

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
WASHINGTON

(Revised to May 5, 1937)

CEMENT: TECHNICAL PUBLICATIONS BY MEMBERS OF  
THE STAFF OF THE NATIONAL BUREAU OF STANDARDS

This letter circular gives a list of publications on CEMENT by members of the staff of the National Bureau of Standards. Some of these publications were printed in the regular series of the Bureau and others in various scientific, technical and trade association journals.

For ready reference and convenience in ordering the separate papers of the Bureau, these have been listed with the serial letter and number in one column, and the price in the second column. The publications for which prices are indicated may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. The prices quoted are for delivery to addresses in the United States and its possessions, and to Canada, Cuba, Mexico, Newfoundland, the Philippines, and the Republic of Panama. When remitting for delivery to other countries than those, include in your remittance one-third of the total cost of the publications to cover postage. Remittances should be made payable to the Superintendent of Documents, Government Printing Office, Washington, D.C., and sent to him with the order. "O.P." in the column marked "price" indicates that the publication is out of print, but may be consulted at most large libraries. A complete list of the Bureau's publications (Circular C24 and Supplement) is also generally available at such libraries.

Serial letters are used to designate BUREAU publications:

- T = "Technologic Paper" of the National Bureau of Standards. T1 to T202 were issued each independent of the other with individual pagination. Later they were assembled to make the first 15 volumes of this series, and subsequent separates were given volume pagination (Tech. Pap. BS). This series was superseded by the "Bureau of Standards Journal of Research" in 1928.
- RP = "Research Papers." These are reprints of articles appearing in the "Bureau of Standards Journal of Research" (BS J. Research) and the "Journal of Research of the National Bureau of Standards" (J. Research NBS), the latter being the title of this periodical since July 1934 (volume 13, number 1).

C = "Circular" of the National Bureau of Standards.

LC= "Letter Circular" of the National Bureau of Standards.

TECHNOLOGIC PAPERS

<u>Series</u>	<u>Price</u>	
T3	O.P.	Tests of the absorptive and permeable properties of portland cement mortars and concretes, together with tests of dampproofing and waterproofing compounds and materials. R.J. Wig and P.H. Bates. Tech. Pap. BS, T3 <u>1</u> , (1910-12).
T5	O.P.	The effect of high-pressure steam on the crushing strength of portland cement and concrete. R.J. Wig. Tech. Pap. BS, T5, <u>1</u> , (1910-12).
T12	O.P.	Action of the salts in alkali water and sea water on cement. P.H. Bates, A.J. Phillips and R.J. Wig. Tech. Pap. BS, T12, <u>2</u> , (1912-14).
T29	O.P.	Variation in results of sieving with standard cement sieves. R.J. Wig and J.C. Pearson. Tech. Pap. BS, T29, <u>3</u> , (1911-16).
T42	10¢	Standardization of No. 200 cement sieves. R.J. Wig and J.C. Pearson. Tech. Pap. BS, T42, <u>4</u> , (1913-14).
T43	O.P.	Hydration of portland cement. A.A. Klein and A.J. Phillips. Tech. Pap. BS, T43, <u>5</u> , (1914-15).
T47	O.P.	Value of the high pressure steam tests of portland cement. R.J. Wig and H.A. Davis. Tech. Pap. BS, T47, <u>5</u> , (1914-15).
T48	O.P.	An air analyzer for determining the fineness of cement. J.C. Pearson and W.H. Sligh. Tech. Pap. BS, T48, <u>5</u> , (1914-15).
T78	O.P.	Properties of the calcium silicates and calcium aluminate occurring in normal portland cement. P.H. Bates and A.A. Klein. Tech. Pap. BS, T78, <u>8</u> , (1916-17).

TECHNOLOGIC PAPERS (Cont'd)

<u>Series</u>	<u>Price</u>	
T102	15¢	The properties of portland cement having a high magnesia content. P.H. Bates. Tech. Pap. BS, T102, <u>9</u> , (1916-17).
T174	O.P.	Effect of calcium as an accelerator of the hardening of portland cement mixtures. R.N. Young. Tech. Pap. BS, T174, <u>14</u> , (1920-21)
T197	O.P.	Cementing qualities of the calcium aluminates. P.H. Bates. Tech. Pap. BS, T197, <u>15</u> , (1921).
T239	10¢	Tests of caustic magnesia made from magnesite from several sources. P.H. Bates, R.N. Young and P. Rapp. Tech. Pap. BS, T239, <u>17</u> , 529(1922-24).

RESEARCH PAPERS

RP34	O.P.	Reaction of water on calcium aluminates. L.S. Wells. BS J. Research <u>1</u> , 951(1928).
RP54	10¢	The sulphoaluminates of calcium. W. Lerch, F.W. Ashton and R.H. Bogue. BS J. Research <u>2</u> , 715(1929).
RP132	10¢	Influence of magnesia, ferric oxide, and soda upon the temperature of liquid formation in certain portland cement mixtures. W.C.Hansen. BS J. Research <u>4</u> , 55(1930).
RP233	10¢	The X-ray method applied to a study of the constitution of portland cement. L.T.Brownmiller and R.H. Bogue. BS J. Research <u>5</u> , 813(1930).
RP265	5¢	Determination of magnesium in portland cement and similar materials by the use of 8-hydroxyquinoline. J.C. Redmond and H.A.Bright. BS J. Research <u>6</u> , 113(1931).
RP381	5¢	The decomposition of tricalcium silicate in the temperature range, 1,000-1,300°C. E.T.Carlson. BS J. Research <u>7</u> , 893(1931).
RP414	5¢	The system CaO-Na <sub>2</sub> O-Al <sub>2</sub> O <sub>3</sub> . L.T. Brownmiller and R.H.Bogue. BS J. Research <u>8</u> , 289(1932).
RP510	5¢	The system: CaO-B <sub>2</sub> O <sub>3</sub> . E.T. Carlson. BS J. Research <u>9</u> , 825(1932).

RESEARCH PAPERS (Cont'd.)

<u>Series</u>	<u>Price</u>	
RP569	5¢	The precipitation and titration of magnesium oxyquinolate in the presence of calcium oxalate, and its application in the analysis of portland cement and similar silicates. J.C. Redmond. BS J. Research <u>10</u> , 823(1933).
RP584	5¢	The activity coefficients of hydroxyl ion in solutions of calcium hydroxide at 30°C. E.P. Flint and L.S. Wells. BS J. Research <u>11</u> , 163 (1933).
RP684	5¢	Heat of hydration of portland cement pastes. W. Lerch and R.H. Bogue. J. Research NBS <u>12</u> , 645(1934).
RP687	5¢	Study of the system CaO-SiO <sub>2</sub> -H <sub>2</sub> O at 30°C and the reaction of water on the anhydrous calcium silicates. E.P. Flint and L.S. Wells. J. Research NBS <u>12</u> , 751(1934).
RP746	5¢	Investigation of commercial masonry cements. J.S. Rogers and R.L. Blaine. J. Research NBS <u>13</u> , 811(1934).
RP777	5¢	Effect of granulometric composition of cement on the properties of pastes, mortars, and concretes. J. Arthur Swenson, Lacey A. Wagner, and George L. Pigman. J. Research NBS <u>14</u> , 419(1935).
RP782	O.P.	Effect of calcium chloride on portland cements and concretes. Paul Rapp. J. Research NBS <u>14</u> , 499(1935).
RP799	5¢	Behavior of high-early-strength cement concretes and mortars under various temperature and humidity conditions. Louis Schuman and Edward A. Pisapia. J. Research NBS <u>14</u> , 723(1935).
RP839	5¢	A study for the preparation of a specification for high-early-strength portland cement. G. Rupert Gause. J. Research NBS <u>15</u> , 421(1935).
RP884	5¢	Studies of the quaternary system CaO-MgO-2CaO. SiO <sub>2</sub> -3CaO. 3Al <sub>2</sub> O <sub>3</sub> . H.F. McMurdie and Herbert Insley. J. Research NBS <u>16</u> , 467(1936).

RESEARCH PAPERS (Cont'd.)

<u>Series</u>	<u>Price</u>	
RP887	5¢	Effects of partial prehydration and different curing temperatures on some of the properties of cement and concrete. F.B. Hornibrook, G.L. Kelousek, and C.H. Jumper. J. Research NBS <u>16</u> , 487(1936).
RP891	5¢	A rapid method for the determination of silica in portland cement. Edwin E. Maczkowske. J. Research NBS <u>16</u> , 549(1936).
RP893	5¢	Determination of sulphuric anhydride in portland cement by means of the Wagner turbidimeter. Robert B. Rudy. J. Research NBS <u>16</u> , 555(1936).
RP910	5¢	Distribution of compounds in portland cement. J. Arthur Swenson and E.P. Flint. J. Research NBS <u>17</u> , 261(1936).
RP917	5¢	Structural characteristics of some constituents of portland cement clinker. Herbert Insley. J. Research NBS <u>17</u> , 353(1936).
RP941	5¢	The system lime-boric oxide-silica. E.P. Flint and Lansing S. Wells. J. Research NBS <u>17</u> , 727(1936).
RP968	5¢	Determination of sulphur occurring as sulphide in portland cement. Harry A. Bright. J. Research NBS <u>18</u> , 137(1937).
RP987	5¢	Studies on a portion of the system: $\text{CaO-Al}_2\text{O}_3\text{-Fe}_2\text{O}_3$ . Howard F. McMurdie. J. Research NBS <u>18</u> , 475(1937).
RP997	10¢	Method for approximating the glass content of portland cement clinker. William Lerch and Lorrin T. Brownmiller. J. Research NBS <u>18</u> , 609(1937).

CIRCULARS

C70	50¢	Materials for the household (non-technical information on use of cement). Cir. BS, C70 (1917).
C135	O.P.	Caustic magnesia cement. Cir. BS, C135 (1922).
C311	15¢	Stucco investigations at the Bureau of Standards with recommendations for portland cement stucco construction. Cir. BS, C311 (1926).



LETTER CIRCULARS

<u>Series</u>	<u>Price</u>	
LC74	Free on appli- cation to Bureau	Standard specifications for sieves. Let. Cir. BS, LC74 (Oct. 1, 1926).

FEDERAL SPECIFICATIONS

The specifications listed below are issued by the Federal Specifications Executive Committee, Procurement Division, Federal Warehouse, Washington, D.C. Copies may be secured from the Superintendent of Documents, Government Printing Office, this city, at the prices indicated.

SS-C-158	10¢	Cements, Hydraulic, General Specifications (Methods for Sampling, Inspection and Testing.)
SS-C-181a	5¢	Cement; Masonry.
SS-C-191a	5¢	Cement; Portland.
SS-C-211	5¢	Cement; Portland, Sulphate-Resisting.
SS-C-201	5¢	Cement; Portland, High-Early-Strength.
SS-C-206	5¢	Cement; Portland, Moderate-Heat-of Hardening.

ARTICLES PUBLISHED IN OUTSIDE JOURNALS

The articles indicated below are listed in chronological order. The name of the journal or of the organization publishing the article is given in abbreviated form, with address in parentheses, together with the volume number (underscored), page, and year of publication in the order named. These publications are not for distribution or sale by the Government, but may be consulted at most large libraries or in some cases may be purchased directly from the publishers.

The effect of high pressure steam on the crushing strength of portland cement mortar and concrete. R.J.Wig. Proc. Am. Soc. Testing Materials (American Society for Testing Materials, 260 South Broad Street, Philadelphia, Pa.), 11, 580(1911); also Tech. Pap. BS, T5, 1, (1910-12).

Present status of iron ore cement. P.H. Bates. J. Nat. Assoc. Cement Users (American Concrete Institute, 7400 Second Blvd., Detroit, Mich.), 566(1912).

Action of the salts in alkali water and sea water on cement. R.J. Wig and P.H. Bates. J. Franklin Inst. (Journal of the Franklin Institute, 20th & Parkway, Philadelphia, Pa.), 175, 65(1913); also Tech. Pap. BS, T12, 2, (1912-14).

The constitution of portland cement. P.H. Bates. J. Nat. Assoc. Cement Users, 368(1913).

Errors in the methods of determining the time of setting of cement. G.H. Williams. Proc. Am. Soc. Testing Materials, 14, Part II, 172(1914).

Time of setting of cement. G.H. Williams. Proc. Am. Soc. Testing Materials, 14, Part II, 200(1914).

Properties of portland cement having a high MgO content. P.H. Bates. Proc. Am. Concrete Inst. (American Concrete Institute, 7400 Second Boulevard, Detroit, Mich.), 10, 470(1914).

Some properties of white portland cement. P.H. Bates. J. Am. Ceram. Soc. (American Ceramic Society, 2525 N. High St., Columbus, Ohio), 16, 551(1914).

Some further results obtained in investigations of the properties of portland cement having a high MgO content. P.H. Bates. Proc. Am. Concrete Inst., 11, (1915).

The effect of fine grinding and a higher SO<sub>3</sub> content upon the physical properties of portland cement. P.H. Bates. Proc. Am. Soc. Testing Materials (American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa.), 15, Part II, 126(1915).

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What is the trouble with concrete in seawater? R.J. Wig and Lewis R. Ferguson. Eng. News-Record - Series of five articles (McGraw-Hill Publishing Co., Inc., 330 W. 42d Street, New York, N.Y.), Sept. 1917.

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Cements producing quick hardening concretes. P.H. Bates. Proc. Am. Soc. Testing Materials, 19, Part II, 429(1919).

Specifications for the U.S. Standard sieve series. J.C. Pearson. Proc. Am. Concrete Inst., 16, 49(1920).

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Shrinkage of cement mortars and its importance in stucco construction. J.C. Pearson. Proc. Am. Concrete Inst., 17, 133(1921).

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Relation between tensile and compressive strengths of cement mortars. J.R. Dwyer. Concrete - Cement Mill Edition, 18, p. 123, June, 1921.

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The application of the fundamental knowledge of portland cement to its manufacture and use. P.H. Bates. J. Franklin Inst. (Journal of the Franklin Institute, 20th & Parkway, Philadelphia, Pa.), 193, p. 289, Mar. 1922.

Inspection of portland cement. J.R. Dwyer and R.N. Young. Concrete (Concrete Publishing Co., 400 W. Madison St., Chicago, Ill.), 21, p. 56, Aug. 22; and p. 95, Sept. 1922.



Need of research in the portland cement industry. P.H. Bates. Chem. & Met. Eng. (Chemical and Metallurgical Engineering, McGraw-Hill Publishing Co., 330 W. 42d St., New York, N.Y.), 29, p. 462, Aug. 30, 1922.

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Discussion of aluminat cement-portland cement. P.H. Bates. Proc. Am. Concrete Inst. (American Concrete Institute, 7400 Second Blvd., Detroit, Mich.), 20, 355(1924).

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Portland cement research. R.H. Bogue. Proc. Am. Soc. Testing Materials, 26, Part II, 403(1926).

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A digest of the literature on the constitution of portland cement clinker. R.H. Bogue. Concrete, July 1926 to Feb. 1927.

Studies on the system CaO-Fe<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>. W.C. Hansen and R.H. Bogue. J. Am. Chem. Soc. (American Chemical Society, The Ohio State University, Columbus, Ohio), 48, 1261(1926).

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- The preparation of optically clear selenium for use in index media. L.T. Brownmiller. Am. Mineral. (American Mineralogical Society of America, U.S. Geological Survey, Washington, D.C.), 12, 43 (1927).
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High strength, high early strength and waterproof concrete. P.H. Bates. Engrs. and Eng. (Engineers and Engineering - Ceased publication with vol. 49, Mar. 1932), 46, 177, July, 1929.

Variations in standard portland cements. P.H. Bates. Proc. Am. Concrete Inst. (American Concrete Institute, 7400 Second Blvd., Detroit, Mich.), 26, 65(1930).

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- Present day cement and cement of 20 years ago. P.H. Bates. Eng. News-Record (McGraw-Hill Publishing Co., 330 W. 42d St., New York, N.Y.), 110, 492(1933).
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