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ENAMELS

Publications by members of the staff of the National Bureau of Standards, together with a list of Federal Specifications.

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GENERAL INFORMATION

Some of the publications in this list have appeared in the regular series of publications of the Bureau and others in various scientific and technical journals. Unless specifically stated, papers are not obtainable from the National Bureau of Standards.

Where the price is stated, the publication can be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. The prices quoted are for delivery to addresses in the United States and its territories and possessions and in certain countries which extend the franking privilege. In the case of all other countries, one-third the cost of the publication 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.

Letter Circulars are obtainable without charge from the Bureau. Publications marked "OP" are out of print, but, in general, may be consulted at technical libraries.

For papers in other scientific or technical journals, the name of the journal or of the organization publishing the article is given in abbreviated form with the volume number (underscored), page, and year of publication, in the order named. In general, the Bureau cannot supply copies of these journals, or reprints from them, and it is unable to furnish information as to the availability or price. However, in a few cases (publications preceded by a single asterisk (*)) a very limited supply of reprints is available for distribution, and copies will be sent free upon request to the Bureau. They, too, can usually be consulted at technical libraries.

Serial letters are used to designate the several series of Bureau publications:

- T = "Technologic Paper." T1 to T370. This series was superseded by the "Bureau of Standards Journal of Research" in 1928.
- S = "Scientific Paper." 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 This series was superseded by the "Bureau of Standards Journal of Research" in 1928.
- 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 = "Circulars."
- LC = "Letter Circulars."
- R = "Simplified Practice Recommendations."
- CS = "Commercial Standards."
- FS = "Federal Specifications."

Circular C24 and supplements, the complete list of the Bureau's publications (1901-1944), is sold by the Superintendent of Documents for \$1.30. Announcement of new publications is made each month in the Technical News Bulletin which is obtainable by subscription at \$1.00 a year.

PART 1 - TECHNOLOGIC PAPERS

| | <u>Series</u> | <u>Price</u> |
|--|---------------|--------------|
| A critical study of the Ledebur method for determining oxygen in iron and steel. J.R. Cain and E. Pettijohn. (1919). | T118 | OP |
| A study of the Goutal method for determining carbon monoxide and carbon dioxide in steels. J.R. Cain and E. Pettijohn. (1919). | T126 | OP |
| Notes on graphitization of white cast iron upon annealing. P.D. Merica and L.J. Gurevich. (1919). | T129 | OP |
| An electrolytic resistance method for determining carbon. J.R. Cain. (1919). | T141 | OP |
| Materials and methods used in the manufacture of enameled cast-iron wares. H.F. Staley. (1919). | T142 | OP |
| Enamels for sheet iron and steel. J.B. Shaw. (1919-20). | T165 | OP |
| Embrittlement of malleable cast iron produced by heat treatment, as revealed by impact tests. L.H. Marshall. (1922-24). | T245 | OP |
| Wet-process enamels for cast iron. R.R. Danielson and H.P. Reinecker. (1922-24). | T246 | OP |
| Controlling the consistency of enamel slips. W.N. Harrison. (1927-28). | T356 | OP |

PART 2 - SCIENTIFIC PAPERS

| | | |
|--|------|----|
| 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). | S350 | OP |
| Measurements of thermal dilatation of glass at high temperatures. C.G. Peters and C.H. Cragoe. Sci. Pap. BS <u>16</u> , 449 (1920). | S393 | OP |
| Thermal expansion of a few steels. W. Souder and P. Hidnert. Sci. Pap. BS <u>17</u> , 611 (1922). | S433 | OP |

PART 2 - SCIENTIFIC PAPERS (Continued)

| | <u>Series</u> | <u>Price</u> |
|---|---------------|--------------|
| Gases in metals; I. The determination of combined nitrogen in iron and steel and the change in the form of nitrogen by heat treatment. L. Jordan and F.E. Swindells. Sci. Pap. BS <u>18</u> , 499(1922-23). | S457 | .05 |
| Application of the interferometer to measurements of the thermal dilatation of ceramic materials. G.E. Merritt. Sci. Pap. BS <u>19</u> , 357 (1923-24). | S485 | OP |
| 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 (1924-26). | S514 | OP |
| Measurements on the thermal expansion of fused silica. W. Souder and P. Hidnert. Sci. Pap. BS <u>21</u> , 1 (1926-27). | S524 | OP |
| 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). | S563 | OP |
| Thermal expansion of alloys of the "stainless iron" type. P. Hidnert and W.T.Sweeney. Sci. Pap. BS <u>22</u> , 639 (1927-28). | S570 | .10 |

PART 3 - RESEARCH PAPERS

| | | |
|---|-------|-----|
| 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). | RP25 | OP |
| The analysis of fluorspar. G.E.F. Lundell and J.I. Hoffman. BS J. Research <u>2</u> , 671 (1929). | RP51 | OP |
| Use of 8-hydroxyquinoline in separations of aluminum. G.E.F.Lundell and H.B.Knowles, BS J. Research <u>3</u> , 91 (1929). | RP86 | OP |
| 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). | RP110 | .05 |

PART 3 - RESEARCH PAPERS (Continued)

| | <u>Series</u> | <u>Price</u> |
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| Blistering phenomena in the enameling of cast iron. A.I.Krynitsky and W.N.Harrison. BS J. Research <u>4</u> , 757 (1930). | RP179 | .30 |
| On a modified method for decomposing aluminous silicates for chemical analysis, A.N. Finn and J.F. Klekotka, BS J. Research <u>4</u> , 809(1930). | RP180 | OP |
| Dimensional changes caused in glass by heating cycles. A.Q. Tool, D.B. Lloyd and G.E. Merritt. BS J. Research <u>5</u> , 627(1930). | RP219 | .10 |
| 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). | RP240 | OP |
| The determination of oxygen and nitrogen in iron and steel by the vacuum fusion method. H.C. Vacher and L. Jordan. BS J. Research <u>7</u> , 375(1931). | RP346 | .10 |
| A method for determining the volume changes undergone by metals and alloys during casting. C.M. Saeger, Jr., and E.J. Ash. BS J. Research <u>8</u> , 37(1932). | RP399 | .10 |
| Volume changes of cast irons during casting. E.J. Ash and C.M. Saeger, Jr. BS J. Research <u>8</u> , 601(1932). | RP440 | .05 |
| The density of some soda-lime-silica glasses as a function of the composition. F.W.Glaze, J.C. Young and A.N. Finn, BS J. Research <u>9</u> , 799(1932). | RP507 | OP |
| The interference method of measuring thermal expansion. G.E.Merritt. BS J. Research <u>10</u> , 59(1933). | RP515 | OP |
| Some fusion properties of ground coat enamels as influenced by composition. W.N. Harrison and B.J.Sweo. BS J. Research <u>10</u> , 189(1933). | RP524 | .05 |
| Properties of gray cast iron as affected by casting conditions. C.M. Saeger, Jr., and E.J. Ash. J. Research NBS <u>13</u> , 573(1934). | RP726 | .05 |

PART 3 - RESEARCH PAPERS (Continued)

| | <u>Series</u> | <u>Price</u> |
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| A Maxwell triangle yielding uniform chromaticity scales, D.B.Judd. Jour Res. NBS <u>14</u> , 1, 41-57(1935). | RP756 | .05 |
| Distillation and separation of arsenic, antimony and tin. John A. Scherrer, J. Research NBS <u>16</u> , 253 (1936). | RP871 | OP |
| Routine determination of boron in glass. Francis W. Glaze and A.N.Finn. J. Research NBS <u>16</u> , 421 (1936). | RP882 | OP |
| Estimation of chromaticity differences and nearest color temperature on the standard 1931 I.C.I. Colorimetric coordinate system. D.B. Judd. Jour. Research NBS <u>17</u> , 5,(1936). | RP944 | .05 |
| Methods of determining gloss. R.S. Hunter J. Research NBS <u>18</u> , 19(1937). | RP958 | OP |
| Cooperative study of methods for the determination of oxygen in steel. J.G.Thompson, H.C. Vacher and H.A. Bright. J. Research NBS <u>18</u> , 259(1937). | RP976 | .10 |
| Soil corrosion studies, 1934. Field tests of nonbituminous coatings for underground use. H.H. Logan and S.P. Ewing. J. Research NBS <u>18</u> , 361(1937). | RP982 | .10 |
| Gases in some optical and other glasses. Clarence Hahner, George Q. Voigt, and Alfred N. Finn. J. Research NBS <u>19</u> , 95(1937). | RP1014 | .05 |
| Consistency of eight types of vitreous enamels at and near firing temperatures. W.N. Harrison, R.E. Stephens and S.M. Shelton. J. Research NBS <u>20</u> , 39(1938). | RP1063 | .10 |
| Reference tables for iron-constantan and copper-constantan thermocouples. Wm. F. Roeser and A.I. Dahl. J. Research NBS <u>20</u> , 337 (1938). | RP1080 | .05 |
| Magnetic method for measuring the thickness of nonmagnetic coatings on iron and steel. Abner Brenner. J. Research NBS <u>20</u> , 369(1938). | RP1081 | .05 |

PART 3- RESEARCH PAPERS (Continued)

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| Hydrogen-reduction method for the determination of oxygen in steel. J.G.Thompson and V.C.Holm. J. Research NBS <u>21</u> , 79 (1938). | RP1114 | .05 |
| Determination of arsenic, antimony, and tin in lead-tin-and copper-base alloys. John A. Scherrer, J. Research NBS <u>21</u> , 95 (1938). | RP1116 | OP |
| Surface tension of vitreous enamel frits at and near firing temperatures. W.N.Harrison and D.G.Moore. J. Research NBS <u>21</u> , 337(1938). | RP1133 | .10 |
| Thermal expansion characteristics of some ground coat enamel frits. W.N.Harrison, B. J.Sweo, and S.M. Shelton. J. Research NBS <u>22</u> , 127(1939). | RP1172 | .05 |
| Elastic properties of cast iron. A.I.Krynitsky and C.M. Saeger, Jr. J. Research NBS <u>22</u> , 191 (1939). | RP1176 | .15 |
| A sensitive pyramidal-diamond tool for indentation measurements. F. Knoop, C.G.Peters and W.B.Emerson. J. Research NBS <u>23</u> , 39(1939). | RP1220 | OP |
| Improved interferometric procedure with application to expansion measurements. James B. Saunders. J. Research NBS <u>23</u> , 179(1939). | RP1227 | .05 |
| Effects of humidity and composition on strength and Young's modulus of enamel frits. D.G.Moore and W.N.Harrison. J. Research NBS <u>23</u> , 329(1939). | RP1237 | .05 |
| Colorimetric determination of arsenic in ferrous and nonferrous alloys. C.J.Rodden. J. Research NBS <u>24</u> , 7 (1940). | RP1267 | .05 |
| Determination of thickness of acid-resistant portion of vitreous enamel coatings. L.Shartsis and W.N.Harrison. J. Research NBS <u>25</u> , 71(1940). | RP1315 | .05 |
| Decomposition of rocks and ceramic materials with a small amount of sodium carbonate. James I. Hoffman. J. Research NBS <u>25</u> , (1940). | RP1331 | OP |

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| | <u>Series</u> | <u>Price</u> |
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| A multipurpose photoelectric reflectometer. Richard S. Hunter. J. Research NBS <u>25</u> , 581 (1940). | RP1345 | .10 |
| Determination of hydrogen in ferrous materials by vacuum extraction at 800°C and by vacuum fusion. V.C.F.Holm and J.G.Thompson. J. Research NBS <u>26</u> , 245(1941). | RP1373 | .05 |
| An improvement in the "partition" method for the determination of boron, Francis W. Glaze and Alfred N. Finn, J. Res. NBS <u>27</u> , 33 (1941). | RP1401 | .05 |
| The tee-bend test to compare the welding quali- ty of steels. G.A.Ellinger, A.G.Bissell, and M.L.Williams. J. Research NBS <u>28</u> , 1(1942). | RP1444 | .30 |
| Expansivity of a Vycor brand glass. James B. Saunders, J. Research NBS <u>28</u> , Jan.(1942). | RP1445 | .05 |
| Elimination of oxide films on ferrous materials by heating in vacuum, V.C.F.Holm. J. Research NBS <u>28</u> , 569(1942). | RP1468 | .10 |
| Weather resistance of porcelain-enameled iron structural units. W.N.Harrison and D.G.Moore. J. Research NBS <u>28</u> (1942). | RP1476 | .10 |
| Interferometer measurements on the expansion of iron. James B. Saunders. J. Research NBS <u>33</u> , 2 75-85(1944). | RP1597 | .10 |
| Preparing refractory oxides, silicates, and ceramic materials for analysis, by heating with acids in sealed tubes at elevated tempera- tures. Edward Wichers, William G. Schlecht and Charles L. Gordon. J. Research NBS <u>33</u> , (1944). | RP1621 | .05 |
| Relaxation of stresses in annealing glass.A. Q.Tool, J. Research NBS <u>34</u> , 2 199-211(1945). | RP1637 | .05 |
| An apparatus for photographing interference phenomena, James B. Saunders. J. Research NBS <u>35</u> 157(1945). | RP1668 | .10 |
| Viscosity and the extraordinary heat effects in glass. A.Q.Tool, J. Res.NBS <u>37</u> , 2(1946). | RP1730 | .10 |
| Ceramic coatings for high temperature protec- tion of steel, W.N.Harrison, D.G.Moore, and J.C.Richmond, J. Research NBS <u>38</u> , 3, 293(1947). | RP1773 | .10 |

PART 4 - CIRCULARS

| | <u>Series</u> | <u>Price</u> |
|---|---------------|--------------|
| Sodium oxalate as a standard in volumetric analysis. Cir BS, C381(1930). Supersedes third edition of Circular C40. | C381 | .05 |
| Standard samples - general information. Cir. BS, C398(1932). Supersedes ninth edition of Circular C25. | C398 | Free |
| 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. | | |
| Photoelectric tristimulus colorimetry with three filters. Richard S. Hunter. NBS Circular C429 (July 30, 1942). | C429 | .15 |
| Mechanical properties of metals and alloys. J.L.Everhart, W.E.Lindlief, J. Kanegis, P.G. Weissler, and F. Siegel. Cir NBS (1943). | C447 | 1.50 |
| Underground corrosion. Kirk H. Logan. Cir NBS (1945). | C450 | 1.25 |

PART 5 - LETTER CIRCULARS

(Free on application to this Bureau)

| | | |
|--|-------|--|
| Salt spray test | LC530 | |
| Policy of the National Bureau of Standards with regard to tests for agencies outside the Bureau | LC544 | |
| Photoelectric colorimeters. NBS Letter Circular (March 1939). Supersedes LC473. | LC545 | |
| Preparation and colorimetric properties of a magnesium-oxide reflectance standard. NBS Letter Circular(March 1939).Supersedes LC395. | LC547 | |

PART 6 - SIMPLIFIED PRACTICE RECOMMENDATIONS

| | | |
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| Plumbing fixtures, hospital | R106-41 | .05 |
| Food service equipment | R182-41 | .05 |

PART 7 - COMMERCIAL STANDARDS

| | <u>Series</u> | <u>Price</u> |
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| Feldspar | CS23-30 | OP |
| Colors for sanitary ware | CS30-31 | OP |
| Colors for kitchen accessories | CS62-38 | .05 |
| Colors for bathroom accessories | CS63-38 | .05 |
| Enameled ware; sanitary cast iron | CS77-40 | .05 |
| Porcelain-enameled steel utensils (third edition) | CS100-47 | .10 |
| Porcelain-enameled tanks for domestic use | CS115-44 | MO* |
| Formed metal sanitary ware | CS144-47 | MO* |

*MO (Mimeographed Only) No printed copies are available, although they may become available before this list is revised.

PART 8 - FEDERAL SPECIFICATIONS

(Issued by the Federal Specifications Executive Committee, Washington, D.C., and obtainable from the Superintendent of Documents, Government Printing Office, Washington, D.C., at the prices stated.)

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|---|-----------|-----|
| Ranges; electric, domestic, cabinet-type | W-R-101 | .05 |
| Refrigerators; electric, portable | AA-R-211a | .05 |
| Coolers, drinking water; electric | OO-C-566a | .05 |
| Coolers; water, ice-cooled (inverted-bottle type) | RR-C-571a | .05 |
| Cuspidors (spitoons) | RR-C-844 | .05 |
| Enamelware, porcelain, steel general requirements and test methods (kitchen, bakeshop, hospital, and sickroom utensils) | RR-E-516 | .05 |
| Tile, wall; enameled-iron | RR-T-421 | .05 |
| Trays; photographic, enameled | RR-T-646 | .05 |
| Plumbing-fixtures; (for) land use | WW-P-541a | .05 |
| Plumbing-fixtures; (for) land use. (Formed-metal plumbing-fixtures). | WW-P-542 | .05 |

PART 9 - OUTSIDE PUBLICATIONS

(List of papers which have appeared in the Journal of the American Ceramic Society, 2525 N. High Street, Columbus 2, Ohio.)

Ground coat enamels for cast iron. H.F.Staley. 1, 99(1918).

Preparation and application of enamels for cast iron. H.F. Staley. 1, 534(1918).

Control of luster of enamels. H.F.Staley. 1, 640(1918).

Enamels for cast iron. H.F.Staley. 1, 703(1918).

The cleaning of sheet steel and iron for enameling purposes. R.R.Danielson. 2, 883(1919).

Classification of enamels for sheet steel. R.R.Danielson. 3, 961(1920).

The cause and control of fish scaling of enamels for sheet iron and steel. R.R.Danielson and W.H.Souder. 4, 620(1921).

Some relations of composition to solubility of enamels in acids. H.F.Staley. 4, 703(1921).

The production of some white enamels for copper. R.R.Danielson and H.P.Reinecker. 4, 827(1921).

Wet-process enamels for cast iron. R.R.Danielson and H.P.Reinecker. 5, 647(1922).

The effect of some substitutes for tin oxide on the opacity of white enamels for sheet steel. R.R.Danielson and M.K.Frehafer. 6, 634(1923).

*The relations between composition and properties of enamels for sheet steel. R.R.Danielson and B.T.Sweely. 6, 1011(1923).

*Factors affecting the warpage of sheet iron and steel in enameling. R.R.Danielson, T.D.Hartshorn and W.N.Harrison. 7, 326(1924).

*The development of some jewelry enamels. H.G.Wolfram and W.N. Harrison. 7, 857(1924).

Effects of composition on the properties of sheet steel enamels. H.G.Wolfram and W.N.Harrison. 8, 735(1925).

*Effects of composition on the properties of ground coat enamels for sheet steel. W.N.Harrison and H.G.Wolfram. 10, 163(1927).

PART 9 - OUTSIDE PUBLICATIONS (Continued)

A preliminary study of ceramic colors and their use in vitreous enamels. W.N.Harrison and T.D.Hartshorn. 10, 747(1927).

The analysis of soda-lime glass, G.E.F.Lundell and H.B.Knowles. 10, 829(1927).

*Vitreous enamel slips and their control. W.N.Harrison. 10, 970 (1927).

The determination of iron in glass sand, G.E.F.Lundell and H.B. Knowles. 11, 119(1928).

*Progress report on cast iron for enameling purposes, W.N. Harrison, C.M.Saeger, Jr., and A.I.Krynitsky. 11, 595(1928).

*A test for the adhesiveness of vitreous enamels to metal. W.N. Harrison and G.T.Thaler. 11, 803(1928).

*Blistering phenomena in the enameling of cast iron. A.I. Krynitsky and W.N.Harrison. 13, 16(1930). (condensed report).

Dimensional changes caused in glass by heating cycles. A.Q.Tool, D.B.Lloyd, and G.E.Merritt. 13, 632(1930).

On the direct determination of soda in soda-lime glasses by precipitation as uranyl zinc sodium acetate, Francis W. Glaze, 14, 450(1931).

A compilation of phase-rule diagrams of interest to the ceramist and silicate technologist, F.P.Hall and Herbert Insley. 16, 463 (1933).

Strength and Young's modulus of some ground-coat enamels for sheet iron. W.N.Harrison, S.M.Shelton and W.H.Wadleigh. 18, 100(1935).

The analysis of feldspar. H.B.Knowles and J.C.Redmond. 18, 106 (1935).

Optical specifications of vitreous enamels. D.B.Judd, W.N. Harrison and B.J.Sweo. 21, 16(1938).

A supplement to "A compilation of phase-rule diagrams of interest to the ceramist and silicate technologist." F.P.Hall and Herbert Insley. 21, 113-164(1938).

Use of liquid surfaces as standards of specular gloss. D.G.Moore and R.S.Hunter. 24, 167(1941).

PART 9 - OUTSIDE PUBLICATIONS (Continued)

*Tests for hot water resistance of tank enamels, D.G.Moore and W.N.Harrison. 30, 220(1947).

*Mechanism of thermal shock failure in enamelware; an oven test method. J.C.Richmond and W.N.Harrison, 30, 227(1947).

A compilation of phase diagrams for the ceramist and silicate technologist. H. Insley and F.P.Hall. Monograph by Am. Ceramic Soc. In Press.

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(Publications appearing in the Proceedings of the Porcelain Enamel Institute Forum. Published by the Porcelain Enamel Institute, 1010 Vermont Avenue, NW, Washington 5, D.C.)

Symposium on testing of enamels. W.N.Harrison, First Forum, 38-46(1937).

Tentative tests for abrasion resistance. W.N.Harrison. Third Forum, 32-37(1938).

Chipping resistance of enamels. Paul L. Smith. Third Forum. 37-47(1938).

Measuring the chipping resistance of enamels. Paul L. Smith. Fourth Forum, 155-62(1939).

Work of the committee on standardization of tests for products. W.N.Harrison, Fourth Forum, 178-83(1939).

Development of two tentative standard tests. Paul L. Smith. Fifth Forum, 130-33(1940).

Report on warpage test. Wm. W. Coffeen. Sixth Forum. 40-48(1941).

Research tests and test methods. D.G.Moore. Eighth Forum, 49-60 (1946).

Progress of Porcelain Enamel Institute Research Fellowship at the National Bureau of Standards. A.C.Francisco. Eighth Forum, 61-62 (1946).

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(Papers appearing in various scientific and technical journals other than the Journal of the American Ceramic Society or Proceedings of the Porcelain Enamel Institute Forum.)

Notes on graphitization of white cast iron upon annealing. P.D. Merica and L.J.Gurevich. Trans. Am. Inst. Mining Met. Engr. (29 W. 39th St., New York 18, N.Y.) 62, 509(1919); Bul. Am. Inst. Met. Engr., 151, 1063(1919).

PART 9 - OUTSIDE PUBLICATIONS (Continued)

Gases in metals: I. The determination of combined nitrogen in iron and steel and the change in the form of nitrogen by heat treatment. L. Jordan and F.E.Swindells. Che. Met. Eng. (330 W. 42nd St., New York 18, N.Y.) 27, 1135(1922).

Oxygen content of coke and charcoal cast iron. L.Jordan, J.R. Eckman, and W.E.Jominy. Trans. Am. Foundrymen's Assn. (222 W. Adams Street, Chicago 6, Ill.) XXXIII, 431(1925).

Determination of oxygen and hydrogen in metals by fusion in vacuum. L.Jordan and J.R.Eckman, Ind. Eng. Chem.(1155 16th St., Washington 6, D.C.) 18, 279(1926). Met. Ind. (The Louis Cassier Co. Ltd., Dorset House, Stamford St., London, S.E.I.) 28, 387 (1926).

Blistering tendency of some cast irons when enameled. A.I. Krynitsky and W.N.Harrison. Trans. Am. Foundrymen's Assn. XXXVIII, 332(1930).

A practical method for studying the running quality of a metal cast in foundry molds. C.M.Saeger, Jr., and A.I.Krynitsky. Trans. Am. Foundrymen's Assn., XXXIX, 513(1931); Met. Ind. (London) 40, 171(1932).

Oxygen, hydrogen and nitrogen as constituents in metals. H.C. Vacher. J. Chem. Education (500 Fifth Ave., New York 18, N.Y.) 9, 47(1932).

Chemical analysis of glass. G.E.F.Lundell, Ind. Eng. Chem. 25, 853(1933).

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