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NATIONAL BUREAU OF STANDARDS
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Letter
Circular
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LC546

G A S E S

Publications by the Staff of the National Bureau of Standards.

Contents

Under each of the above classifications, the papers are grouped in the following order: Research Papers, Scientific Papers, Technologic Papers, Circulars, Miscellaneous Publications, Publications in Other Journals.

GENERAL INFORMATION

This Letter Circular is a selected list of papers relating to gases. Some of these have been published in the regular series of publications of the Bureau and others in various scientific and technical journals.

Unless specifically stated, the papers herein listed are not obtainable from the National Bureau of Standards. Those marked "OP" are out of print, but, in general, may be consulted at the libraries in large cities.

Where the price of a publication is given, it 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 foreign countries that extend the franking privilege. When remitting for delivery to other countries, one-third of the total cost of 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. (Please do not send stamps.)

Serial letters are used to designate publications of the National Bureau of Standards.

RP = "Research Paper." 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 BS), the latter being the title of this periodical since July 1934 (volume 13, number 1).

S = "Scientific Paper" of the National Bureau of Standards. This series was superseded by the "Journal of Research" in 1928.

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. Papers BS). This series has also been superseded by the Journal of Research.

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

M = "Miscellaneous Publication" of the National Bureau of Standards.

For papers in other scientific or technical journals, the name of the journal is given in abbreviated form, with address in parentheses, and with the volume number, page, and year of publication, in the order named. Where indicated, reprints of the published articles are available from the National Bureau of Standards. Otherwise, the journals may be obtained from the publisher or consulted in libraries.

I. CHEMICAL AND PHYSICAL PROPERTIES OF GASES
(Apparatus, Methods, Measurement and Theoretical Considerations)

For calorimetry and subjects dealing with utilization of fuel gases, see "Utilization of Fuel Gases." See also "Gas Analysis" and "Permeability."

Title	Series	Price
Research Papers		
Heat of formation of sulphur dioxide. J.R.Eckman and F.D.Rossini. BS J. Research 3, 597 (1929).	RP111	OP
Heats of combustion of methane and carbon monoxide. F.D.Rossini. BS J. Research 6, 37 (1931).....	RP260	OP
Heat of formation of water and heats of combustion of methane and carbon monoxide: A correction. F.D.Rossini. BS J. Research 7, 329 (1931).....	RP343	OP
Calorimetric method for determining intrinsic energy of gas as a function of pressure. E.W.Washburn. BS J. Research 9, 521 (1932)....	RP487	5¢
Heat of formation of hydrogen chloride and some related thermodynamic data. F.D.Rossini. BS J. Research 9, 679 (1932)	RP499	5¢
Calorimetric determination of intrinsic energy of gases as a function of pressure. F.D.Rossini. BS J. Research 9, 733 (1932).....	RP503	5¢
Pressure of saturated water vapor in range 100° to 374° C. N.S.Osborne, H.F.Stimson, E.F.Fiock, and D.C.Ginnings. BS J. Research 10, 155 (1933) ..	RP523	10¢
The vapor pressure of liquid and solid carbon dioxide. C.H.Meyers and M.S.Van Dusen. BS J. Research 10, 381 (1933).....	RP538	5¢
Formula for specific volumes of saturated vapors. C.H.Meyers. BS J. Research 11, 691 (1933).....	RP616	5¢
A critical test for the purity of gases. Martin Shepherd. BS J. Research 12, 184 (1934).....	RP643	5¢
Calorimetric determination of the heats of combustion of ethane, propane, normal butane, and normal pentane. F.D.Rossini. BS J. Research 12, 735 (1934).....	RP686	OP

Title	Series	Price
A formula and tables for the pressure of saturated water vapor in the range 0 to 374° C. N.S. Osborne and C. H. Meyers. J. Research NBS 13, 1 (1934).	RP691	5¢
Heats of combustion and of formation of the normal paraffin hydrocarbons in the gaseous state, and the energies of their atomic linkages. F. D. Rossini. J. Research NBS 13, 21 (1934)..	RP692	0P
Fractionation of the isotopes of hydrogen and of oxygen in a commercial electrolyzer. E. W. Washburn, E. R. Smith, and F. A. Smith. J. Research NBS 13, 599 (1934).....	RP729	0P
Fractionation of the isotopes of oxygen in a commercial electrolyzer - a correction. E. R. Smith and M. Wojciechowski. J. Research NBS 15, 187 (1935)	RP820	5¢
Heat of combustion of isobutane. F.D.Rossini. J. Research NBS 15, 357 (1935)	RP833	5¢
The difference in vapor pressures of ortho- and paradeuterium. F.G.Brickwedde, R.B.Scott, and H.S.Taylor. J. Research NBS 15, 463 (1935)	RP841	5¢
Empirical relation between the atomic dimensions and the melting and sublimation points of the noble gases, halogens, and elements of the sulphur group. D. H. Brauns. J. Research NBS 17, 337 (1936).....	RP915	5¢
Difference in atomic weight of oxygen from air and from water. E. R. Smith and H. Matheson. J. Research NBS 17, 625 (1936)	RP932	5¢
Heat of hydrogenation of ethylene. F.D.Rossini. J. Research NBS 17, 629 (1936)	RP933	5¢
Calorimetric determination of the thermodynamic properties of saturated water in both the liquid and gaseous states from 100 to 374° C. N.S.Osborne, H.F.Stimson, and D.C.Ginnings. J. Research NBS 18, 389 (1937)	RP983	10¢
Molecular volumes and expansivities of liquid normal hydrogen and parahydrogen. R.B.Scott and F.G.Brickwedde. J. Research NBS 19, 237 (1937)	RP1023	5¢

Title	Series	Price
Calorimetric determination of the heats of combustion of ethylene and propylene. F.D.Rossini and J.W.Knowlton. J. Research NBS 19, 249 (1937)	RP1024	5¢
Heats of combustion and of formation of the normal olefin (alkene-1) hydrocarbons in the gaseous state. F.D.Rossini and J.W.Knowlton. J. Research NBS 19, 339 (1937)	RP1028	5¢
Method and apparatus for the rapid conversion of deuterium oxide into deuterium. J.W.Knowlton and F.D.Rossini. J. Research NBS 19, 605 (1937)	RP1050	5¢
Heat and free energy of formation of carbon dioxide and of the transition between graphite and diamond. F.D.Rossini and R.S.Jessup. J.Research NBS 21, 491 (1938)	RP1141	5¢
Preparation of oxygen of high purity. Martin Shepherd, E. R. Weaver, and S. F. Pickering. J. Research NBS 22, 301 (1939)	RP1182	5¢
Heat and free energy of formation of water and carbon monoxide. Frederick D. Rossini. J. Research NBS 22, 407 (1939)	RP1192	5¢
Distribution of ozone in the stratosphere. W.W.Coblentz and R.Stair. J.Research NBS 22, 573 (1939)	RP1207	5¢
Thermal properties of saturated water and steam. Nathan S. Osborne, Harold F. Stimson and Defoe C. Ginnings. J. Research NBS 23, 261(1939)	RP1229	5¢
Heat and free energy of formation of deuterium oxide. Frederick D. Rossini, John W. Knowlton, and Herrick L. Johnston. J.Research NBS 24, 369 (1940)	RP1287	5¢
Effect of oxygen and moisture on the stability of leather at elevated temperatures. Joseph R. Kanagy. J. Research NBS 25, 149 (1940)	RP1319	5¢
Distribution of ozone in the stratosphere: Measurements of 1939 and 1940. W.W.Coblentz and R.Stair. J. Research 26, 161 (1941)	RP1367	5¢

Title	Series	Price
Hazard of mercury vapor in scientific laboratories. Martin Shepherd and Shuford Schuhmann, and Robert H. Flinn, J. Walter Hough, and Paul A. Neal. J. Research NBS 26, 357 (1941)	RP1383	10¢
Slopes of pv isotherms of He, Ne, A, H_2, N_2, and O_2 at 0° C. Carl S. Cragoe. J. Research NBS 26, 495 (1941)	RP1393	10¢
Free energies and equilibria of isomerization of the butanes, pentanes, hexanes, and heptanes. Frederick D. Rossini, Edward J. R. Prosen, and Kenneth S. Pitzer. J. Research NBS 27, 529 (1941)	RP1440	5¢
An equation for the isotherms of pure substances at their critical temperatures. Cyril H. Meyers. J. Research NBS 29, 157 (1942)	RP1493	10¢
Surface available to nitrogen on bone black and other carbonaceous adsorbents. Victor R. Deitz and Leland F. Gleysteen. J. Research NBS 29, 191 (1942)	RP1496	10¢
Heat of formation of carbon dioxide and of the transition of graphite into diamond. Edward J. Prosen, Ralph S. Jessup, and Frederick D. Rossini. J. Research NBS 33, 447 (1944)	RP1620	5¢
Heats of formation and combustion of 1,3-butadiene and styrene. Edward J. Prosen and Frederick D. Rossini. J. Research NBS 34, 59 (1945)	RP1628	5¢
Heats of combustion of benzene, toluene, ethylbenzene, o-xylene, m-xylene, p-xylene, n-propylbenzene, and styrene. Edward J. Prosen, Roger Gilmont, and Frederick D. Rossini. J. Research NBS 34, 65 (1945).	RP1629	5¢
Heats, free energies, and equilibrium constants of some reactions involving O_2, H_2, H_2O, C, CO, CO_2, and CH_4. Donald D. Wagman, John E. Kilpatrick, William J. Taylor, Kenneth S. Pitzer, and Frederick D. Rossini. J. Research NBS 34, 143 (1945).	RP1634	10¢

Scientific Papers

Title	Series	Price
On the establishment of the thermodynamic scale of temperature by means of the constant-pressure gas thermometer. E. Buckingham. Bul. BS 3, 237 (1907)	S57	OP
The atomic weight of hydrogen. W. A. Noyes. Bul. BS 4, 179 (1907)	S77	OP
The atomic weight of chlorine. W. A. Noyes and H.C.P. Weber. Bul. BS 4, 345 (1907)	S81	OP
The theory of the Hampson liquefier. E. Buckingham. Bul. BS 6, 125 (1909)	S123	OP
On the definition of the ideal gas. E. Buckingham. Bul. BS 6, 409 (1909)	S136	OP
The latent heat of vaporization of ammonia. N.S.Osborne and M.S.Van Dusen. Bul. BS 14, 439 (1918)	S315	10¢
Measurements on the index of refraction of air for wave lengths from 2218A to 9000 A. W.F. Meggers and C.G.Peters. Bul. BS 14, 697 (1919)	S327	10¢
Efflux of gases through small orifices. Edgar Buckingham and J. D. Edwards. Sci. Pap. BS 15, 573 (1920)	S359	OP
Vapor pressure of ammonia. C.S.Cragoe, C.H. Meyer, and C.S.Taylor. Sci.Pap. BS 16, 1 (1920)	S369	OP
Composition, purification, and certain constants of ammonia. E.C.McKelvy and C.S.Taylor. Sci.Pap. 18, 655 (1923)	S465	OP
Specific volume of saturated ammonia vapor. C.S.Cragoe, E.C.McKelvy and G.F.O'Connor. Sci. Pap. 18, 707 (1923)	S467	OP
Specific heat of superheated ammonia vapor. N.S.Osborne, H.F.Stimson, T.S.Sligh, Jr. and C.S.Cragoe. Sci. Pap. 20. 65 (1924) ...	S501	OP
A flow calorimeter for specific heats of gases. N.S.Osborne, H.F.Stimson, and T.S.Sligh, Jr. Sci.Pap. 20, 119 (1924)	S503	OP
A review of the literature relating to the normal densities of various gases. Marion Smith Blanchard and S.F.Pickering. Sci. Pap. 21, 141 (1925)	S529	OP

Title	Series	Price
A review of the literature relating to the critical constants of various gases. S.F.Pickering. Sci. Pap. 21, 597 (1926)	S541	OP
Technologic Papers		
A specific gravity balance for gases. J.D.Edwards Tech. Pap. BS T89 (1917)	T89	OP
Effusion method of determining gas density. J.D.Edwards. Tech. Pap. BS T94 (1917)	T94	OP
Circulars		
Bibliography of scientific literature relating to helium. Cir. BS C81 (1919)	C81	OP
Relations between the temperatures, pressures and densities of various gases. Cir. BS C279 (1926)	C279	OP
Miscellaneous Publications		
Compressibilities of gases (1925)	M71	OP

Publications in Other Journals

(The following are not Government publications and cannot be obtained from the Superintendent of Documents)

Determination of gas density. J.D.Edwards. J.Ind.Eng.Chem. (1155 16th St., Washington 6,D.C.) 9, 790 (1917).

Ferrosilicon process for the generation of hydrogen. E.R. Weaver. Report No. 40. Fourth annual report of the National Advisory Committee for Aeronautics, 1918. (Available from National Bureau of Standards.)

Preparation and testing of hydrogen of high purity. J.D. Edwards. J. Ind. Eng. Chem. 11, 961 (1919).

Inflammability of jets of hydrogen and inert gas. P.G.Ledig. J. Ind. Eng. Chem. 12, 1098 (1920).

An airship slide rule. E. R. Weaver and S.F.Pickering. Report No. 160. Ninth annual report of National Advisory Committee for Aeronautics. (1923).

Production of hydrogen by the thermal decomposition of oil. E. R. Weaver. Chem. Met. Eng. 28, 764, 939, 1072 (1923).

Description of new type of gas density balance. S.F.Pickering. Oil and Gas J. 28, Dec. 26, 1929.

The composition of the atmosphere at approximately 21.5 kilometers. Martin Shepherd. The National Geog. Soc.-U.S.Army Air Corps Stratosphere Flight of 1935 in the Balloon "Explorer II." (Natl. Geo. Soc., Washington, D.C.) Stratosphere Series No. 2.

II. GAS ANALYSIS

Research Papers

Title	Series	Price
A study of hydrogen-antimony-tin method for determination of oxygen in cast irons. Bengt Kjerman and Louis Jordan. BS J. Research 1, 701 (1928)	RP25	OP
The accurate determination of the gasoline content of natural gas and the analytical separation of natural gases by isothermal fractional distillation. Martin Shepherd. BS J. Research 2, 1145 (1929).	RP75	10¢
A simple control stopcock for gas analysis apparatus. Martin Shepherd. BS J. Research 4, 23 (1930)	RP130	OP
A gas analysis pipette for difficult absorptions. Martin Shepherd. BS J. Research 4, 747 (1930)	RP177	OP
An improved apparatus and method for the analysis of gas mixtures by combustion and absorption. Martin Shepherd. BS J. Research 6, 121 (1931)	RP266	OP
Determination of oxygen and nitrogen in irons and steels by vacuum fusion methods. H.C.Vacher and L. Jordan. BS J. Research 7, 375 (1931)	RP346	10¢
Gases obtained from commercial feldspars heated in vacuo. G. R. Shelton and H.H. Holscher. BS J. Research 8, 347 (1932)	RP420	OP
Nitrogen content of some standard-sample steels. J.G.Thompson and E.H.Hamilton. BS J. Research 9, 593 (1932)	RP494	5¢
Critical study of the determination of ethane by combustion over platinum in the presence of excess oxygen. Martin Shepherd and Joseph R. Branham. BS J. Research 11, 783 (1933).	RP625	5¢

Title	Series	Price
Errors in gas analysis arising from loss of gas by solution in rubber connections and stopcock lubricant. J. R. Branham. BS J. Research 12, 353 (1934)	RP661	CP
Significant vapor pressure considerations of the Van Slyke manometric method of gas analysis. Martin Shepherd. BS J. Research 12, 551 (1934)	RP680	5¢
Critical study of the determination of ethane by explosion with oxygen or air. J.R.Branham and Martin Shepherd. J. Research NBS 13, 377 (1934)	RP715	5¢
Saturation by water in gas analysis compensators. J.R.Branham. J. Research NBS 18, 59 (1937)	RP962	5¢
Cooperative study of methods for the determination of oxygen in steel. J.G.Thompson, H.C.Vacher and H.A.Bright. J. Research NBS 18, 259 (1937)	RP976	10¢
Gases in some optical and other glasses. C.Hahner, G.G.Voigt and A.N.Finn. J.Research NBS 19, 95 (1937)	RP1014	5¢
Preparation and application of chromous solutions for the absorption of oxygen in volumetric gas analysis. J.R.Branham. J.Research NBS 21, 45 (1938)	RP1112	5¢
Displacement of nitrogen from and its solution in certain reagents during volumetric gas analysis. J.R.Branham and Max Sucher. J. Research NBS 21, 63 (1938)	RP1113	5¢
Hydrogen-reduction method for the determination of oxygen in steel. J.G.Thompson and V.C.F. Holm. J. Research NBS 21, 79 (1938)	RP1114	5¢
Determination of oxygen in alloy steels. J.G. Thompson and V.C.F.Holm. J. Research NBS 21, 87 (1938)	RP1115	10¢
Gasometric method and apparatus for the analysis of mixtures of ethylene oxide and carbon dioxide. J.R.Branham and Martin Shepherd. J. Research NBS 22, 171 (1939)	RP1175	10¢

Title	Series	Price
Bubbler tip of Pyrex glass for difficult absorptions. Joseph R. Branham and Edward O. Sperling. J. Research NBS 22, 701 (1939)	RP1214	5¢
Analytical separation and purification of gases by fractional distillation and rectification at low temperatures. Martin Shepherd. J. Research NBS 26, 227 (1941)	RP1372	10¢
Determination of hydrogen in ferrous materials by vacuum extraction at 800° C and by vacuum fusion. Vernon C. F. Holm and John J. Thomson. J. Research NBS 26, 245 (1941)	RP1373	5¢
A manometric gas analysis apparatus. Martin Shepherd and E. O. Sperling. J. Research NBS 26, 341 (1941)	RP1380	5¢
An apparatus for the absorption or gravimetric determination of constituents of a gas mixture. Martin Shepherd and Harry V. Bailey. J. Research NBS 26, 347 (1941)	RP1381	OP
Modifications of apparatus for volumetric gas analysis. Martin Shepherd. J. Research NBS 26, 351 (1941)	RP1382	5¢
Critical study of the determination of carbon monoxide by combustion over platinum in the presence of excess oxygen. Joseph R. Branham, Martin Shepherd and Shuford Schuhmann. J. Research NBS 26, 571 (1941)	RP1396	5¢
Separation of hydrocarbons by azeotropic distillation. Beveridge J. Mair, Augustus R. Glasgow, Jr., and Frederick D. Rossini. J. Research NBS 27, 39 (1941)	RP1402	OP
Note on the macroanalysis of carbon and hydrogen by combustion. Donald D. Wagman and Frederick D. Rossini. J. Research NBS 32, 95 (1944)	RP1577	5¢
Revised results obtained with certain dehydrating agents used for drying gases. John H. Bower. J. Research NBS 33, 199 (1944)	RP1603	5¢

Scientific Papers

Title	Series	Price
Colorimetric determination of acetylene and its application to the determination of water. E. R. Weaver. Bul. BS 13, 27 (1916)	S267	OP
Gas interferometer calibration. J.D.Edwards. Bul. BS 14, 473 (1918)	S316	5¢
New forms of instruments for showing the presence and amount of combustible gas in the air. E.R.Weaver and E.E.Weibel. Sci.Pap. BS 15, 47 (1919)	S334	OP
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 L.Adler. Sci.Pap.BS 15, 353 (1919)	S350	OP
Determination of sulphur trioxide in presence of sulphur dioxide, together with some analyses of commercial liquid sulphur dioxide. J.R. Eckman. Sci.Pap. BS 22, 277 (1927)	S554	5¢
A weight burette for the micromeasurement of liquid volumes. Martin Shepherd. Sci.Pap. BS 22, 287 (1927)	S555	5¢
A burette for the accurate measurement of gas volumes without gas connection to a compensator. E. R. Weaver and Martin Shepherd. Sci. Pap. BS 22, 375 (1927)	S559	OP

Technologic Papers

Determination of sulphur in illuminating gas. R.S.McBride and E.R.Weaver. Tech. Pap. BS T20 (1913)	T20	OP
The determination of ammonia in illuminating gas. J.D.Edwards. Tech. Pap. BS T34 (1914)	T34	OP
Lead acetate test for hydrogen sulphide in gas. J.D.Edwards. Tech. Pap. BS T41 (1914)	T41	OP
A study of the Goutal method for determining carbon monoxide and carbon dioxide in steels. J.R.Cain and E.Pettijohn. Tech.Pap. BS T126 (1919)	T126	OP

Title	Series	Price
Application of the interferometer to gas analysis. J.D.Edwards. Tech. Pap. BS T131 (1919)	T131	OP
Detector for water vapor in closed pipes. E.R.Weaver and P.G.Ledig. Tech. Pap. BS 17, 637 (1923)	T242	OP
Thermal-conductivity method for the analysis of gases. P.E.Palmer and E.R.Weaver. Tech.Pap. BS 18, 35 (1924)	T249	OP

Circulars

Glass Stopcocks. Cir.NBS C430 (1941)	C430	10¢

Publications in Other Journals

(The following are not Government publications and can not be obtained from the Superintendent of Documents.)

A qualitative test for water by the use of the acetylene-cuprous chloride reaction. E.R.Weaver. J. Am. Chem. Soc. (Mills Bldg., Washington, D.C.) 36 (2) 2462 (1914).

Gas washing apparatus with inclosed filter. E.R.Weaver and J.D.Edwards. J.Ind.Eng.Chem., 1155 16th St., Washington 6. D.C.) 7, 534 (1915).

Testing of balloon gas. J.D.Edwards. Report No. 41. Fourth Annual Report of Nat'l. Advisory Comm. for Aeronautics. 1918.

A weight buret for gas analysis. E.R.Weaver and P.G.Ledig. J. Am. Chem. Soc. 42, 1177 (1920).

New forms of combustion apparatus for use in gas analysis. E.R.Weaver and P.G.Ledig. J.Ind.Eng.Chem. 12, 368 (1920).

Gas purity recorder for electrolytic oxygen and hydrogen. P.E.Palmer and C.P.Larrabee. Bulletin of Compressed Gas Manufacturers' Association (11 W. 42nd St., New York, N.Y.) (1921).

Absorption of carbon dioxide and ammonia from gas bubbles. P.G.Ledig. Ind. and Eng. Chem. 16, 1231 (1924).

Method for studying the rapid absorption of gases by liquids. P.G.Ledig and E.R.Weaver. J.Am.Chem.Soc. 46, 650 (1924).

An adaptation of the thermal conductivity method to the analysis of respiratory gases. P.G.Ledig and R.S.Lyman. J.Clinical Investigation 4, 495 (1927).

Rubber stopcock lubricants for high vacuum and other uses. Martin Shepherd and P.G.Ledig. Ind.Eng.Chem. 19, 1059 (1927).

An automatic sample collecting vacuum pump. E.R.Weaver and Martin Shepherd. Am.Chem.Soc. 50, 1829 (1928).

Iodine-pentoxide method for analyzing products of combustion for small quantities of carbon monoxide. Gas Chemists Handbook (American Gas Association, 420 Lexington Ave., New York, N. Y.) 3d Ed. p. 289 (1929).

Application of the thermal-conductivity method of gas analysis to the study of gas appliances. Gas Chemists Handbook 3d Ed. p. 297 (1929).

Common errors of gas analysis and their remedies. Martin Shepherd. Am. Gas J. (53 Park Pl. New York, N. Y.) 134, 49 and 67 (1931).

Calculating gas heating value from analysis. J.R.Branham. Am.Gas J. 135, 42 (1931).

Device for removing "frozen" plugs from stopcocks. Harry V. Bailey. Ind.Eng.Chem. Anal. Ed. 4, 324 (1932).

III. UTILIZATION OF FUEL GASES -

GAS APPLIANCES - FLAME STUDIES

Research Papers

Title	Series	Price
Bunsen flames of unusual structure. F.A.Smith and S.F.Pickering. BS J. Research 3, 65 (1929)	RP84	OP
A method for determining the most favorable design of gas burners. BS J. Research 8, 669 (1932). J. H. Eiseman, E.R. Weaver, and F.A.Smith	RP446	OP
The Thomas recording gas calorimeter. R.S.Jessup. BS J. Research 10, 99 (1933)	RP519	OP
The effect of altitude on limits of safe operation of gas appliances. J.H.Eiseman, F.A.Smith and C.J.Merritt. BS J. Research 10, 619 (1933)...	RP553	5¢
Measurement of flame velocity by a modified burner method. Francis A. Smith and S.F.Pickering. J. Research NBS 17, 7 (1936)	RP900	5¢
Effect of the depth of drilled ports on the limits of operation of domestic gas burners. John H. Eiseman and Francis A. Smith. J.Research NBS 18, 485 (1937)	RP988	10¢

Technologic Papers

Legal specifications for illuminating gas. E.B.Rosa and R.S.McBride. Tech. Pap. BS T14 (1913).....	T14	OP
Industrial gas calorimetry. C.U.Waidner and E.F. Mueller. Tech. Pap. BS T36 (1914) ..... (Superseded by Circular 417, Gas calorimeter tables.)	T36	OP
Gas mantle lighting conditions in ten large cities in the United States. R.S.McBride and C.E. Reinicker. Tech. Pap. BS T99 (1917)	T99	OP
Influence of quality of gas and other factors on the efficiency of gas mantle lamps. R.S.McBride, W.A.Dunkley, E.C.Crittenden, and A.H.Taylor. Tech. Pap. BS T110 (1918)	T110	15¢
Toluol recovery. R.S.McBride, C.E.Reinicker, and W.A.Dunkley. Tech.Pap. BS T117 (1918)	T117	10¢

Title	Series	Price
Tests of flexible gas tubing. R.S.McBride and V.M.Berry. Tech. Pap. BS T133 (1919)	T133	OP
Experimental retort tests of orient coal. R.S.McBride and I.V.Brumbaugh. Tech.Pap.BS T134 (1919)	T134	OP
Coking of Illinois coal in Koppers-type oven. R.S.McBride. Tech. Pap. BS T137 (1919)	T137	OP
Design of atmospheric gas burners. V.M.Berry, I.V.Brumbaugh, G.F.Moulton and G.B.Shawn. Tech. Pap. BS T193 (1921) (Superseded by Cir.394)	T193	OP
An investigation of oxyacetylene welding and cutting blowpipes with special reference to their economy in operation, safety, and design. R.S.Johnston. Tech. Pap. BS T200 (1921)	T200	OP
Carbon monoxide in the products of combustion from natural gas burners. I.V.Brumbaugh and G.V.Jones. Tech. Pap. BS 16, 431 (1921)..	T212	10¢
Relative usefulness of gases of different heating value and adjustments of burners for changes in heating value and specific gravity. V.M.Berry, I.V.Brumbaugh, J.H. Eiseman, G.F.Moulton, and G.B.Shawn. Tech. Pap. BS 17, 15 (1922)	T222	OP
Relation between the heating value of gas and its usefulness to the customer. E.R.Weaver. Tech. Pap. BS 19, 347 (1925)	T290	30¢
Causes of some accidents from gas appliances. I.V.Brumbaugh. Tech.Pap. BS 20, 47 (1925) ...	T303	OP
A method of testing gas appliances to determine their safety from producing carbon monoxide.. E.R.Weaver, J.H.Eiseman, and G.B.Shawn. Tech. Pap. BS 20, 125 (1925)	T304	OP

Title	Series	Price
Standard methods of gas testing. Cir. BS C48 2nd ed. (1916). (Being revised)	C48	OP
Measurements for the household. Cir. BS C55 1st ed. (1915). Contains chapter on domestic use of gas	C55	OP
Gas calorimeter tables. Cir. BS C65 1st ed. (1917) Superseded by C417 (1938)	C65	OP
Public utility service standards of quality and safety. Cir. BS C68 (1917)	C68	OP
Materials for the household. Cir. BS C70 1st ed. (1917). Contains chapter on domestic use of gas	C70	50¢
Safety for the household. Cir. BS C75, 1st ed. (1918). Contains chapter on domestic use of gas. Superseded by C397 (1932)	C75	OP
How to get better service with less natural gas in domestic gas appliances. Cir. BS C116 (1921)	C116	5¢
Design of gas burners for domestic use. Cir. BS C394 (1931)	C394	10¢
Safety for the household. Cir. BS C397 (1932). Contains a chapter on gas. (Revision in preparation)	C397	OP
Cautions regarding gas appliance attachments. Cir. BS, C404 (1934)	C404	5¢
Standards for gas service. Cir. NBS, C405 (1934) 5th ed.	C405	20¢
Gas calorimeter tables. Cir. NBS, C417 (1938) A condensed set of operating and computing instructions for use with a flow gas calorimeter and tables of correction data.	C417	10¢
Propane, butane, and related fuels. E.R. Weaver. Cir. NBS C420 (1938)	C420	5¢

Publications in Other Journals

(The following are not Government publications and cannot be obtained from the Superintendent of Documents.)

Substitution of heating value for candlepower as a standard for gas quality. R. S. McBride. International Gas Congress (1915).

Composition of gas in relation to the performance of the Bunsen burner. R. S. McBride. Am. Gas Light J. 103 (1915).

Some principles underlying gas and fuel supply. R. S. McBride. Gas Age (9 E. 38th St., New York City) 44, 529 (1919).

Effect on combustion and efficiency of replacing the grid of an open-top gas range with an attachable solid top. J. H. Eiseman. Am. Gas J. 128, 27 (1928). (53 Park Pl. New York City)

Comparing the resistance to corrosion of materials used as linings in gas-fired domestic ranges. Otto Lutherer and E. R. Weaver. Am. Gas J. 132, 41 (1930).

Should fuel gas be sold by the heat unit? E. R. Weaver. Gas Age-Record (9 E. 38th St., New York City) 66, 571 (1930). Available in mimeographed form from the National Bureau of Standards.

Potatoes and therms. E. R. Weaver. Paper presented before State Utility Commission Engineers, National Bureau of Standards June, 1932. Available from Bureau in mimeographed form.

Problems of stationary flames. Francis A. Smith. Chem. Rev. 21, 389 (1937).

The effect of diluting natural gas with inert gas. E.R. Weaver. Paper presented before State Utility Commission Engineers, National Bureau of Standards May, 1937. Available from Bureau in mimeographed form.

The odorization of natural gas. E. R. Weaver. Am. Gas J. 149, 15 (1938). Paper presented at meeting of State Public Utility Commission Engineers May, 1938. Available from Bureau in mimeographed form.

IV. MEASUREMENT OF GASES
(See also Gas Analysis)

Title	Series	Price
Research Papers		
An apparatus and method for determining compressibility of a gas and correction for "supercompressibility." H.S.Bean. BS J. Research 4, 645 (1930)	RP170	OP
Multiple manometer and piston gages for precision measurements. C.H.Meyers and R.S.Jessup. BS J. Research 6, 1061 (1931)	RP324	OP
Experiments on metering of large volumes of air. H.S.Bean, M.E.Benesh, and Edgar Buckingham. BS J. Research 7, 93 (1931)	RP335	15¢
Notes on orifice meter; Expansion factor for gases. E.Buckingham. BS J. Research 9, 61 (1932)	RP459	OP
Joliet reference gasmeter. H.S.Bean, M.E.Benesh and F.C.Vitting. J. Research NBS 17, 207 (1936)	RP908	10¢
Saturation of gases by laboratory wet test meters. Francis A. Smith and John H. Eiseman. J. Research NBS 23, 345 (1939)	RP1238	5¢
Improved instrument for measuring the air permeability of fabrics. Herbert F. Schiefer and Paul M. Boyland. J. Research NBS 28, 637 (1942)	RP1471	10¢
A flow manostat for various purposes, including the candy test. Max J. Proffitt. J. Research NBS 29, 142 (1942)	RP1492	10¢

Technologic Papers	Series	Price
A portable cubic-foot standard for gas. M.H.Stillman. Tech. Pap. BS T114 (1919).....	T114	CP
Notes on small flow meters for air, especially orifice meters. E.Buckingham. Tech.Pap.BS T183 (1920)	T183	CP
A hot-wire anemometer for measuring air flow through engine radiators. C.G.F.Zobel and L.B.Carroll. Tech. Pap. BS 19, 287 (1925)	T287	CP

Circulars

Gas measuring instruments. Cir. BS C309 (1926)	C309	CP

Miscellaneous Publications

Measurement of liquefied petroleum gas (a symposium). Report of the Thirtieth National Conference on Weights and Measures. PP.48-77 (1940)	M167	55¢
Tests of instruments for the determination, indication, or recording of the specific gravities of gases. F.A.Smith, J. H.Eiseman, and E.C.Creitz. NBS M177 (1945) (in press).....	M177	

V. PERMEABILITY

Research Papers

Passage of gas through walls of pyrometer protection tubes at high temperatures. V.F.Roeser. BS J. Research 7, 485 (1931)	RP354	CP
Permeability of synthetic film-forming materials to hydrogen. T.P.Sager. J.Research NBS 13, 879 (1934)	RP750	CP
Permeability of organic polysulphide resins to hydrogen. T.P.Sager. J. Research NBS 19, 181 (1937)	RP1020	5¢
Permeability of neoprene to gases. J. Research NBS 22, 71 (1939). T.P.Sager and Max Sucher...	RP1166	5¢
Permeability of elastic polymers to hydrogen. Theron P. Sager. J. Research NBS 25, 309 (1940)	RP1327	5¢

Scientific Papers	Series	Price
Permeability of rubber to gases. J.D.Edwards and S.F.Pickering. Sci.Pap. BS 16, 327 (1920)	S387	OP

Technologic Papers

Determination of permeability of balloon fabrics. J.D.Edwards. Tech. Pap. BS T113 (1918)	T113	OP

Publications in Other Journals

(The following are not Government publications and cannot be obtained from the Superintendent of Documents.)

Characteristic exposure tests of balloon fabrics. J.D.Edwards and I. L. Moore. Fifth Annual Report National Advisory Committee for Aeronautics (1919).

Testing of balloon fabrics. J.D.Edwards and I.L.Moore. Report No. 39, Fourth Annual Report National Advisory Committee for Aeronautics (1918).

Notes on cemented seams and rubber cements. J.D.Edwards and I.L.Moore. The Rubber Age and Tire News, 4, 422 (1919).

Significance of oxygen in balloon gas. J.D.Edwards and P.G.Ledig. Aviation (330 W. 42nd St., New York, N.Y.) Apr. 15, 1919, p. 325.

VI. MISCELLANEOUS

Title	Series	Price
Research Papers		
Removal of dissolved gases from liquids by vacuum sublimation. J.H.Hibben. BS J. Research 3, 97 (1929)	RP87	5¢
Method for determining uniformity of temperature in cryostats. Martin Shepherd. J.Research NBS 21, 831 (1938)	RP1158	5¢
Technologic Papers		
Effect of solar radiation upon balloons. J.D. Edwards and M.B.Long. Tech. Pap. BS T128 (1919)	T128	OP
Causes and prevention of the formation of non-condensible gases in ammonia absorption refrigeration machines. E.C.McKelvy and A. Isaacs. Tech. Pap. BS T180 (1920)	T180	OP

Other publications not listed deal with spectroscopy, atomic physics, etc.