniform Tests of Cement of the American Society of Civil Engineers.

On February 4, 1903, the Committee adopted as a basis for its work the report of the Committee on Uniform Tests of Cement.

In order to obtain data to aid in drafting a Standard Specifications and to test the value of the methods recommended, the Committee sent four samples of natural and five samples of Portland cement

to some thirty prominent laboratories engaged in testing cement with the request that they be tested in accordance with these methods.

The results of these tests were collated, and in accordance with the instructions of the Committee a tentative specification was prepared by the Secretary, Mr. Richard L. Humphrey. These were considered on December 3, 1903, amended and approved March 29, 1904, and adopted by the Committee by letter ballot June 11, 1904; the specifications were approved by the American Society for Testing Materials at its annual meeting June 17, 1904, and adopted by letter ballot of the Society November 14, 1904.

On December 9, 1902, the Association of American Portland Cement Manufacturers appointed a Committee on Standard Specifications for Cement, consisting of Messrs. W. W. Maclay, A. F. Gerstell, D. Millen, B. S. Dunn and T. M. Righter. This Committee was succeeded on January 12, 1904, by the appointment of Messrs. W. W. Maclay, Chairman; A. F. Gerstell, W. H. Harding, S. B. Newberry, Charles A. Matcham, H. J. Seaman and Charles F. Wade. The latter Committee recommended these specifications for, and they were adopted by this Association on June 16, 1904.

The Committee on Masonry of the American Railway Engineering and Maintenance Way Association presented a specification for Portland and natural cement, which was adopted by the Association at the Annual Convention held March 19, 1903, as a recommended provisional standard specification. At the Convention held in March, 1904, no further action was taken in view of the Association having been requested to send a representative to serve on the Committee on Standard Specifications for Cement. Upon the recommendation of the Committee on Masonry, the American Railway Engineering and Maintenance Way Association, in place of the provisional specification, adopted these specifications on March 21, 1905.

These reports on Uniform Tests of Cement and Standard Specifications for Cement are the result of over six years' labor of a thoroughly representative body of experts, covering every field from the manufacturer to the consumer; they stand for the very best thought on the subject.

The various Committees are still in existence and will from time to time recommend such changes as are found by experience to be desirable, thus gradually perfecting the specifications as a whole.

In the meanwhile by the adoption of these specifications a standard of excellence is set which will enable the manufacturer to concentrate his efforts in operating his plant so as to produce uniformly the grade of cement required and at a minimum cost to the consumer.

Philadelphia, April 14, 1905.