



95

CERAMIC ABSTRACTS

1951

CHARLES S. PEARCE, *Editor*
MARY J. GIBB, *Assistant Editor*
THELMA J. CECIL, *Editorial Assistant*

Committee on Publications: KARL SCHWARTZWALDER, *Chairman:*
R. E. BIRCH, J. J. CANFIELD, AND C. H. HAHNER

Technical Advisers: L. G. FARBER, RALPH ROSE, AND BETTY T. OWEN

Compiled by
The American Ceramic Society
2525 North High Street
Columbus 2, Ohio

Organizing a research department for results. F. L. MATTHEWS. *Chem. Ind.*, 67 [3] 402-414, 432, 434 (1949).—JL discusses the objectives of a research department under product development, process development, application research, and product improvement, and its organization under groups, group leader, and service functions. E.D.M.

Production of fused silica. B. A. ROGERS, W. J. KAUFF, AND H. P. HOLMES. *Trans. Electrochem. Soc.*, 92, 115-26 (1947).—The present manufacture of silica products is reviewed, and production methods are outlined. The reactions between hot silica and hot carbon in electric furnaces are analyzed briefly. Under experimental work, the production of silica ingots weighing up to 40 lb. (18.1 kg.) in both graphite-resistor and electric arc furnaces is described. Data presented are sufficient for a rough estimate of the cost of production. 32 references, 3 figures. F.G.H.

Respiratory disease—an industrial hazard. A. T. DOW. *Glasgow Med. J.*, 30 [July] 235 (1949); abstracted in *Arch. Ind. Hyg. and Occupational Med.*, 1 [3] 360 (1950).—The present status of knowledge of the disorders caused by industrial dusts is reviewed. Silicosis is included. D.G.P.

Role of fluorosis in industrial and alimentary hygiene. R. TACTAT. *Semaine d'hop.* (Paris), 25 [Oct. 10] 3038 (1949); abstracted in *Arch. Ind. Hyg. and Occupational Med.*, 1 [3] 367 (1950).—Fluorosis due to fluorine compounds used in the manufacture of glass, enamel, and cement is included. D.G.P.

Safety program in a glasshouse refractories plant. R. R. SMITH. *Glass Ind.*, 31 [5] 255-56, 272 (1950).—The safety program of the Corning Glass Works is outlined and discussed in three main divisions: educational, medical, and technical. Posters, a monthly plant magazine, and a suggestion system with monetary awards constitute the educational phase of the program. An 8-room hospital, with personnel of 3, handles the medical requirements. The technical program is based on a monthly inspection and report system designed to eliminate hazards. Plant problems fall into 6 categories: dust, heat, heavy lifting, moving machinery, acid handling, and fire. Detailed methods of dealing with each type of hazard are given. As a result of this program, the average accident frequency for the last five years has been 11 disabling accidents per million man-hours worked. The 1948 frequency for the clay-products industry as a whole was 19.53. W.W.C.

Some ceramic ideas from Portland cement. V. D. FRÉCHETTE. *J. Can. Ceram. Soc.*, 19, 68-72 (1950).—A high degree of development in research and control methods has been reached in the Portland cement industry. Developments indicate lines of attack in research in other branches of ceramics. Examples include the quantitative use of phase diagrams in plant control, quantitative determination of glass content by heat of solution, and phase identification by polish-etch microscopy. G.M.H.

Technical education for the clayworker. M. S. WATKINSON. *Ceramics*, 2 [15] 138-40 (1950).—W. gives a brief outline of the institutions where technical education in ceramics can be obtained. A.B.S.

Universities and ceramic education. A. L. ROBERTS. *Ceramics*, 2 [15] 142-44 (1950).—In Great Britain the universities train technologists by (1) sound preliminary training in pure science and engineering and (2) systematic instruction in applying that science to specific industries. The University of Leeds may be the first in Great Britain to have a course leading to B.Sc. with honors in Ceramics. A.B.S.

SEPARATE PUBLICATIONS

Elements of Patent Law. FRED H. RHODES. Cornell University Press, Ithaca, N. Y., 1949. 190 pp. Price \$2.75. Reviewed in *Chem. Ind.*, 66 [6] 916 (1950). E.D.M.

Employment Outlook for Engineers. Prepared by HAROLD GOLDBSTEIN, ROBERT W. CAIN, CORA E. TAYLOR, CHESTER F. SCHUMMEL, ET AL. U. S. Dept. Labor Bur. Labor Statistics Bull., No. 968, 119 pp. (1950). Price 50¢ from Supt. of Documents, Govt. Printing Office, Washington 25, D. C.

General Treatise of the Technology of Silicates (Obshchii kurs tekhnologii silikatov): I and II. YU. M. BUTT AND M. A. MATVEEV. Published by Promstroizdat, Moscow, U.S.S.R., 1948. 352 pp. Price 12.80 rubles.—Part I covers the composition, characteristics, methods of beneficiation, and extrac-

properties, and application of binding materials and gives description of the most important types of slumps made from lag materials. B.Z.

Index of Nomograms. DUNCAN P. ADAMS. Techni Press, Massachusetts Institute of Technology, Cambridge John Wiley & Sons, Inc., New York, 1950. 174 pp. \$4.00. Reviewed in *Chem. Ind.*, 67 [1] 114 (1950).—Nomograms are indexed by key words and tabulated under (divis such as physics, chemistry, etc. E.D.M.

Kent's Mechanical Engineer's Handbook: Vol. II, Design Production. 12th ed. COLIN CARMICHAEL, editor. John V & Sons, Inc., New York 18, 1950. 1660 pp. Price \$3.50.—book contains sections on glass, refractories, electrical porcelain brick and tile, and abrasives. Other subjects of interest to amists, such as temperature-measuring instruments, are cussed. The data given on ceramic products is of a ger nature and consists chiefly of physical and chemical proper applications, etc. They are of interest chiefly to mechanic design engineers and not particularly to ceramists. R.I.

Occupational Specialties in Engineering: Vol. II, Definit Prepared for the Office of Naval Research by the Amer Society of Mechanical Engineers for the Engineers Joint Cou New York 18, 1950. 112 pp.—Definitions for ten activities for 19 engineering fields of specialization are given. The boo was prepared to define and delineate the terms used for field specialization in the Survey of Selected Engineering Personne

Patent Tactics and Law. 3rd ed. ROGER SHERMAN HC Ronald Press, New York, 1950. 332 pp. Price \$7.00. viewed in *Chem. Ind.*, 66 [6] 916 (1950).—H. attempts to quaint business executives, engineers, and inventors with eno of the fundamentals of patent law and procedure to enable th to understand and cooperate with their attorneys in pat matters. E.D.M.

Review of Literature on Dusts. J. J. FORBES, SARA J. DAY PORT, AND GENEVIEVE G. MORRIS. U. S. Bur. Mines B No. 473, 333 pp. (1950). Price 65¢ from Supt. of Document Govt. Printing Office, Washington 25, D. C.—The book contr a résumé of the physiological effects of breathing dust, type injurious dusts, silicosis, methods of preventing dust disea. methods of determining dusts in air, economic and legal aspe of dust diseases, and costs of compensation for silicosis. L.M.M.

PATENTS

Assembling slabs and kiln furniture in ceramic kilns. RE AMAND & CRE. Fr. 952,662, May 2, 1949 (Sept. 3, 1947).—A s assemblage of high resistance to flexural stresses between the po is obtained by using a mortise and tenon joint between the sl and the posts. S.F.C.

Producing a ceramic body having longitudinal passages. S LEX PRO CHENIEKOV A HUTNI VIREOU, NARODNI POON Brit. 631,819, Nov. 23, 1949 (June 23, 1945).—A ceramic h-exchanger is described. The body is hard porcelain or cordier to which mineralizers or plasticizers may be added; TiO₂ n also be added. B.C.R.A.

Additional abstracts

A Sect. VIII: Slip casting. Sect. X: Measurement of the plus working properties of clays.

CORRECTION

On the title page for *Ceramic Abstracts* published in the December 1950 issue, the Committee on Publications is listed incorrectly. The present Committee is as follows: Karl Schwartzwalder, Chairman; R. E. Birch, J. J. Canfield, and C. H. Hahner.

Reprints of the corrected title page have been made, and members who bind *Ceramic Abstracts* may obtain a new title page by writing to the American Ceramic Society.

the surface-active organic addition, is described, and flotation is especially discussed in regard to difficulties observed in practice. Starting from experience in the field of ore separation by flotation methods, the particular conditions for the flotation of carbonate and silicate minerals are described in detail, including calcite and the cement raw materials, gypsum, barite, phosphorite, and bauxite. In the chapter on the flotation of silicates, quartz-feldspar separation is emphasized, and the nature of the micas, vermiculite, and clay minerals is explained. The last group comprises the aluminum silicates, sillimanite, andalusite, and kyanite, with which extensive experience was not available in Europe before 1941, and other minerals such as spodumene, beryl, etc. Additional suggestions are given for mineral pigments (ochers, hematite, etc.). W.E.

Fuses for automatic welding. A. PRUKIN. *Shtitskiy Rezh-*
ky, 26 [2-3] 36-38 (1950).—A part of the glass factory in An-
tosimur Dul was converted for the manufacture of welding fuses
to aid automatic welding processes similar to those used in making
Liberty ships in the U. S. The fuses (alkaline-earth silicates)
contain 10 to 45% manganese and must be controlled to viscosi-
ties of 2 to 8 poises at 1500°C., expansions of 65 to 80 × 10⁻⁷,
and softening points of 600° to 860°C. N.J.K.

Measuring relative humidity—experiments with sintered
ceramic blocks. A. G. THOMSON. *Elec. Review* (London), 147
[3505] 640-41 (1950).—Sintered ceramic blocks 4 × 3 × 2 mm. are
being investigated by the British Scientific Instrument Research
Assoc. as hygrometers. The electrical resistance may well change
from 1000 MΩ to 1 MΩ when the relative humidity changes
from 10 to 95%, and the response is rapid. Development work
is in progress. W.A.

Milestones in research. ANON. *Am. Ceram. Soc. Bull.*, 30
[1] 1-4 (1951). 7 photos.

Patent law revision. HARRY GOLDSMITH. *Chem. Ind.*, 67
[3] 834-85, 923 (1950).—The first general revision and codifica-
tion of the patent laws since 1870, H. R. 9133, is discussed. The
proposed legislation would consolidate existing legislation and
provide for certain changes, such as provision for "use" patents
in a limited sense, write into statutory law the doctrine of con-
tributory infringement, set up an objective test or standard for
determining invention, permit publication of pending applica-
tions, allow changes by inventors under certain conditions, pro-
vide for so-called patents of addition, and protect intervening
rights where patents are reissued. E.D.M.

Progress in the technology of ceramics. FOLKE SANDFORD.
Chem.-Ing. Tech., 22, 163-68 (1950); abstracted in *Chem. Zentr.*,
121 II [5] 929 (1950).—The following topics are discussed: cor-
rect furnace operation; relation between color and admixture in
brick masses (formation of the system Al₂O₃-Fe₂O₃); additions
to improve the plasticity of lean clays and kaolins, e.g., by the
mixture CaO-Al₂(SO₄)₃; preparation of set gypsum by treatment
with salt solutions; acceleration of the melting of glazes by addi-
tions of salts, the mineral petalite being the best; and influence
of the humidity of the air on sifting (optimum 40 to 60%). M.H.A.

Report of the third International Conference of Experts on
Pneumoconiosis. ANON. *Bull. Int. Mining Mta.*, 1950, No.
24, pp. 19-27. —None of the current concepts of the ways in
which dust acts on the lungs is fully acceptable to the committee.
In general the larger sizes of fibrous dusts such as asbestos appear
to be more harmful, whereas in many other mineral dusts the
smaller sizes are more injurious. There is no conclusive evidence
on the effectiveness or otherwise of Al powder inhalation in sili-
cosis. An appendix outlines suggestions for an international
scheme for the classification of radiographs in some of the pneu-
moconioses. W.A.

Statistical consideration on the mixing of powdery materials.
SEIICHI MIYAGI. *J. Ceram. Assoc. Japan*, 38 [634] 417-20
(1950).—Mixtures of calcium carbonate and silica were analyzed,
and from the analytical data the completeness of mixing is dis-
cussed. K.Y.

Stream pollution: Its prevention and control. MELVIN NOON.
Chem. Ind., 67 [6] 893-96, 904 (1950).—Stream pollution, stream
pollution, and the dispersion of waste effluents are discussed.
The treatment of wastes is considered under the headings of
mechanical separation, hydraulic separation, chemical coagula-
tion, chemical and physical reactions, disinfection, and biological
treatments. What the law says. *Ibid.*, pp. 937-48. N. discusses the
legal liabilities. E.D.M.

Synthesis of sapphire: a new British industry. K. W. BROWN.
Instrument Practice, 3 [2] 88-94 (1950).—The furnace used and

the properties and uses of synthetic sapphire are briefly described.
Its melting point of 2150° makes it ideal for refractory supports
at high temperatures, especially as its tensile properties remain
unchanged. It has also been used for furnace inspection win-
dows, burner nozzles, atomizer orifices, and extrusion dies for
work at very high temperature. 3 diagrams, 8 photos. W.A.

SEPARATE PUBLICATIONS

Clayworker's Handbook. 3rd ed. ALFRED B. SEARLE.
Chas. Griffin & Co., Ltd., London, 1949. 392 pp., 41 illustra-
tions. Price \$6.95 from Mapleton House, Brooklyn, N. Y.—The
materials, operations, and machinery for clay working in general
are treated in a popular manner with many interesting and in-
structive examples. References to current literature are in-
cluded. All operations in the use of clay, mining, preparation,
mixing, forming, transportation, firing, packing, and testing, are
noted. One of the most detailed chapters covers the causes and
cure of about 90 defects found in finished clay products. The
chapter on tests, analysis, and control gives details of instruments
needed for control. The appendix contains references to 338
books published before 1925 and a list of 30 current journals. H.K.R.

Engineering Method. JOHN CHARLES LOUNSBURY FISK. Stan-
ford University Press, Stanford, Calif., 1950. 186 pp., 27 figures.
Price \$3.00.—"The Engineering Method," organized in this
special volume from material presented originally in "The Engi-
neering Profession," formulates for students the system of logic
and reasoning that is the mark of the practicing engineer. Non-
technical problems are solved by way of illustration, and the steps
of the method are enlarged. F. then discusses practical condi-
tions that control the use of the engineering method and solves
four problems. Inescapable uncertainties in engineering work
are studied in the final section, together with ways of coping with
them.

General Survey of Work by Dr. Ryschkewitsch Largely in
Field of Ceramics. Prepared by CAPTURED PERSONNEL AND
MATRIAL BRANCH, MILITARY INTELLIGENCE DIV., U. S. WAR
DEPARTMENT. *B.I.O.S. Misc. Rept.*, No. 107, 110 pp. H. M.
Stationary Office, London. Price 9s. PB 97,646, Office of Tech-
nical Services, Washington 25, D. C., price \$2.75.—The paper
is subdivided into five parts: (I) In a general survey, the exten-
sive work in electrochemistry and ceramics done by Rysch-
kewitsch is outlined. Of particular interest are the fundamental
studies in the field of oxide ceramics, which are described in his
book (*Ceram. Abstracts*, 1949, Oct., p. 233g), and the successful
evolution of a modern type of high-temperature gas- or liquid
fuel-fired furnace. The production of sintered (shrunken) alumina,
which was first started by Siemens (Werk Spandau) for heavy-
duty spark plugs, was, under the auspices of R., developed to full
industrial size by Degussa. The high importance of shrunken
alumina was also practically applied to hard tools, and many
contributions in this field were advanced by R. His further work
on high-refractive oxides included ZrO₂, BeO, MgO, etc. Meth-
ods and numerical data on the physical properties of the shrunken
oxides were systematically developed. The interesting problem
of the "fuel element" with the highest possible thermodynamic
efficiency was one of the first objectives of these studies of high-
resistance oxides. The rich field of hard alloys, especially of car-
bides and elementary boron, and the problem of mixed ceramics,
particularly for gas-turbine blades, were extensively studied.
(II) The yield strength of SiC with a ceramic binder for use as an
abrasive is dealt with. The body, on a clay-feldspar-quartz
basis, had the Seger formula 0.1 alkali, 0.2 Al₂O₃, 1.0 SiO₂. The
samples were pressed in steel molds, sintered, and examined by
ceramic methods. The maximum strength of the mixtures was
attained at sintering temperatures increasing with the addition
of SiC, as a consequence of the defective molecular contact of SiC
with the ceramic bond. The coated grains support the silicate
body with slight temporary deformation as long as their amount
is not too large. (III) This part, published in *Ber. deut. keram.*
Ges., 1942, 1944, and 1945, concerns the bending strengths of
pure shrunken oxide ceramics. These data and those in the follow-
ing part (IV) belong to the fundamental facts of modern oxide
ceramics and deserve a particularly careful study (for details see
R.'s book). (V) The chemical resistance of sintered oxides is
discussed, especially of crucibles for laboratory use made of
Al₂O₃, BeO, ZrO₂, ThO₂, and spinel. The results are expressed
in curves of "integral corrosion," at constant temperatures with
molten soda and NaOH. Under special conditions, the chemical
resistance of BeO can be considerably improved. W.E.

The
American
Ceramic
Society



February 15, 1993

I hereby certify that the attached copies of Ceramic Abstracts, Volume , 1951, are true and accurate copies, which are maintained in the normal course of business at the American Ceramic Society, 735 Ceramic Place, Westerville, Ohio 43081.

Christine Schnitzer

Christine Schnitzer
Product Manager
Ceramic Information Center

735 Ceramic Place
Westerville, Ohio 43081-8720
614-890-4700
TWX: 7101109409