

The
American
Ceramic
Society



PLAINTIFF'S EXHIBIT

WH-1076

February 15, 1993

I hereby certify that the attached copies of Ceramic Abstracts, Volume 16, 1987, 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 Schmitz
Product Manager
Ceramic Information Center

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

CERAMIC ABSTRACTS

Compiled by

The American Ceramic Society

ROSE C. PURDY, Editor

MARY J. RASCHLITS }
EMILY C. VAN SCHOUER } Assistants
DOROTHY J. TURNER }

Committee on Publications: J. D. SULLIVAN, Chairman, E. DE F. CURTIS, R. F. SHERWOOD,
W. W. WORSLEY, R. C. PURDY

Volume 16, 1937

Abstractors: J. B. Austin, A. A. Ayers, Rudolf Barz, A. C. Bevan, Devidas Bivas, L. T. Brownmiller, W. H. Bruckner, P. P. Budnikoff and E. Stefaniawsky, J. C. Chaston, W. M. Cohn, M. V. Condoide, Maurice Delaage, R. W. DeVilbiss, A. H. Emery, W. F. Figte, W. D. Foster, J. L. Gallup, J. D. Get, P. E. Gross, Max Hartenstein, P. G. Heck, R. A. Heindl, E. B. Hewitt, J. N. Hill, G. M. Hunt, J. F. Hyde, Herbert Insley, C. B. Jenni, B. Z. Kamich, S. E. Kinkulic, Srijit Konde, E. H. McClelland, F. P. Peters, G. M. Peterson, C. J. Phillips, J. C. Phillips, R. H. H. Pierce, Jr., Alexis Placut, Katherine Reed, H. K. Richardson, A. B. Searle, Stafford Seitchell, M. C. Shaw, G. R. Shelton, H. E. Simpson, A. P. Som, Erich Stenzel, H. H. Stephenson, A. G. Stern, S. H. Struss, L. E. Thies, E. J. Vachuska, F. E. Vaeerwyck, F. J. Zvasst.

Editorial Office: 2125 North High Street, Columbus, Ohio.
Publication Office: 20th and Northampton Streets, Easton, Pa.

Aluminum
Corros. Co.
determining
impurities
in detail. See
R.J.V.

in clays and
res. *Zeml.*
J. & E.S.
(Aluminum
Jour. 2.
); R.P. 582
re conversion
These were
oxide, Al_2O_3
value for the
0.0002.

R.A.H.
out. H. (1935); Chem.
acidizing to
a of SiO_2 as
nature of the
at SiO_2 per
reference. J.
& CHAMBERLAIN
[8] 229-233
residue after
HCl acid is
solubility of
parts present
also from
ion of hydro-
ly. Results
fairly good
red. all of the
The rate of
rise in grain

R.J.V.
KASHER, L.
No. 29, 716
187 (1935).
Side with sub-
comp. *Zeml.*
which contain
+ Se, and E
analysis were

M.H.
affecting the
Work. Ind.
late solution
ric anhydride
cial titanium
ion with cer
with ortho-
activity, 1/4
of good kidney
size titanium
red acid. I
ies or kidney
composition
hydride-water

have been plotted in a ternary diagram. These results show that the pigments of the best hiding power were prepared from solutions with a titanium dioxide concentration falling between 12 and 19% and ratios ranging from 1/1 to 1/0.65. Seeding opalescence occurs at different hydrogen-ion concentrations with different concentrations of substrates. Illustrated. F.O.H.

Viscosity and plasticity of disperse systems: VI. Effect of temperature and electrolytes on the plastic properties of kiesel. M. P. WOLANOWITZ and D. M. TOLSON. *Kolloid-Z.* 73 [1] 93-98 (1935); see *Chem. Abstr.* 16 [3] 101 (1937). VII. Plastic flow in an apparatus with cylinders displaceable lengthwise. D. M. TOLSON. *Kolloid-Z.* 73 [1] 98-101 (1935).—A method for determining the flow resistance and shearing modulus of high concentration mineral suspensions is described. The apparatus was designed particularly to eliminate surface gliding of the cylinders. Results agreed well with those obtained by the rotating cylinder method of Wolanowitch. At very small

velocities, Bingham's equation for plastic flow does not hold for high concentration mineral suspensions. For Parts I-V see *Chem. Abstr.* 15 [7] 222 (1934). F.P.P.

PATENTS

Alkali silicates. ARTHUR E. A. CORVELLOS (Hollis Kemick-Teknicka Fabrikker A.-S.). Swed. 80,000, April 4, 1934. *Chem. Abstr.* 29, 8000 (1935).—Steam is blown into an electrically heated bath of alkali silicate formed by the reaction of alkali chloride and SiO_2 . During the process the bath is kept covered by a layer of the unreacted charge of alkali chloride and SiO_2 , with or without another substance, e.g., lime, for the formation of double silicates.

Method of manufacture of precipitated zinc oxide. G. ARONOWITZ. Brit. 459,232, Jan. 20, 1937 (June 2, 1935).

Production of a calcium aluminate suitable for the manufacture of sodium aluminates by treatment with soda-lye. ARTHUR E. A. CORVELLOS and ALFRED CORVELLOS. Brit. 457,578, Dec. 16, 1936 (Aug. 30, 1934).

General

Animal silicosis. H. SCHMIDT. *Verhandl. Dtsch. Path. Ges.* pp. 203-71 (1934); *Chem. Abstr.* 29, 8160 (1935).

Causes of pneumoconiosis. PAUL DEBONNE. *Jour. Ind. Hyg. & Toxicol.* 18 [8] 534-36 (1935).—The various pneumoconioses and their causative agents are discussed. Silicosis and asbestosis are definite diseases; in anthracosis and various silicates, modifications of normal lung conditions are seen. Effects of carbon or carbonates, gypsum, and iron oxides are also discussed. Methods of estimating dust exposures of a workman include the taking of dust samples from the work place and interpreting the results during the man's total period of exposure. Errors made from estimating the composition of dust from samples which have settled upon rafters instead of using samples taken from the air are emphasized. Permissible dust concentrations need not exceed 50 million particles per cu. ft. for dust with very low quartz content or 3 million for pure quartz. In defense of the use of standards of dustiness, the experience in S. Africa where dust standards have been applied successfully for many years is cited. R.J.V.

Charles H. Brady. *Ann. Bull. Amer. Chem. Soc.* 16 [3] 73-74 (1937).

Chemical considerations on some pneumoconioses (anthracosis, silicosis): I. Nature of the problem. RICHARD FARR. *Congr. Chim. Ind., 14th Congress, Paris*, 8 pp. (1934); *Chem. Abstr.* 29, 5774 (1935).

Clinical aspects, diagnosis, and treatment of pneumoconiosis. W. FREDERICK CLARK. *Jour. Ind. Hyg. & Toxicol.* 18 [8] 537-48 (1935).—Pneumoconiosis is a disease resulting from the inhalation of inorganic dust. The two pneumoconioses which produce disability are silicosis and asbestosis. The pathology of silicosis is characterized by the presence of fibrotic nodules scattered through both lungs, and that of asbestosis is characterized by an interstitial fibrosis involving the lower half of both lungs. The symptoms of silicosis and asbestosis are similar, the most important being dyspnea. The most common complication is pulmonary tuberculosis which, in

silicosis, is a frequent cause of death. The diagnosis of both silicosis and asbestosis is made largely by a correlation of history and symptoms with the X-ray examination. The treatment of pneumoconiosis is preventive and symptomatic. The course of silicosis and of asbestosis is slow but eventually leads to incapacity due either to the disease itself or to a complication, frequently chronic pulmonary tuberculosis. The number of workers exposed to harmful mineral dusts in mining and in industry in the U.S. has been estimated as 300,000. R.J.V.

Clinical hematological studies for the differential diagnosis of industrial silicosis. C. SCHMIDT and P. A. NOBLE. *Klin. Wochschr.* 14, 937-92 (1935).—The authors have experimented with the pathological-anatomical sections of the changes of the silicotic lungs in connection with the heart and the complete bloodstream. With the assistance of electrocardiograms, they have been able to investigate the condition of the lungs of silicotic patients. At the polytechnic of Bonn University, Roentgen observations of the last 190 silicosis patients were taken, and these were analyzed according to pure radiological points of view. Various tables showing the bloodcounts of several silicotic and tubercular patients were compiled. After certain peculiarities were established in the blood stream of the silicosis patients, it was found necessary to make further investigations of the connections between the studies of the blood and the clinical Roentgenological status. To obtain a more secure foundation, it was decided to separate these silicosis patients from the others who showed as important degree of tubercular complications. A characteristic blood status was shown in these dust patients. This shows clearly extensive increase of white blood corpuscles with increased sinking at approximate normal counts of red corpuscles and distinct small counts of lymphocytes at relative transitional forms of leukocytes in a struck preparation. The same symptoms, even if less impressive, are shown in a second group from the total of silicosis patients as positive cases with tuberculous complications. R.J.V.

Colored ceramic aggregates for decorative concrete.

generally
necessary
possibly
ways of
respective
the
employing
dual po
specimen
to examine
the of the
y measure
R.E.S.

on of dust
insoluble
it; pp. 26-
g. & Test
devoted to
microscopic
occurring
ing 1930 to
and Water
history, and
ture of po
minerals, is
The discuss
ies of five
number of
e months
in both the
case is up
3 or 4 years
instead of
The com
re coal used
and is origi
rich silica
8 deaths in
S. Water
lined. The
as modified
when coal is
as anthrac
dust and re
in. In the
Section, Ca.

Of them
has consist
of silicon
is which b
of silicosis
but the cau
is not a
one of sil
one of the
an qualifi
ed by social
ther inject
actual rout
occal can
is that dust
minally with

the tissue of the lungs, the life and structure of which are thereby modified. Each form of dust stimulates a special reaction of its own, while mixed dusts set up a mixed reaction. No evidence is put forward that dusts other than those of silica or silicates are harmful, or that any dust is capable of reducing the toxic influence of any other.

R.J.V.

Investigations on quartz and sericite analysis of industrial dusts. F. SANCHEZ and E. W. JÖRREN. *Arch. Hyg. & Bacteriol.*, 115, 123-31 (1935); abstracted in *Jour. Ind. Hyg. & Toxicol.*, 18 [4] 34 (1936).—The separation of various mineral constituents of dusts by the use of liquids having suitable specific gravities is discussed. The standard methods of mineralogical and chemical analysis of dusts are mentioned, with a description of the X-ray examination. Some of the common minerals are shown. Mention is made of the mineralogy of sericite. R.J.V.

Methods of dust control. J. D. LARSEN. *Trans. Amer. Foundrymen's Assn.*, 7 [1] 209-21 (1936).—The point to begin elimination of the dust hazard is at the source. Methods used for controlling the dust hazards originating at different types of sources are described. L. discusses the general methods used in dust-suppression problems and the estimation of the hazard, contending that the efficiency of a dust-collection system is best determined by dust counts. Methods used for testing venting equipment and the selection of fans are presented. Dust collectors and respirators, such as balancers, filter-type respirators, and positive-pressure masks, are discussed. Maintenance of equipment is necessary to the successful operation of such equipment and to the efficiency of any installation. A discussion is included. R.E.S.

Molding of clay after heating at various temperatures. R. MONATTE. *Corriere Chim.*, 15, 221-23 (1934); *Chim. Ind.*, 1934, 16, 3296; *Brit. Chem. Abs.-S.*, 54 [27] 591 (1935).—Heating at 100 to 300° before molding increases the apparent porosity of the product fired at 800° and decreases the resistance to breaking of a specimen dried at 120°.

Nemograph for ceramic calculations. A. A. GUDONOV. *Chim. Zvezdy*, 3 [3] 37-78 (1935).—The nemograph facilitates the chemical analyses and the calculation of the amount of oxides in the fired product and of the raw material required for a given quantity of the latter. P.B. & R.S.

Personnel management. J. E. WALTER. *Factory Management & Maintenance*, 94 [12] 3333-44 (1936).—The topics considered are (1) personnel management costs, (2) selection of employees, (3) personnel maintenance, (4) training and education, (5) medical and health service, (6) safety and accident prevention, and (7) personnel service work. Figures, tables, and photographs are included. J.L.G.

Significance of free crystalline silica in the etiology of silicosis and silicotuberculosis. E. W. JÖRREN and H. KUNZING. *Med. W'ch.*, 16, 345-50 (1936); abstracted in *Jour. Ind. Hyg. & Toxicol.*, 18 [8] 130-31 (1936).—The authors dusted rabbits over a period of four years, first 2, then 3, then 4 hr. daily, with porcelain dust having 30% free silica and 1 to 2% sericite. After this period the ani-

mals showed no typical silicosis although there could be seen sharp, pinpoint-sized, subpleural foci and a slight increase of fibrosis. During the dusting, tubercle bacilli were administered intravenously. These grew slowly, and with indurating processes, into a pulmonary tuberculosis while the controls showed no noteworthy disposition to contract tuberculosis. It is concluded that over a 2 to 4 year period of dusting with tubercle bacilli injected, it was possible to produce a silicotuberculosis, although with the dust alone it was not possible to show silicosis, in spite of the presence of sericite. By dusting with pure quartz (without tuberculosis injection and without sericite) for 1 hr. daily for 2 years, typical silicotic nodules were produced. R.J.V.

Silicate analysis in industrial dusts. F. SANCHEZ and E. W. JÖRREN. *Lehr. Gewerbehyg. & Unfallverh.*, 21, 65-69 (1934).—Materials studied were from the Rhine Steel Works, the Thyssen, and the U. S. Steel Co. Tables show in detail the procedure and results, accompanied by simple comment and description of methods involved. If dusty occupations are to be graded on a danger scale over long or short periods, the sickness percentages and dust analyses must be carefully compared. These new research methods are concerned with the size of grains in dust raised and the accurate preparation of undisturbed acid particles, thus serving the combined purposes of mechanical phase analysis and chemical analysis. Important insight into the structure of different kinds of dust has been gained, and this has been increased by using delicacy tests, e.g., the neutral method. R.R.

Silicosis harmful dusts which cause it. W. R. JONES. *Trans. Chem. Soc.*, 54, 303-43 (1935); see *Chem. Abs.*, 14 [3] 84 (1935).

Silicosis in the porcelain industry from the standpoint of the physician. SCHULZKAMP. *Ber. Dtsch. Lärz. Ges.*, 17 [6] 322-30 (1936).—It is pointed out that a silicotic lung rarely occurs by itself, being usually associated with tuberculosis. A description of a silicotic lung is given. S. outlines the two theories of silicosis, mechanical and chemical, and discusses the chemical aspect of the problem. R.J.V.

Training your own instrument men. ALFRED G. MOOR. *Instruments*, 10 [1] 15-18 (1937).—M. reviews basic considerations, qualifications of candidates, training of instrument men, division of time between various types of repair jobs, supplementary educational work, progress reports, and rating guide to be used in semiannual check-up. R.W.R.

BOOKS AND LITERATURE

Determination and Control of Industrial Dust. J. J. BLOUMFIELD and J. M. DALLAVALLI. *E. S. Pub. Health Bull.*, No. 217, 167 pp. (April, 1935).—This brief but comprehensive work presents "the methods and instruments used in conducting dust studies in industry, the interpretation of results thus obtained, and their practical application to industrial problems, especially those phases relating to control of the dust hazard." Preliminary procedure involves the sanitary and occupational survey of a plant; final emphasis is placed on personal respiratory protection of workers. Between these occurs the dust technique.

increasingly large verdicts. The Workmen's Compensation Act first applied only to accidental injuries. Occupational diseases should be compensated under an arrangement similar to workmen's compensation but separately, because there is so much difference between them. Partial disability should be compensated. It is difficult to obtain unbiased and expert medical diagnosis of silicosis and the degree of disability. There should be a special medical board in each state for such a diagnosis. Prevention is more important than compensation and much cheaper. W.D.F.

Mineral materials which produce silicosis. S. COOPER. *Speeches*, 66 [41] 401-422; [42] 418-17 (1937).—Lung diseases occurring in the porcelain industry are not produced by sericite or other minerals containing silica, as it is not present in the dust and silica is not contained by the siliceous materials used. This fact shows that lung diseases are not connected with the presence of silica. The appearance of silicosis is chiefly due to the presence of free silica in the siliceous rocks used. M.V.C.

Protection of health of glass and ceramic workers. T. THOMAS. *Glassite*, 66 [49] 223-26 (1937).—Measures to be taken in the case of various injuries sustained by workmen are discussed. M.V.C.

Rating and performance of stationary steam boilers. W. S. PATTERSON. *Combustion*, 8 [2] 23-30 (1937).—The absurdity of the terms "boiler horse power" and "percent of rating" as applied to modern steam generating units is discussed, and more rational expressions are suggested. The effect of variable entering gas temperature, operating pressure, and superheat on the boiler performance is analyzed and illustrated by curves and equations. Gas-temperature gradient and draft loss through boilers are also discussed. R.E.S.

Report of the Committee on Ceramic Education for 1934. HAROLD E. WHITE. *Bull. Amer. Ceram. Soc.*, 16 [2] 111-20 (1937).—This report includes tabular data compiled by E. E. Marbaker and E. H. Fritz.

Suggestions for starting and maintaining a foundry apprenticeship system. J. E. COEN. *Trans. Amer. Foundrymen's Assn.*, 7 [2] 323-30 (1936).—C. outlines points to be taken into consideration in apprentice training, such as methods of selection, testing prospects, age limits, rates of pay, piece-work, requirements of a program, necessity of centralized activities, trial apprenticeship periods, agreements, kind of instruction, related work, etc. A discussion is included. R.E.S.

BOOKS AND BULLETINS

Bureau of Mines activities in the field of building materials. D. M. BAKER. *C. S. Sur. Mines Information Circ.*, No. 5924, 51 pp. Free. B. collates all publications by members of the Bureau personnel on the subject of building materials and includes reports published by the Government Printing Office and mimeographed by the Bureau and articles in technical journals and cooperative reports. R. A. HEDGECOCK

Chemist's Year Book. Edited by E. HORN. Sherratt & Hughes, Manchester; Chemical Publishing Co., New York, 1934. 13th ed. Price \$4.00. 1257 pp. The hand-

book has complete information concerning the various chemical constants and characteristics and properties of most organic and inorganic elements and compounds. In addition, various qualitative and quantitative determination procedures are given both for organic and inorganic substances. M.C.SEAVER

National Physical Laboratory Collected Researches Vol. XXV, 1935. H. M. Stationery Office, London. 423 pp. Price £1 3s. The volume contains twenty-three reports of researches devoted chiefly to the study of metallurgical problems. The reports cover studies of the various iron alloys, alloys of Au-Cu, Cd-Zn, Ag-Sn, and Ag-Hg, metallic cadmium, and the crystal structure of α - and β -mercurous. One paper is devoted to special refractories for metallurgical research. A brief résumé is given of the properties and methods of producing refractory crucibles, muds, and tubes from silica, alumina, magnesia, thorite, shungite, clay, and silica carbide-clay. M.C.SEAVER

Official Year-Book of the Scientific and Learned Societies of Great Britain and Ireland: Record of Publications Issued during the Session 1935-1936. Compiled from Official Sources. Third annual issue. Charles Griffin and Co., Ltd., London, 1936. vii + 170 pp. Price 10s net. Noted in *Nature*, 139 [3371] 51 (1937). J.L.G.

Third Ordinance Increasing Compensation of Occupational Diseases in Germany. M. BACHER. Reprint from *Reichsarbeitsblatt*, No. 38, Part IV (1936). 47 pp. Berlin, 1937. The new ordinance relating to occupational diseases in Germany went into effect April 1, 1938, superseding the Second Ordinance of Feb. 11, 1929. Several industries are added to the list of compensable diseases, including all the ceramic industries (previously only the porcelain industry was insured), sandblasting, and operations for cleaning castings and molds. Asbestosis in the asbestos trades and lung cancer in the chromium industries become compensable. Severe silicosis, compensable under the Second Ordinance, is still the only form of silicosis insured against, but what constitutes the disease for clinical, radiological, and judicial estimation is definitely specified, thus doing away with a hitherto vexatious miscellany of complications. Severe silicosis accompanied by pulmonary tuberculosis requires only the establishment of the severe silicosis in diagnosis. Among damage claims reported for occupational diseases since 1929, silicosis has stood at the peak; in 1934, of 1043 cases, 322 were for silicosis; in 1935, of 1161 cases, 617 were for silicosis, with 146 deaths in 1935 from this cause. R.R.

NEW JOURNAL

Dust (Dust). Edited by C. LILLYWHITE. Vol. 1, No. 1, April, 1938. Published quarterly by Wilhelm Kasper, Halle. Price 3 RM. The Association of German Industrial Insurance Societies reports on the current status of the dust-control campaign and surveys the literature. Two or three original research papers comprise the first part of each issue, followed by reviews of pertinent literature arranged systematically under (1) dust research into properties, estimation, and measurement, (2) dust sources, (3) dust diseases, (4) other dust injuries, (5) preventive methods, and (6) laws and decisions. R.R.