

JIH:MBW

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

Letter  
Circular  
LC 675

January 10, 1942

Supersedes LC 576

INORGANIC ANALYTICAL CHEMISTRY

Publications by members of the staff of the National Bureau of Standards.

This letter circular lists the publications of the National Bureau of Standards which deal directly, or incidentally, with inorganic chemical analysis. Publications on the platinum metals are not included in this list because a complete tabulation of these is given in Letter Circular LC 426. Publications relating to gas chemistry are covered in Letter Circular LC 546.

The arrangement is in the order of date of publication, except for the small number of general publications known as "Circulars" relating to analysis, which are grouped at the beginning of the list.

For ready reference and convenience in ordering the separate papers, they have been listed with consecutive numbers in the first column, the title in the second column, the serial letter and number in the third column, and the price in the last column. "CP" indicates that the paper is out of print, but may be consulted in libraries. See also paragraph on "Scientific Papers" below. A complete list of the Bureau's publications (Circular No. C24 and Supplements) is also generally available at such libraries.

When the price is stated, the publication 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 certain countries that extend the franking privilege. In the case of all other countries, one-third the cost of the publications should be added to cover postage. Remittances should be made either by coupons (obtainable from the Superintendent of Documents in sets of 20 for \$1.00 and good until used), or by check or money order payable to the "Superintendent of Documents, Government Printing Office," and sent to him with order.

Serial letters are used to designate Bureau publications:

S = "Scientific Papers" of the National Bureau of Standards. S1 to S329, are "Reprints from the Bulletin of the Bureau of Standards". S330 to S572, were published as "Scientific Papers of the Bureau of Standards". This series was superseded by the "Bureau of Standards Journal of Research" in 1928. Each volume of the Bulletin was published in four parts called the Quarterly of the Bulletin of the Bureau of Standards. Most of the Scientific Papers, S1 to S329, which are no longer obtainable as separates, may still be secured by purchasing the Quarterly of the Bulletin which contains the paper or papers desired. The Quarterly of the Bulletin sells at 25 cents each.

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 Paper". These are reprints of articles appearing in the "Bureau of Standards Journal of Research" and the "Journal of Research of the National Bureau of Standards", the latter being the title of this periodical since July 1934 (volume 13, number 1).

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

For papers in other scientific or technical journals, the name of the journal or of the organization publishing the article is given, together with the volume number (underscored), page, and year of publication. The number of pages is given last. The Bureau can not supply copies of these journals, or reprints from them.

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
1.	Analyzed irons and steels - methods of analysis. Cir. BS, C14 (Last revision 1912).	C14	OP
2.	Standard samples - general information. Cir. BS, C25 superseded by Circular C398 (1932).	C25	OP
3.	Analyzed iron and manganese ores - methods of analysis. Cir BS, C26 (Last revision 1913).	C26	OP
4.	Sodium oxalate as a standard in volumetric analysis. Cir. BS, C40 superseded by Circular C381 (1930)	C40	OP
5.	Sodium oxalate as a standard in volumetric analysis. Cir. BS, C381 (1930). Supersedes third edition of Circular C40.	C381	5¢
6.	Standard samples - general information. Cir. BS, C398 (1932). 12 pp. supersedes 9th edition of Circular C25.	C398	Free
7.	Supplement to C398 is a descriptive list of the standard samples issued or in preparation by the National Bureau of Standards. It is revised every 2 years and may be obtained from the National Bureau of Standards free upon request.		
8.	On the colorimetric determination of iron with special reference to chemical reagents, H. H. Stokes and J. R. Cain, Bul. BS <u>2</u> , 115 (1907). 42 pp. J. Am. Chem. Soc., <u>29</u> , 409 (1907).	S53	OP
9.	On sulphocyanic acid, H. H. Stokes and J. R. Cain, Bul. BS <u>3</u> , 157 (1907) 5 pp. J. Am. Chem. Soc., <u>29</u> , 443 (1907).	S54	OP
10.	The atomic weight of hydrogen, W. A. Noyes, Bul. BS <u>4</u> , 179 (1907). 26 pp.	S77	OP
11.	The atomic weight of chlorine, W. A. Noyes and H. C. P. Weber, Bul. BS <u>4</u> , 345 (1907) 20 pp.	S81	OP
12.	Bureau of Standards analyzed samples, W. F. Hillebrand, J. Ind. Eng. Chem., <u>1</u> , 41 (1909). 1 p.	---	---

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
13.	A new occurrence of plumbosiderosite, W. F. Hillebrand, and F.E. Wright, Am. J. Sci., <u>30</u> , 191 (1910). 2 pp.	---	---
14.	Chemistry in the Bureau of Standards, W. F. Hillebrand, J. Ind. Eng. Chem., <u>2</u> , 423 (1910). 3 pp.	---	---
15.	A convenient potash bulb, C. E. Waters, J. Am. Chem. Soc., <u>32</u> , 1691 (1910). 3 pp.	---	---
16.	The analysis of silicate and carbonate rocks, W. F. Hillebrand, U. S. Geological Survey Bulletin 422 (1910). Revised 1916. Superseded by Bulletin 700 in 1919.	---	OP
17.	Hosesite, A new mercury mineral from Terlingua, Texas, F. A. Canfield, W. F. Hillebrand and W. T. Schaller, Am. J. Sci., <u>30</u> , 202 (1910). 7 pp.	---	---
18.	The determination of vanadium in vanadium and chrom-vanadium steels, J. R. Cain, Bul. BS <u>7</u> , 377 (1911). 16 pp. J. Ind. Eng. Chem. <u>3</u> , 476 (1911). 6 pp.	S161	OP
19.	The determination of total sulphur in india rubber, C. E. Waters and J. B. Tuttle, Bul. BS <u>8</u> , 445 (1911). 9 pp.	S174	OP
20.	The hydrolysis of sodium oxalate and its influence upon the test of neutrality. William Blum, Bul. BS <u>8</u> , 519 (1911). 20 pp.	S178	OP
21.	The determination of chromium and its separation from vanadium, in steels. J. R. Cain, Tech. Pap. BS, T6, (1911) 6 pp.	T6	OP
22.	A rapid method for the determination of vanadium in steels, ores, etc., based on its quantitative inclusion by the phosphomolybdate precipitate. J. R. Cain and J. C. Hostetter, Tech. Pap. BS T8, (1911) 20 pp.	T8	OP



<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
23.	The determination of manganese in vanadium and chrome-vanadium steels. J. R. Cain, J. Ind. Eng. Chem., <u>3</u> , 630 (1911). 1 p.	---	---
24.	The determination of manganese by the sodium bismuthate method. W. F. Hillebrand and William Blum. J. Ind. Eng. Chem., <u>3</u> , 374 (1911). 4 pp.	---	---
25.	Preliminary report of the committee on quality of platinum laboratory utensils, W. F. Hillebrand, P. H. Walker and E. T. Allen, J. Ind. Eng. Chem., <u>3</u> , 686 (1911). 5 pp.	---	---
26.	Standardization of potassium permanganate solution by sodium oxalate, R. S. McBride, Bul. BS <u>3</u> , 611 (1912). 32 pp.	S182	OP
27.	Benzoic acid as an acidimetric standard. George W. Morey, Bul. BS <u>3</u> , 643 (1912). 3 pp. J. Am. Chem. Soc., <u>34</u> , 1027 (1912). 7 pp.	S183	OP
28.	Determination of manganese as sulphate and by the sodium bismuthate method. William Blum, Bul. BS <u>3</u> , 715 (1912). 26 pp.	S186	OP
29.	Atomic weight of bromine, H. C. P. Weber, Bul. BS <u>2</u> , 131 (1912). 20 pp.	S193	OP
30.	The determination of chromium and its separation from vanadium in steels J. R. Cain, J. Ind. Eng. Chem., <u>4</u> , 17 (1912). 2 pp.	---	---
31.	A rapid method for the determination of vanadium in steels, ores, etc., based on its quantitative inclusion by the phosphomolybdate precipitate. J. R. Cain and J. C. Hostetter, J. Ind. Eng. Chem., <u>4</u> , 250 (1912). 6 pp.	---	---
32.	A new method for the determination of vanadium: an explanation. J. R. Cain and D. J. Demorest. J. Ind. Eng. Chem. <u>4</u> , 256 (1912). 1 p.	---	---

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
33.	The determination of sulfate in ammonium sulfate solution with special reference to the testing of illuminating gas, R. S. McBride and E. R. Weaver, J. Ind. Eng. Chem., <u>5</u> , 469 (1913). 6 pp.	---	---
34.	The reduction of vanadic acid in concentrated sulfuric acid solution by hydrogen peroxide and by persulfates. J. R. Cain and J. C. Hostetter. J. Am. Chem. Soc., <u>34</u> , 274 (1912). 3 pp.	---	---
35.	Determination of sulphur in illuminating gas, R. S. McBride and E. R. Weaver, Tech. Pap. BS T20 (1913), 46 pp. J. Ind. Eng. Chem., <u>5</u> , 474 (1913). 2 pp.	T20	OP
36.	The determination of phosphorus in steels containing vanadium, J. R. Cain and F. H. Tucker, Tech. Pap. BS T24 (1913). 11 pp. J. Ind. Eng. Chem., <u>5</u> , 647 (1913). 4 pp.	T24	OP
37.	A danger to be guarded against in making mineral separations by means of heavy solutions, W. F. Hillebrand, J. Wash. Acad. Sci., <u>3</u> , 137 (1913); Am. J. Sci., <u>35</u> , 439 (1913). 2 pp.	---	---
38.	Two varieties of calciovolporthite from eastern Utah, W. F. Hillebrand and H. E. Merwin, J. Wash. Acad. Sci., <u>3</u> , 138 (1913); Am. J. Sci., <u>25</u> , 441 (1913). 5 pp. Z. Kryst. Mineral., <u>22</u> , 4 (1914).	---	---
39.	Determination of carbon in steel and iron by the barium carbonate titration method. J. R. Cain, Tech. Pap. BS T33, (1913). 12 pp. J. Ind. Eng. Chem., <u>6</u> , 465 (1914). 3 pp.	T33	OP
40.	Calcium vanadates from Peru, Colorado, and Utah, W. F. Hillebrand, F. J. Wright and H. E. Merwin, J. Wash. Acad. Sci., <u>3</u> , 157 (1913). 2 pp.	---	---

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
41.	The constitution of aluminates. William Elum, J. Am. Chem. Soc., <u>35</u> , 1499 (1913). 6 pp.	---	---
42.	The use of benzoic acid as a standard material, E. R. Weaver, J. Am. Chem. Soc., <u>35</u> , 1509 (1913). 3 pp.	---	---
43.	A qualitative test for water by the use of the acetylene-cuprous chloride reaction. E. R. Weaver, J. Am. Chem. Soc., <u>36</u> , 2462 (1914). 7 pp.	---	---
44.	Heyettite, metcheyettite and psocite, hydrous calcium vanadates, W. F. Hillebrand, E. E. Herwin, and F. E. Wright, Proc. Am. Phil. Soc., <u>53</u> , 31 (1914). 24 pp. Z. Kryst. Mineral., <u>54</u> , 209 (1914).	---	---
45.	Preparation of pure iron and iron-carbon alloys. J. R. Cain, E. Schramm, and H. E. Cleaves, J. Ind. Eng. Chem., <u>8</u> , 217 (1916). 3 pp.	---	---
46.	Recovery of gallium from spelter in the United States. W. F. Hillebrand and J. A. Scherrer, J. Ind. Eng. Chem., <u>8</u> , 225 (1916). 3 pp.	---	---
47.	Relation between composition and density of aqueous solutions of copper sulphates and sulphuric acid. H. D. Haller and E. L. Peffer. Bul. BS <u>17</u> , 273 (1916). 9 pp.	S275	OP
48.	Determination of barium carbonate and barium sulphate in vulcanized rubber goods. John E. Tuttle, Tech. Pap. BS T64, (1916). 5 pp.	T64	OP
49.	Determination of carbon in steels and irons by direct combustion in oxygen at high temperatures. J. R. Cain and H. E. Cleaves, Tech. Pap. BS T69 (1916). 10 pp. J. Ind. Eng. Chem., <u>8</u> , 321 (1916). 4 pp.	T69	OP

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
50.	Standard methods of sampling and analysis of standard samples. W.F. Hillebrand, J. Ind. Eng. Chem., <u>8</u> , 466 (1916). 4 pp.	---	---
51.	Determination of aluminum as oxide. William Blum, Bul. BS <u>13</u> , 515 (1916). 20 pp. Methyl red and rosolic acid were found to be satisfactory indicators to use in adjusting the pH for complete precipitation of aluminum hydroxide by means of ammonium hydroxide.	S286	OP
52.	Reducing matter extractible from filter paper. R. S. McBride and J. A. Scherrer. J. Am. Chem. Soc., <u>39</u> , 928 (1917). 5 pp.	---	---
53.	Our analytical chemistry and its future. W. F. Hillebrand, J. Ind. Eng. Chem., <u>9</u> , 170 (1917); Chandler Medal Address, Columbia University Press. 8 pp.	---	---
54.	Rapid determination of carbon in steel by the barium carbonate titration method. J. R. Cain and L. C. Maxwell. J. Ind. Eng. Chem., <u>10</u> , 520 (1918). 3 pp.	---	---
55.	Comparative tests of porcelain laboratory ware, C. E. Waters, Tech. Pap. BS, T105 (1917). 8 pp.	T105	OP
56.	Comparative tests of chemical glass-ware. Percy H. Walker and F. W. Smither. Tech. Pap. BS, T107 (1918). 23 pp.	T107	OP
57.	A critical study of the Ledebur method for determining oxygen in iron and steel. J. R. Cain and E. Pettijohn. Tech. Pap. BS T118, (1919). 33 pp.	T118	OP
58.	A study of the Goutal method for determining carbon monoxide and carbon dioxide in steels. J. R. Cain and Earl Pettijohn. Tech. Pap. BS, T126, (1919). 8 pp.	T126	OP



<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
59.	Lead plating from fluoborate solutions. W. Blum, F. J. Liscomb, Z. Jencks and W. E. Bailey. Trans. Am. Electrochem. Soc., <u>36</u> , 243 (1919). 25 pp.	----	----
60.	An electrolytic resistance method for determining carbon. J. R. Cain, Tech. Pap. BS T141 (1919). 21 pp.	T141	OP
61.	Analysis of silicate and carbonate rocks. W. F. Hillebrand, U.S. Geological Survey Bulletin 700 (1919). 285 pp.	---	25¢
62.	Determining gases in steel and the deoxidation of steel. J. R. Cain, Bul. Am. Inst. Mining Met. Engr., 1309-22 3027-32, 3119-21 (1919).	---	---
63.	The determination of zirconium by the phosphate method. G. E. F. Lundell and H. B. Knowles. J. Am. Chem. Soc., <u>41</u> , 1801 (1919). 8 pp.	----	----
64.	Oxygen content by the Ledebur method of acid Bessemer steels deoxidized in various ways. J. R. Cain and Earl Pettijohn. Sci. Pap. BS <u>15</u> , 259 (1919). 12 pp.	S346	OP
65.	Equilibrium conditions in the system carbon, iron oxide, and hydrogen in relation to the Ledebur method for determining oxygen in steel. J. R. Cain and Leon Adler. Sci. Pap. BS <u>15</u> , 353 (1919). 14 pp.	S350	OP
66.	The turbidity standard of water analysis. P. V. Wells. Sci. Pap. BS <u>15</u> , 693 (1920).	S367	OP
67.	Estimation of nitrates and nitrites in battery acid. L. B. Sefton. Tech. Pap. BS, T149 (1920). 10 pp.	T149	OP

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
68.	Sulphur in petroleum oils. C. E. Waters. Tech. Pap. BS, T177 (1920). 26 pp.	T177	OP
69.	Determination of antimony in rubber goods. S. Collier, H. Levin and J. A. Scherrer. India Rubber J. <u>60</u> , 1297 (1920). 2 pp.	---	---
70.	The determination of zirconium in steel. G. E. F. Lundell and H. B. Knowles. J. Ind. Eng. Chem., <u>12</u> , 562 (1920). 7 pp.	---	---
71.	The use of cupferron in quantitative analysis. G. E. F. Lundell and H. B. Knowles. J. Ind. Eng. Chem., <u>12</u> , 344 (1920). 8 pp.	---	---
72.	The determination of zirconium and titanium in zirconium ores. G.E.F. Lundell and H. B. Knowles. J. Am. Chem. Soc., <u>42</u> , 1439 (1920). 10 pp.	---	---
73.	Volatilization losses of phosphorus during evaporations of phosphates with sulfuric acid or fusions with pyrosulfate. W. F. Hillebrand and G. E. F. Lundell. J. Am. Chem. Soc., <u>42</u> , 2609 (1920). 7 pp.	---	---
74.	The determination of iron by the cupferron method. G.E.F.Lundell J. Am. Chem. Soc., <u>43</u> , 847 (1921) 5 pp.	---	---
75.	The determination of cobalt and nickel in cobalt steels. G.E.F. Lundell and J. I. Hoffman. J. Ind. Eng. Chem., <u>13</u> , 540 (1921) 5 pp.	---	---
76.	Zinc cyanide plating solutions. William Blum, F. J. Liscomb and C. H. Carson. Tech. Pap. BS <u>15</u> , (1921). 19 pp.	T195	OP
77.	Determination of available lime and quicklime in hydrated lime. Alice I. Whitson, Chem. Met. Eng. <u>25</u> , 740 (1921). 1 p.	---	---

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
78.	A modified method for the determination of iron and vanadium after reduction by hydrogen sulfide. G. E. F. Lundell and H. B. Knowles. J. Am. Chem. Soc., <u>43</u> , 1560 (1921). 9 pp.	---	---
79.	The co-precipitation of vanadic acid with ammonium phosphomolybdate. J. R. Cain and J. C. Hostetter. J. Am. Chem. Soc., <u>43</u> , 2552 (1921). 11 pp.	---	---
80.	Notes on the analysis of case bronze. G. E. F. Lundell and J. A. Scherrer. J. Ind. Eng. Chem., <u>14</u> , 426 (1922). 4 pp.	---	---
81.	The determination of aluminum as phosphate. G. E. F. Lundell and H. B. Knowles. J. Ind. Eng. Chem., <u>14</u> , 1136 (1922). 3 pp.	---	---
82.	Gases in metals: I. The determination of combined nitrogen in iron and steel and the change in form of nitrogen by heat treatment. Louis Jordan and F. E. Swindells. Sci. Pap. BS <u>13</u> , 499 (1922). 13 pp.	S457	OP
83.	The acidity of nickel depositing solutions. H. R. Thompson. Trans. Am. Electrochem. Soc., <u>41</u> , 333 (1922). 29 pp. Discusses methods of measuring pH.	---	---
84.	Notes on the determination of phosphorus. G. E. F. Lundell and J. I. Hoffman. Ind. Eng. Chem. <u>15</u> , pages 44 and 171. (1923) 9 pp.	---	---
85.	The separation of iron and aluminum from manganese and certain other elements. G. E. F. Lundell and H. B. Knowles. J. Am. Chem. Soc., <u>45</u> , 676 (1923). 6 pp.	---	---

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
86.	The analysis of chrome-vanadium steel. G.E.F.Lundell, J.I.Hoffman and H. A. Bright. Ind. Eng. Chem., <u>15</u> , 1064 (1923). 7 pp.	---	---
87.	Chemistry work of the Bureau of Standards, W. F. Hillebrand, Chem. Age. (N.Y.) <u>31</u> , 533 (1923). 3 pp.	---	---
87a.	The interference of cobalt in the bismuthate method for manganese; G.E.F.Lundell, J. Am. Chem. Soc., <u>45</u> , 2600 (1923) 4 pp.	---	---
88.	The determination of titanium by reduction with zinc and titration with permanganate. G.E.F. Lundell and H. B. Knowles. J. Am. Chem.Soc. <u>45</u> , 2620 (1923). 4 pp.	---	---
89.	Report on ladle test ingot investigation. J. R. Cain, H. A. Bright and G.E.F.Lundell. Proc. A.S.T.M. <u>23</u> , Part 1, 92 (1923). 13 pp.	---	---
90.	Fluorine determination in nickel depositing solutions. L. D. Hammond. Ind. Eng. Chem. <u>16</u> , 938 (1924). 2 pp. The Fluorine was precipitated and weighed as lead chlorofluoride.	---	---
91.	The use of cool solutions in the Jones reductor. G.E.F.Lundell and H. B. Knowles. Ind. Eng. Chem. <u>16</u> , 723 (1924). 2 pp.	---	---
92.	A laboratory stirrer. C.E. Waters. Ind. Eng. Chem., <u>16</u> , 493 (1924). 1 p.	---	---
93.	Carnotite and Tyuyamunite, and their ores in Colorado and Utah. W. F. Hillebrand, Am. J. Sci., <u>8</u> , 201 (1924). 16 pp.	---	---
94.	The analysis of phosphate rock; G.E.F.Lundell and J.I.Hoffman. J. Assn. Official Agr. Chem. <u>8</u> , 184 (1924). 22 pp.	---	---

<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
95.	Use of iron and nickel crucibles for alkali determinations, A. W. Epperson and R. B. Rudy, Ind. Eng. Chem., <u>17</u> , 35 (1925). 1 p.	---	---
96.	Determination of aluminum in non-ferrous alloys. G. F. Lundell and H. B. Knowles, Ind. Eng. Chem. <u>17</u> , 78 (1925). 3 pp.	---	---
97.	William Francis Hillebrand (1857-1925), C. E. Waters. J. Am. Chem. Soc., (Proceedings) <u>47</u> , 53 (1925). 8 pp. Photograph and Biographical sketch. See also Science <u>61</u> , 251 (1925).	---	---
98.	The determination of uranium, G. F. Lundell and H. B. Knowles. J. Am. Chem. Soc., <u>47</u> , 2637 (1925). 8 pp.	---	---
99.	Separation of manganese in the analysis of limestone and similar materials. A. W. Epperson, Ind. Eng. Chem., <u>17</u> , 744 (1925). 1 p.	---	---
100.	Gases in Metals: II. The determination of oxygen and hydrogen in metals by fusion in vacuum, Louis Jordan and James R. Eckman, Sci. Pap. BS <u>20</u> , 445 (1925). 38 pp.	S514	OP
101.	Determination of oxygen and hydrogen in metals by fusion in vacuum, L. Jordan and J. R. Eckman, Ind. Eng. Chem., <u>18</u> , 279 (1926). Met. Ind. (London). <u>28</u> , 387 (1926).	---	---
102.	Analysis of dental gold alloys, William H. Swanger, Sci. Pap. BS <u>21</u> , 209 (1926). 31 pp. See also a later paper, "New procedure for the analysis of dental gold alloys".	S532	10¢
103.	Rapid detection of small amounts of aluminum in certain non-ferrous materials. G. F. Lundell and H. B. Knowles, Ind. Eng. Chem., <u>18</u> , 60 (1926). 2 pp.	---	---



<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
104.	Separation of minute quantities of gold from ferric oxide, Edward Wichers, Ind. Eng. Chem., <u>19</u> , 96 (1927). 1 p.	---	---
105.	The analysis of soda-lime glass, G.E.F.Lundell and H. B. Knowles, J. Am. Ceram. Soc., <u>10</u> , 829 (1927). 21 pp.	---	---
106.	Determination of sulphur trioxide in the presence of sulphur dioxide together with some analyses of commercial liquid sulphur dioxide, J. R. Eckman, Sci. Pap. BS <u>22</u> , 277 (1927). 9 pp.	S554	5¢
107.	Data on the assay of rolled gold plate, Raleigh Gilchrist, Ind. Eng. Chem., <u>19</u> , 327 (1927). 4 pp	---	---
108.	A weight burette for the micro-measurement of liquid volumes, Martin Shepherd, Sci. Pap. BS, <u>22</u> , 267 (1927). 5 pp.	S555	5¢
109.	Gases in Metals: III. The determination of nitrogen in metals by fusion in vacuum, Louis Jordan and James R. Eckman. Sci. Pap. BS <u>22</u> , 467 (1927). 19 pp.	S563	OP
110.	The determination of iron in glass sand, G.E.F.Lundell and H. B. Knowles, J. Am. Ceram. Soc., <u>11</u> , 119 (1928). 7 pp.	---	---
111.	The analysis of bauxite and of refractories of high alumina content, G.E.F.Lundell and J.I. Hoffman, BS J. Research <u>1</u> , 91 (1928). 14 pp.	RP 5	OP
112.	The pyrophosphate method for the determination of magnesium and phosphoric anhydride, Alice Whitson Epperson, J. Am. Chem. Soc., <u>50</u> , 321 (1928). 12 pp.	---	---
113.	A study of the hydrogen-antimony-tin method for the determination of oxygen in cast irons, Bengt Kjerrman and Louis Jordan, BS J. Research, <u>1</u> , 701 (1928) 20 pp.	RP 25	OP

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
114.	Reaction of water on calcium alu- minates, L. S. Wells, BS J. Research <u>1</u> , 951 (1928). 59 pp.	RP 34	OP
115.	The analysis of fluorspar, G.E.F. Lundell and J.I. Hoffman, BS J. Research <u>2</u> , 671 (1929). 13 pp.	RP 51	OP
116.	Determination of molecular weights in the vapor state from vapor pressure and evaporation data. E.W. Washburn, BS J. Research <u>2</u> , 703 (1929). 11 pp.	RP 53	5¢
117.	Use of 8-hydroxyquinoline in separations of aluminum. G.E.F. Lundell and H. B. Knowles, BS J. Research <u>3</u> , 91 (1929). 6 pp.	RP 86	OP
118.	Determination of manganese in steel and iron by the per- sulphate-arsenite method, H.A. Bright and C. P. Larrabee, BS J. Research <u>3</u> , 573 (1929). 7 pp.	RP 109	5¢
119.	Determination of fluorine and of silica in glasses and enamels containing fluorine, J.I. Hoffman and G.E.F. Lundell, BS J. Research <u>3</u> , 581 (1929) 15 pp.	RP 110	5¢
120.	The measurement of pH in nickel plating solutions, W. Blum and N. Bekkedahl, Trans. Am. Electro- chem. Soc., <u>56</u> , 291 (1929). 33 pp.	---	---
121.	Reliability of fusible tin boil- er plugs in service, J. R. Freeman, Jr., J. A. Scherrer, and S. J. Rosenberg, BS J. Research <u>4</u> , 1 (1930). 22 pp.	RP 129	10¢
122.	The effect of light on silver chloride in chemical analyses. G.E.F. Lundell and J. I. Hoffman, BS J. Research <u>4</u> , 109 (1930). 6 pp.	RP 134	OP
123.	On a modified method for decompo- sing aluminous silicates for chem- ical analysis, A.N. Finn and J. F. Kleotka, BS J. Research <u>4</u> , 309 (1930). 5 pp.	RP 180	5¢

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
124.	Conductivity and density of chromic acid solutions, H.R. Moore and W. Blum, BS J. Research <u>5</u> , 255 (1930). 10 pp.	RP 198	OP
125.	The precipitation and ignition of magnesium ammonium phosphate, J. I. Hoffman and G.E.F. Lundell, BS J. Research <u>5</u> , 279 (1930). 15 pp.	RP 200	5¢
126.	An improved Victor Meyer molecularweight apparatus, Mildred M. Hicks-Bruun, BS J. Research <u>5</u> , 575 (1930). 7 pp.	RP 215	OP
127.	Apparatus for the determination aboard ship of the salinity of sea water by the electrical conductivity method, Frank Wenner, Edward H. Smith, and Floyd M. Soule, BS J. Research <u>5</u> , 711 (1930). 22 pp.	RP 223	10¢
128.	The importance of particle size in samples of certain metallurgical materials, J. A. Scherrer and G.E.F. Lundell, BS J. Research <u>5</u> , 891 (1930). 5 pp.	RP 237	OP
129.	Determination of carbon in high sulphur steels by direct combustion. H. A. Bright and G.E.F. Lundell, BS J. Research <u>5</u> , 943 (1930). 7 pp.	RP 240	OP
130.	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) 8 pp.	RP 265	5¢
131.	Determination of small quantities of volatile organic acids, in sulphuric acid solutions, D. N. Craig, BS J. Research <u>6</u> , 169 (1931). 14 pp.	RP 267	5¢
132.	Stabilization of boric acid buffers by aeration, Edna H. Faucett and S. F. Acree, BS J. Research <u>6</u> , 757 (1931). 7 pp.	RP 302	5¢

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
133.	Purification and analysis of alkali cyanides, M. R. Thompson, BS J. Research <u>6</u> , 1051 (1931) 9 pp.	RP 323	5¢
134.	Two hundred reagent chemicals - good and bad. Edward Wichers, Aaron Isaacs and Irl C. Schoonover, Ind. Eng. Chem. Anal. Ed. <u>2</u> , 227 (1931). 5 pp.	---	---
135.	The determination of oxygen and nitrogen in irons and steels by the vacuum fusion method, H. C. Vacher and Louis Jordan, BS J. Research <u>7</u> , 375 (1931). 27 pp.	RP 346	10¢
136.	The use of zinc oxide in determinations of cobalt and manganese, James I. Hoffman, BS J. Research <u>7</u> , 833 (1931). 10 pp.	RP 380	5¢
137.	The analysis of cyanide silver plating solutions, R. M. Wick, BS J. Research <u>7</u> , 913 (1931). 21 pp.	RP 384	OP
138.	The titration of free cyanide in copper baths, M. R. Thompson, Monthly Rev. Am. Electroplaters' Soc. <u>18</u> , 31 (1931). 6 pp.	---	---
139.	The definition and determination of free cyanide in electroplating solutions, W. Blum, Trans. Electrochem Soc., <u>60</u> , 143 (1931). 9 pp.	---	---
140.	On the direct determination of soda in soda-lime glasses by precipitation as uranyl zinc sodium acetate, Francis W. Glaze, J. Am. Ceram. Soc., <u>14</u> , 450 (1931). 4 pp.	---	---
141.	Determination of tin in irons and steels J. A. Scherrer, BS J. Research <u>8</u> , 309 (1932). 12 pp.	RP 415	5¢
142.	Rapid chemical test for the identification of chromium-molybdenum steel aircraft tubing, John C. Redmond, Technical Notes, <u>No. 411</u> , National Advisory Committee for Aeronautics (Washington, D. C.), March, 1932	---	---

<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
143.	A method for the determination of cobalt in magnet and high-speed tool steels, James I. Hoffman, BS J. Research <u>8</u> , 659 (1932). 10 pp.	RP 445	OP
144.	The use of -benzoinoxime in the determination of molybdenum, H. B. Knowles, BS J. Research <u>9</u> , 1 (1932). 7 pp.	RP 453	5¢
145.	A new determination of the atomic weight of osmium, Raleigh Gilchrist, BS J. Research <u>9</u> , 279 (1932). 12 pp.	RP 471	5¢
146.	The determination of magnesia in phosphate rock, James I. Hoffman, BS J. Research <u>9</u> , 487 (1932). 5 pp.	RP 484	5¢
147.	Nitrogen content of some standard sample steels. J. G. Thompson and E. H. Hamilton, BS J. Research <u>9</u> , 593 (1932). 3 pp.	RP 494	5¢
148.	Determination of alumina and silica in steel by the hydrochloric acid residue method, J. G. Thompson and J. S. Acken, BS J. Research <u>9</u> , 615 (1932). 9 pp.	RP 496	5¢
149.	The determination of silicon in steels, Robert M. Fowler, Ind. Eng. Chem. Anal. Ed., <u>4</u> , 382, (1932). 4 pp.	---	---
150.	The density of some soda-lime-silica glasses as a function of the composition. F. W. Glaze, J.C. Young and A. M. Finn, BS J. Research <u>9</u> , 799, (1932). 7 pp.	RP 507	OP
151.	A metal-connected glass electrode. M. R. Thompson, BS J. Research <u>9</u> , 833 (1932). 21 pp.	RP 511	OP
151a.	The heat capacity, heat of sublimation, and heat of solution of phosphorus pentoxide; Mikkel Frandsen, J. Research NBS <u>10</u> , 35 (1933) 24 pp.	RP 514	OP



<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
152.	Rubber beaker rings for accelerating evaporation on steam bath, J. A. Scherrer, Ind. Eng. Chem. Anal. Ed., <u>5</u> , 22 (1933). 1 p.	---	---
153.	The decomposition of cyanide solutions, R. M. Wick, Monthly. Rev. Am. Electroplaters Soc., <u>19</u> , 20 (April 1933). 4 pp.	---	---
154.	Determination of aluminum in nitriding steels by the use of $\delta$ -hydroxyquinoline, H. A. Bright and Robert M. Fowler, BS J. Research <u>10</u> , 327 (1933) 9 pp.	RP 533	5¢
155.	Chemical analysis of glass, G.E.F. Lundell, Ind. Eng. Chem., <u>25</u> , 353 (1933). 4 pp.	---	---
156.	Methods of stripping plated coatings. A. Brenner, Monthly. Rev. Am. Electroplaters' Soc., <u>20</u> , 7 (November 1933). 6 pp.	---	---
157.	Method for determining the total acidity of soils. I. A. Denison, BS J. Research <u>10</u> , 413 (1933). 14 pp.	RP 539	OP
157a.	The work of the National Bureau of Standards in chemistry and metallurgy; Edward W. Washburn; Scientific Monthly, <u>37</u> , 20 (1933) 10 pp.	---	---
158.	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. John C. Redmond, BS J. Research <u>10</u> , 323 (1933). 4 pp.	RP 569	5¢
159.	The chemical analysis of things as they are. G.E.F. Lundell, Ind. Eng. Chem. Anal. Ed., <u>5</u> , 221 (1933). 5 pp.	---	---
160.	The utility of the spark test as applied to commercial steels. R.W. Buzzard, BS J. Research <u>11</u> , 527 (1933). 14 pp.	RP 605	5¢

<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
161.	A glass electrode potentiometer system for the determination of the pH values of weakly buffered solutions such as natural and treated waters. John O. Burton, Harry Matheson, and S. F. Acree, BS J. Research <u>12</u> , 67 (1934). 7 pp.	RP 634	5¢
162.	Comparative efficiencies of various dehydrating agents used for drying gases. (A survey of commercial drying agents). J. H. Bower, BS J. Research <u>12</u> , 241 (1934). 8 pp.	RP 649	OP
163.	Determination of small amounts of zinc in steels and irons. H. A. Bright, BS J. Research <u>12</u> , 383 (1934). 7 pp.	RP 664	5¢
164.	Notes on the analysis of alkaline tin plating solutions. M. R. Thompson, Monthly. Rev. Am. Electroplaters' Soc., <u>20</u> , 16 (June 1934). 5 pp.	---	---
165.	Thermal expansions of some soda-lime-silica glasses as function of the composition. B. C. Schmid, A. N. Finn, and J. C. Young, BS J. Research <u>12</u> , 421 (1934). 8 pp.	RP 667	OP
166.	Heat of combustion of standard sample benzoic acid. Ralph S. Jessup and Carleton B. Green, J. Research NBS <u>13</u> , 469 (1934). 27 pp.	RP 721	5¢
167.	Determination of sulphur and sulphate in wool. Ralph T. Mease, J. Research NBS <u>13</u> , 617 (1934). 7 pp.	RP 731	5¢
168.	Preparation of pure gallium, James I. Hoffman, J. Research NBS <u>13</u> , 665 (1934). 8 pp.	RP 734	5¢
169.	Freezing point of gallium. Wm. F. Roeser and James I. Hoffman, J. Research NBS <u>13</u> , 673 (1934). 4 pp.	RP 735	5¢

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
170.	Chemical reactions in the lead storage battery. George Vinal and D. Norman Craig, J. Research NBS <u>14</u> , 449 (1935). 14 pp.	RP 778	OP
171.	The analysis of feldspar. H. B. Knowles and J. C. Redmond, J. Am. Ceram. Soc., <u>18</u> , 106 (1935). 7 pp.	----	----
172.	Use of 8-hydroxyquinoline in determinations of aluminum, beryllium, and magnesium. Howard B. Knowles, J. Research NBS <u>15</u> , 87 (1935). 10 pp.	RP 813	OP
173.	Dropping tests for determining the local thickness of zinc and cadmium coatings. R. O. Hull, and P. W. C. Strausser, Monthly Rev. Am. Electroplaters' Soc., <u>22</u> , 9 (March 1935).	---	---
174.	Purification of gallium by fractional crystallization of the metal. James I. Hoffman and Bourdon F. Scribner. J. Research NBS <u>15</u> , 205 (1935). 5 pp.	RP 823	5¢
175.	A colorimetric method for the quantitative determination of small amounts of silver by use of p-dimethylamino-benzalrhodanine. Irl C. Schoonover, J. Research NBS <u>15</u> , 377 (1935). 8 pp.	RP 836	5¢
176.	Atomic weight of gallium. G. E. F. Lundell and James I. Hoffman, J. Research NBS <u>15</u> , 409 (1935). 12 pp.	RP 838	5¢
177.	Standardization of permanganate solutions with sodium oxalate. Robert M. Fowler and Harry A. Bright, J. Research NBS <u>15</u> , 493 (1935). 9 pp.	RP 843	OP
178.	Stability of aqueous solutions of acid potassium phthalate. J. I. Hoffman, J. Research NBS <u>15</u> , 583 (1935). 2 pp.	RP 852	5¢

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
179.	Determination of gallium in aluminum. J. A. Scherrer, J. Research NBS <u>15</u> , 585 (1935). 6 pp.	RP 853	5¢
180.	Distillation and separation of arsenic, antimony and tin. John A. Scherrer, J. Research NBS <u>16</u> , 253 (1936). 7 pp.	RP 871	OP
181.	Routine determination of boron in glass. Francis W. Glaze and A. N. Finn, J. Research NBS <u>16</u> , 421 (1936). 9 pp.	RP 882	5¢
182.	A rapid method for the determination of silica in portland cement. Edwin E. Maczkowske, J. Research NBS <u>16</u> , 549 (1936). 4 pp.	RP 891	5¢
183.	Determination of sulphuric anhydride in portland cement by means of the Wagner turbidimeter. Robert Rudy, J. Research NBS <u>16</u> , 555 (1936). 7 pp.	RP 893	5¢
184.	Difference in atomic weight of oxygen from air and from water. Edgar R. Smith and Harry Matheson. J. Research NBS <u>17</u> , 625 (1936). 4 pp.	RP 932	5¢
185.	Solubility of mercurous sulphate in sulphuric acid solutions. D.H. Craig, G. W. Vinal, and F. E. Vinal, J. Research NBS <u>17</u> , 709 (1936). 12 pp.	RP 939	5¢
186.	Redetermination of the atomic weight of aluminum. James U. Hoffman and G.E.F. Lundell, J. Research NBS <u>18</u> , 1 (1937). 18 pp.	RP 957	5¢
187.	Determination of sulphur occurring as sulphide in portland cement. Harry A. Bright, J. Research NBS <u>18</u> , 137 (1937). 3 pp.	RP 968	5¢
188.	Cooperative study of methods for the determination of oxygen in steel. John G. Thompson, Herbert C. Vaucher, and Harry A. Bright. J. Research NBS <u>18</u> , 259 (1937). 35 pp.	RP 976	10¢

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
189.	Magnetic method for measuring the thickness of nickel coatings on non-magnetic base metals, A. Brenner, J. Research NBS <u>18</u> , 565 (1937). 19 pp.	RP 994	10¢
190.	A contribution to the chemistry of rhenium. G. E. F. Lundell and H. B. Knowles. J. Research NBS <u>18</u> , 629 (1937). 9 pp.	RP 999	5¢
191.	Determination of phosphoric anhydride in phosphate rock, superphosphate and "metaphosphate". James I. Hoffman and G. E. F. Lundell, J. Research NBS <u>19</u> , 59 (1937). 6 pp.	RP 1010	5¢
192.	Gases in some optical and other glasses. Clarence Hahner, George S. Voigt, and Alfred N. Finn. J. Research NBS <u>19</u> , 95 (1937). 9 pp.	RP 1014	5¢
193.	Use of arsenious oxide in the standardization of solutions of potassium permanganate. Harry A. Bright, J. Research NBS <u>19</u> , 691 (1937). 3 pp. Ind. Eng. Chem. Anal. Ed., <u>2</u> , 577 (1937).	RP 1057	5¢
194.	Laboratory tests of electroplated coatings on non-ferrous metals. P. M. C. Strausser, Monthly Rev. Amer. Electroplaters' Soc., <u>24</u> , 822 (November 1937). 13 pp.	---	---
195.	Magnetic method for measuring the thickness of non-magnetic coatings on iron and steel. Abner Brenner, J. Research NBS <u>20</u> , 357 (1938). 12 pp.	RP 1081	5¢
196.	Analysis of phosphate rock. James I. Hoffman, and G. E. F. Lundell, J. Research NBS <u>20</u> , 607 (1938). 20 pp.	RP 1095	5¢
197.	New procedure for the analysis of dental gold alloys. Raleigh Gilchrist. J. Research NBS <u>20</u> , 745 (1938). 27 pp.	RP 1103	10¢



<u>Ref..No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
198.	Reproducibility of the silver-silver chloride electrode, E. R. Smith and J. K. Taylor, J. Research NBS <u>20</u> , 837 (1938). 12 pp.	RP 1108	5¢
199.	Hydrogen-reduction method for the determination of oxygen in steel. John G. Thompson and Vernon C. F. Holm, J. Research NBS <u>21</u> , 79 (1938). 3 pp.	RP 1114	5¢
200.	Determination of oxygen in alloy steels. John G. Thompson and Vernon C. F. Holm, J. Research NBS <u>21</u> , 87 (1938). 7 pp.	RP 1115	10¢
201.	Determination of arsenic, antimony, and tin in lead-tin-and copper-base alloys. John A. Scherrer, J. Research NBS <u>21</u> , 95 (1938). 10 pp.	RP 1116	5¢
202.	Improved method for determination of aluminum in certain non-ferrous materials by use of ammonium aurintricarboxylate. John A. Scherrer and William D. Mogeran, J. Research NBS <u>21</u> , 105 (1938). 7 pp.	RP 1117	OP
203.	Preparation of ammonium aurintricarboxylate. John A. Scherrer and W. Harold Smith, J. Research NBS <u>21</u> , 113 (1938). 3 pp.	RP 1118	5¢
204.	Determination of boron in steel and cast iron. John L. Hague, and Harry A. Bright, J. Research NBS <u>21</u> , 125 (1938) 7 pp.	RP 1120	5¢
205.	Solubility of lead sulfate in solutions of sulfuric acid, determined by dithizone with a photronic cell. D. Norman Craig and George W. Vinal. J. Research NBS <u>22</u> , 55 (1939). 16 pp.	RP 1165	5¢
206.	Reproducibility of silver-silver halide electrodes. J. K. Taylor and E. R. Smith. J. Research NBS <u>22</u> , 307 (1939). 3 pp.	RP 1183	5¢

<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
207.	Effect of the solubility of glass on the behavior of the glass electrode. Donald Hubbard, Edgar H. Hamilton, and Alfred N. Finn, J. Research NBS <u>22</u> , 339 (1939). 12 pp.	RP 1187	5¢
208.	Density of some soda-potash-silica glasses as a function of the composition. John C. Young, Francis W. Glaze, Conrad A. Faick and Alfred N. Finn. J. Research NBS <u>22</u> , 455 (1939). 12 pp.	RP 1197	5¢
209.	Volatilization of metallic compounds from solutions in perchloric or sulfuric acid. J. I. Hoffman and G. I. F. Lundell, J. Research NBS <u>22</u> , 405 (1939). 6 pp.	RP 1198	5¢
210.	Determination of the pH value of papers. Herbert F. Launer. J. Research NBS <u>22</u> , 553 (1939). 12 pp.	RP 1205	5¢
210a.	Effects of methionine, djenkolic acid, and benzylcysteine on the estimation of cystine by the dropping mercury cathode; Edgar Reynolds Smith and Clement James Rodden, J. Research NBS <u>22</u> 669 (1939). 4 pp.	RP 1211	5¢
211.	Electroanalytical determination of copper and lead in nitric acid solution containing small amounts of hydrochloric acid. J. A. Scherrer, R. K. Bell and M. D. Mogeran, J. Research NBS <u>22</u> , 697 (1939). 4 pp.	RP 1213	5¢
212.	Preparation of high-purity iron. J. G. Thompson and H. E. Cleaves. J. Research NBS <u>22</u> , 163 (1939). 16 pp.	RP 1226	10¢
213.	Dropping tests for measuring the thickness of zinc and cadmium coatings on steel. Abner Brenner. J. Research NBS <u>23</u> , 387 (1939). 18 pp. Also in Convention Proceedings, Am. Electroplaters' Soc., p.204 (1939).	RP 1240	10¢

<u>Ref. No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
214.	Separation and colorimetric determination of rhenium and molybdenum. J. L. Hoffman and G. E. F. Lundell, J. Research NBS <u>23</u> , 497 (1939). 12 pp.	RP 1248	5¢
215.	The measurement of pH in alkaline plating solutions. M. R. Thompson, Convention Proc. Am. Electroplaters' Soc. p 200 (1939).	---	---
216.	Potentiometric method for the accurate measurement of hydrogen-ion activity, Walter J. Hamer and S. F. Acree, J. Research NBS <u>23</u> , 647 (1939). 15 pp.	RP 1261	5¢
217.	Retention of aluminum ion and hydrogen ion in papers, Herbert F. Launer, J. Research NBS <u>23</u> , 663 (1939). 11 pp.	RP 1262	5¢
218.	Handling of hygroscopic substances in the microchemical determination of carbon and hydrogen; Clement J. Rodden, Ind. Eng. Chem. Anal. Ed., <u>11</u> , 405 (1939). 1 p.	---	---
219.	Sealing platinum to Pyrex Glass; Edward Wichers and Charles Proffer Saylor, Rev. Sci. Instruments, <u>10</u> , 245 (1939).	---	---
220.	Colorimetric determination of arsenic in ferrous and non-ferrous alloys, Clement J. Rodden, J. Research NBS <u>24</u> , 17, 1940. 5 pp.	RP 1267	5¢
221.	Reaction of bromine with furfural and related compounds; Elizabeth E. Hughes and S. F. Acree. J. Research NBS <u>24</u> , 175 (1940). 6 pp.	RP 1276	5¢
222.	Reducing powers of various sugars with alkaline copper-citrate reagent; Horace S. Isbell, William W. Pigman, and Harriet L. Frush. J. Research NBS <u>24</u> , 241 (1940). 6 pp.	RP 1282	5¢
223.	Second ionization constant and related thermodynamic quantities for malonic acid from 0° to 60° C; Walter J. Hamer, John O. Burton, and S. F. Acree; J. Research NBS <u>24</u> , 269 (1940). 24 pp.	RP 1284	5¢

<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
224.	Methods of measuring pH in alkaline cyanide plating baths; Maurice R. Thompson, J. Research NBS <u>24</u> , 423 (1940) 12 p.	RP 1291	5¢
225	Redetermination of the Munson-Walker reducing-sugar values; Lester D. Hammond, J. Research NBS <u>24</u> , 579 (1940). 18 pp.	RP 1301	5¢
226.	Electrodialytic estimation of ash and of acidic and basic groups in textile fibers; Arnold M. Sookne, Charles H. Fugitt, and Jacinto Steinhardt, J. Research NBS <u>25</u> , 61 (1940) 9 pp.	RP 1314	5¢
227.	Decomposition of rocks and ceramic materials with a small amount of sodium carbonate; James I. Hoffman, J. Research NBS <u>25</u> , 379 (1940) 5 pp.	RP 1331	5¢
228.	Determination of nonvolatile matter and the calculation of "cut" of shellac varnish; Charles C. Hartman, J. Research NBS <u>25</u> , 395 (1940) 3 pp.	RP 1333	5¢
229.	Standard electrode potential of sodium; Edgar Reynolds Smith and John Keenan Taylor; J. Research NBS <u>25</u> , 731 (1940). 16 pp.	RP 1350	5¢
230	Removal of static charges from glassware by ultraviolet light; Clement J. Rodden, Ind. Eng. Chem. Anal. Ed., <u>12</u> , 693. (1940).	---	---
231.	Preparation of benzoic acid of high purity; Frank M. Schwab and Edward Wichers, J. Research NBS <u>25</u> , 747 (1940). 11 pp.	RP 1351	5¢
232.	Notes on the spot test for thickness of chromium coatings, W. Blum and W. A. Olson, Convention Proceedings Am. Electroplaters' Soc., p. 25 (1940).	---	---

<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
233.	Rapid method for determining ascorbic acid concentration; Myron A. Elliott, Alfred L. Sklar, and S. F. Acree, J. Research NBS <u>26</u> , 117 (1941). 12 pp.	RP 1364	5¢
234.	Determination of hydrogen in ferrous materials by vacuum extraction at 300° C and by vacuum fusion; Vernon C. F. Holm and John G. Thompson, J. Research NBS <u>26</u> , 245 (1941). 15 pp.	RP 1373	5¢
235.	Hazard of mercury vapor in scientific laboratories; Martin Shepherd and Sheford Schumann, and Robert H. Flinn, J. Walter Hough, and Paul A. Neal. J. Research NBS <u>26</u> , 357 (1941). 20 pp.	RP 1383	10¢
236.	Colorimetric determination of phosphorus in steel and cast iron; John L. Hague and Harry A. Bright, J. Research NBS <u>26</u> , 405 (1941). 10 pp.	RP 1386	5¢
237.	Method for determining the components of asphalts and crude oils; O. G. Strieter, J. Research NBS <u>26</u> , 415 (1941). 4 pp.	RP 1387	5¢
238.	Analysis of dental amalgams containing mercury, silver, gold, tin, copper, and zinc; Harold J. Caul and Irl C. Schoonover, J. Research NBS <u>26</u> , 431 (1941). 8 pp.	RP 1391	5¢
239.	Comparative tests of chemical glassware; Edward Wichers, Alfred H. Finn, and W. Stanley Clabaugh, J. Research NBS <u>26</u> , 537 (1941). 20 pp. Also in Ind. Eng. Chem. Anal. Ed., <u>13</u> , 419 (1941)	RP 1394	10¢
240.	Spectrophotometric determination of praseodymium, neodymium, and samarium; Clement J. Rodden, J. Research NBS <u>26</u> , 557 (1941). 14 pp.	RP 1395	5¢
241.	Critical Study of the determination of carbon monoxide by combustion over platinum in the presence of excess oxygen; Joseph R. Branham, Martin Shepherd, and Sheford Schumann, J. Research NBS <u>26</u> , 571 (1941). 20 pp.	RP 1397	10¢



<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
242.	Effect of the chemical durability of glass on the asymmetry potential and reversibility of the glass electrode; Edgar H. Hamilton and Donald Hubbard, J. Research NBS <u>27</u> , 27 (1941) 6 pp.	RP 1400	5¢
243.	An improvement in the "partition method for the determination of boron; Francis W. Glaze and Alfred N. Finn, J. Research NBS <u>27</u> , 33 (1941). 5 pp.	RP 1401	5¢
244.	Quantitative determination of fluorine in organic compounds; Dirk H. Brauns, J. Research NBS <u>27</u> 105 (1941). 8 pp.	RP 1407	5¢
245.	Studies of the chemical durability of glass by an interferometer method; Donald Hubbard and Edgar H. Hamilton, J. Research NBS <u>27</u> , 143 (1941). 16 pp.	RP 1409	5¢
246.	Behavior of calcium sulfate at high temperatures; Edwin S. Newman, J. Research NBS <u>27</u> , 197 (1941) 6 pp.	RP 1413	5¢
247.	Errors of Munson and Walker's reducing-sugar tables and the precision of their method; Richard F. Jackson and Emma J. McDonald, J. Research NBS <u>27</u> , 237 (1941). 20 pp.	RP 1417	10¢
248.	Titration and conductivity measurements of aqueous extracts from bottles; Edgar H. Hamilton and Donald Hubbard, J. Research NBS <u>27</u> , 381 (1941). 14 pp.	RP 1426	5¢
249.	Estimation of aldehyde groups in hydrocellulose from cotton; Albert R. Martin, Leonard Smith, Roy L. Whistler, and Milton Harris, J. Research NBS <u>27</u> , 449 (1941). 10 pp.	RP 1432	5¢

<u>Ref.No.</u>	<u>Title</u>	<u>Series</u>	<u>Price</u>
250.	Precise measurement of the freezing range as a means of determining the purity of a substance; F.W.Schwab and Edward Wichers, in book "Temperature, its measurement and control in science and industry" American Institute of Physics, published by Reinhold Publishing Corp. New York, N. Y.		
251.	Spark-spectrographic analysis of Commercial tin; Bourdon F. Scribner, J. Research NBS <u>28</u> , Feb. 1942.	----	----

Partial Subject Index

(The numbers in this index refer to the reference numbers in the first column).

- Acid potassium phthalate, stability of aqueous solutions, 178
- Aldehyde, estimation of in hydrocellulose, 249
- Alkalies, 15, 16, 61, 95, 140, 171. (See also Glass Analysis).
- Alumina, in steel, 148.
- Aluminates, constitution of, 41.  
reaction of water on calcium aluminates, 114.
- Aluminous silicates, decomposition of, 123.
- Aluminum, determination as oxide, 51; as phosphate, 81; in bauxite and refractories, 111; in nitriding steels, 154; in non-ferrous materials, 96; use of ammonium aurintricarboxylate for small amounts, 103, 202; Use of 8-hydroxyquinoline 117, 154, 171, 172.
- Antimony, in copper-base alloys, 201; in rubber goods, 69.  
separation from arsenic and tin by distillation, 180.
- Arsenic, distillation, separation, and determination of, 180, 201, 209, 220.
- Arsenious oxide, use in standardizing permanganate, 193.

- Ascorbic acid, determination of, 233.
- Asphalt, determining components of, 237
- Atomic weights, Aluminum, 136; Bromine, 29; Chlorine, 11;  
 Gallium, 176; Hydrogen, 10; Osmium, 145;  
 Oxygen, difference between oxygen from  
 air and water, 134.
- "Aurin" test for aluminum, 103, 202; preparation of  
 reagent, 203.
- Barium carbonate and sulphate in rubber goods, 48.
- Bauxite, 111.
- Benzoic Acid, as standard material, 27, 42.  
 heat of combustion, 166, preparation  
 of 231.
- $\alpha$ -Benzoinoxime, for molybdenum, 144.
- Beryllium, separation from aluminum by 8-hydroxy-  
 quinoline, 172.
- Bismuthate method for manganese, 24, 25.
- Boiler plugs, reliability of, 121.
- Bronze, analysis of, 30.
- Boric acid buffers, 132.
- Boron, in glass, 131, 243; in steel, 204; in phosphate  
 rock, 196.
- Bromine, atomic weight of, 29; reaction with furfural, 221.
- Calciovolborthite, 38.
- Calcium aluminates, 114.
- Calcium sulfate, behavior at high temperatures, 246.
- Calcium vanadates, 40, 44.
- Carbon, in steel, 39, 49, 54, 60, 129.
- Carbon monoxide and carbon dioxide in steels, 58.
- Carbon monoxide, determination of, 241.
- Carbonate, and silicate rocks, analysis of, 16, 61.
- Carnotite, 93.

- Ceramic materials, decomposition of, 227
- Chemistry & metallurgy, work of Bureau of Standards, 157a.
- Chlorine, atomic weight of, 11.
- Chrome-vanadium steels, analysis of, 18, 23, 30, 86.
- Chromic acid, density of, 124.
- Chromium, in steel, 21, 30, 86; on coatings, 232.
- Cobalt, in steels, 75, 136, 143; interference in manganese determinations, 87a.
- Copper, electroanalytical determination of, 211.  
in dental alloys, 238
- Copper sulphate, relation between composition and density of aqueous solutions of, 47.
- Cupferron, use of, 71, 74.
- Cyanide plating solutions, 76, 133, 137, 138, 139, 153.
- Dehydrating agents, 162.
- Dental amalgams, analysis of, 238.
- Dithizone, for determining lead, 205.
- Electrode, potential of sodium, 229.
- Feldspar, 171.
- Filter paper, extractible matter from, 52.
- Fluorine in plating solutions, 90; in glass, 119;  
in phosphate rock, 196, in organic compounds, 244.
- Fluorspar, 115.
- Freezing range, as means of determining purity, 250.

Gallium, recovery from spelter, 46; purification of, 168, 174; freezing point, 169; atomic weight, 176; determination in aluminum metal, 179.

Gases in steel and iron, 57, 58, 62, 64, 65, 82, 100, 101, 109, 113, 135, 147, 188, 199, 200, 234.  
in glass, 192.

Germanium, volatilization of, 209.

Glass, analysis of, 56, 105, 119, 140, 150, 155, 165, 181, 192, 208, 243, 245, 248.

Glassware, comparative tests of, 56, 239.

Glass electrode, 151; potentiometer for, 161; effect of solubility of glass, 207, 242.

Glass sand, iron in, 110.

Gold, in dental alloys, 102, 197, 238; in ferric oxide, 104.  
assay of rolled gold plate, 107.

Hydrogen, atomic weight of, 10; in steel, 101, 234 (See also gases in steel and iron).

Hygroscopic substances, handling of, 218.

Hydrogen-ion measurements, 216, 217.

Hydrolysis of sodium oxalate, 20.

8-Hydroxyquinoline, 117, 130, 154, 158, 171, 172.

Iron and steel analysis, 1, 2, 6, 18, 21, 22, 23, 30, 31, 32, 36, 39, 49, 54, 57, 58, 60, 62, 64, 65, 70, 82, 86, 100, 101, 109, 113, 118, 129, 135, 141, 142, 143, 147, 149, 154, 160, 163, 188, 195, 199, 200, 204, 213, 218.

Iron determination, colorimetric, 8, 9; by cupferron, 74, after reduction with hydrogen sulfide 78; in glass sand, 110.

Iron, preparation of pure, 45, 212.



- Iron and nickel crucibles for alkalis, 95. .
- Jones reductor, use of cool solutions in, 91.
- Ladle test investigation, 89.
- Lead storage battery, chemical reactions in, 170.
- Lead sulfate, solubility in sulfuric acid determined by dithizone, 205.
- Lime, available and quicklime, 77.
- Limestone, 61, 99.
- Magnesia, in phosphate rock, 146.
- Magnesium, pyrophosphate method, 112, 125;  
in portland cement 130, 158;  
3-hydroxyquinoline method, 130, 158, 172.
- Malonic acid, ionization constant of, 223.
- Manganese, in ores 3, in steels 23, 118; in limestone, 99.  
bismuthate method, 24, 28.  
persulphate-arsenite method, 118.  
separation from iron and aluminum with  $\text{NH}_4\text{OH}$ , 85;  
with zinc oxide, 136.  
weighing as sulphate, 28..
- Mercurous sulphate, solubility, 185.
- Mercury, cathode, dropping, in estimation of cystine, 210a
- Mercury, volatilization of, 209; vapor hazard, 235.  
in dental amalgams, 233.
- Metallic coatings, thickness of, 107, 173, 189, 194, 195, 213.  
stripping of, 156.
- Metallurgy and chemistry, work of Bureau of Standards, 157a.
- Mineral analysis and identification, 13, 16, 17, 33, 40, 44, 61, 93.

- Molecular weight determination, 126
- Molybdenum, determination with  $\alpha$ -benzoinoxime, 144.  
colorimetrically, 142, 214.
- Mosesite, 17. .
- Nevdymium, 240. . . .
- Nickel, in steel, 75. . . . .
- Nickel plating solutions, 83, 90, 120. . . . .
- Nitrates and nitrites in battery acid, 67.
- Nitriding steel, 154. . . . .
- Nitrogen, in steel, 135, 147. . . . .
- Osmium, atomic weight of, 145. . . . .
- Oxygen, in iron and steel (See Gases in steel and  
Iron).
- Particle size, importance of, in sampling, 128.
- Petroleum oils, sulphur in, 68.
- Phosphate method for aluminum, 61; for zirconium, 63.
- Phosphate rock, 94, 146, 191, 196.
- pH of plating solutions, 83, 120, 215; of papers  
210, 217, 224.
- Phosphorus, in steels, 36, 84; colorimetric 236  
losses by volatilization, 73.  
pyrophosphate method, 112, 125, 191, 196.
- Phosphorus pentoxide, heat capacity of, etc., 151a.
- Plating solutions, 76, 83, 90, 120, 124, 133, 137,  
138, 139, 153, 164, 215.
- Platinum ware, 25. . . . .
- Platinum sealing to Pyrex, 219.
- Porcelain ware, 55. . . . .
- Potash bulb, 15.

- Potassium permanganate standardizations, 26, 177, 193.
- Praseodymium, 240.
- Pyrex, sealing to platinum, 219
- Rare earths, spectrophotometric analysis of, 240.
- Reagents, 134.
- Rocks, decomposition of, 227.
- Rhenium, 190, 214.
- Rubber beaker rings, 152.
- Salinity of sea water, 127.
- Samarium, 240.
- Shellac, non-volatile and "cut" in, 228.
- Silicates, analysis of, 16, 61, 123.
- Silica in steel, 148; in portland cement, 182; in glass, 119.
- Silicon in steel, 149.
- Silver, determination of small amounts of, 175; in dental amalgams, 238.
- Silver - silver halide electrodes, 198, 206.
- Silver chloride, effect of light on, 122.
- Soda in glass, 140.
- Sodium oxalate, 4, 20, 26, 177.
- Soils, acidity of, 157.
- Spark tests in steel analysis, 160.
- Spectrographic analysis of commercial tin, 251.
- Spectrophotometric analysis of rare earths, 240.
- Spelter, gallium in, 46.
- Standard Samples, 2, 6, 12, 50, 166.
- Static charge, removal of from glassware, 230.
- Steel analysis (See Iron and Steel Analysis).

Sugar, 222, 225, 247

Sulphocyanate method for iron, 8, 9.

Sulphur in india rubber, 19; in ammonium sulfate, 33; in illuminating gas, 35; in petroleum oils, 68; trioxide in presence of dioxide, 106; in wool, 167; as  $\text{SO}_2$  in portland cement, 183; as sulfide in portland cement, 187.

Textiles, ash in, 226.

Thiocyanate method for iron, 8, 9.

Tin, commercial, spectrographic analysis of, 251.

Tin in steel, 141, separation from arsenic and antimony, 180; in lead-tin- and copper base alloys, 201.  
in dental alloys, 238.

Titanium determination in zirconium ores, 72, by reduction with zinc, 88.

Turbidimeter for  $\text{SO}_2$  in portland cement, 183.

Turbidity standard in water analysis, 66.

Ultraviolet light, use of in removing static charge, 230.

Uranium, 98.

Uranyl zinc acetate method for sodium, 140, 171.

Vanadium in steel, 18, 21, 22, 30, 31, 32, 34, 36, 79, 86, reduction with  $\text{H}_2\text{S}$ , 78

Volatilization of metallic compounds from  $\text{HClO}_4$ - $\text{H}_2\text{SO}_4$  solutions, 209.

Zinc, plating solutions, 76; in steel, 163.  
determination of in dental alloys, 238.

Zinc oxide, use for separating cobalt from iron, 136.

Zirconium, determination by phosphate method, 63; in steel, 70; in ores, 72.

