The American Ceramic Society

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# CERAMIC ABSTRACTS

Compiled by

## The American Ceramic Society

Volume 23, 1944


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which are attached to the clay minerals only, and the green shearing strength. The quantity of the fluxing agents (iron oxide, earth alkalis, and alkalis), determined chemically in the elutriation substances, multiplied by the total quantity of the elutriation substances (relative sintering number) permits a prediction for the sinterability of the foundry sands at 1400°C. and thus for their suitability for certain types of castings. Three ranges of sinterability can be distinguished. At little sintering, no firing takes place, at medium sintering a pasty condition occurs, and strong sintering leads to a liquid phase between the sand grains which has a strongly cementing effect. Analysis and quantity of the elutriation substances can give important clues for the sand mixtures to be used to avoid burning of a molding sand for steel castings. From the amount of the wet elutriated molding sands smaller than 0.1 mm. which have been obtained by simple sieving, gas permeability in the green state can be predicted fairly accurately. Thirty-two references are included. M.Ha.

Oil engines. E. Ingham. *Cement, Lime & Gravel*, 18 [9] 245–48 (1944).—Practical hints on the care and maintenance of oil engines with respect to probable running troubles are given. E.R.V.

Progress in aluminum therapy. W. D. Robson. *Trans. Can. Inst. Mining & Met.*, 47, 172–79 (1944).—The mining companies of Porcupine District established a clinic at Timmins, Ontario, to investigate the value of aluminum as a prophylactic in human silicotics. This clinic operated from 1939 to 1943. It was established that the use of powdered aluminum does ameliorate the symptoms of silicosis and that, as a prophylactic, it prevents silicosis and is itself harmless. There is no indication that the use of aluminum harms tuberculous individuals. Its use in silicosis therapy has been patented in most countries to prevent its being fitted into a commercial venture, to make it freely available to those threatened by silicosis, and to control further developments of the process. G.M.H.

Pulmonary disease in South Wales coal miners. Report of the Medical Research Council: Discussion and Summary. *Colliery Guardian*, 167, 181–83 (1943). Physical studies of the dust hazard. T. Bedford and C. G. Warner. *Ibid.*, pp. 183–85.—A high correlation was found between the count of particles above 1 $\mu$ and the mass concentration of particles not exceeding 5 $\mu$; there was a low correlation between the latter and total mass concentration. A thermal precipitator was used for sampling. Dust concentrations are much influenced by the nature of the operations being performed. A higher incidence of pneumoconiosis is associated with higher dust concentrations. Mass concentrations of air-borne dust and mineral matter. H. V. A. Briscoe, P. F. Holt, N. Spoor, Janet W. Matthews, and Phyllis M. Sanderson. *Ibid.*, p. 209.—A naphthalene filter was used. During the working of coal, the percentage of ash in the dust is less than during ripping. Pulmonary abnormalities are significantly correlated with ash content. Air-borne dust composition. G. Nagelschmidt. *Ibid.*, pp. 209–10.—The coal was similar to that in the seams. Other minerals present were quartz, kaolin, mica, various carbonates, etc. The percentage of quartz in the dust varied from 0.1 to 4.7. Petrology of coal measures, shales, and sandstones. A. Brammall and John G. C. Leech. *Ibid.*, pp. 210–11.—In the anthracite mines, the shales are more compacted, and the content of secondary quartz and mica increases. The incidence of silicosis appears to be positively associated with the geological changes induced by pressure. Chemical and X-ray analysis of the roof and clod. D. Hicks and G. Nagelschmidt. *Ibid.*, p. 211.—The roofs and clod contained quartz, illite, kaolin, carbonates, and others. The quartz content varied from 8 to 46%. Quartz tends to be present in samples from mines with a high incidence of disease and vice versa. Nitrous fumes from shot firing. J. Ivon Graham and D. F. Runnicles. *Ibid.*, pp. 211–13. See "Measurements. . .," *Ceram. Abs.*, 22 [5] 92 (1943). W.D.F.

Studies of exposure to dusts and fumes. Anon. *Heating & Ventilating*, 41 [5] 72 (1944).—The Industrial Hygiene Foundation has made studies, during the past year, on exposures to arsenic dust, lead dust and fumes, synthetic-resin dust, and other substances. M.R.

Symposium on industrial medicine: Introduction. C. D. Selby. *Med. Clinics N. America*, 26 [4] 997 (July, 1942). Physician in industry. Carl M. Peterson. *Ibid.*, pp. 999–1003. Organization and management of an industrial medical service. A. L. Brooks. *Ibid.*, pp. 1005–18. Physical examinations in industry. Grant L. Bird. *Ibid.* pp. 1019–33. Workmen's compensation and medicine. Raymond Hussey. *Ibid.*, pp. 1035–51. Tuberculosis as a compensation problem. C. O. Sappington. *Ibid.*, pp. 1053–66. Nutrition in industry. W. A. Sawyer. *Ibid.*, pp. 1067–83. Wartime survey of industrial psychiatry. Lydia G. Giberson. *Ibid.*, pp. 1085–1103. Measurement of sickness among industrial workers. W. M. Gafafer. *Ibid.*, pp. 1105–20. Fatigue and war production. R. H. Flinn. *Ibid.*, pp. 1121–43. Prevention of ill-health in industry. J. H. Foulger. *Ibid.*, pp. 1145–60. Methods of appraisal and control of industrial health hazards. J. J. Bloomfield. *Ibid.*, pp. 1161–78. Indoor environmental atmosphere and its control. W. J. McConnell. *Ibid.*, pp. 1179–93. Protective ointments and industrial cleansers. Louis Schwartz. *Ibid.*, pp. 1195–1212. Effects of high pressures; Treatment of compressed air illness. A. R. Behnke. *Ibid.*, pp. 1213–37. Pneumoconioses. L. U. Gardner. *Ibid.*, pp. 1239–60.—G. includes among the pneumoconioses all chronic changes in the lungs induced by prolonged inhalation of dusts, irrespective of the type or the severity of tissue reaction. These changes vary from simple phagocytosis to progressive fibrosis. Silicosis and asbestosis are chiefly discussed. Under the term "simple benign pneumoconiosis," G. suggests the inclusion of uncomplicated anthracosis from coal dust and siderosis from iron dust. Although these dusts in a pure state have essentially the same effects upon the lungs as other forms of dust, they do not appreciably influence respiratory function. When mingled with quartz dust, a modified type of silicosis results. Attention is given to Roentgen findings, the part played by tuberculosis in silicosis cases, asbestosis and its relation to infection, clinical course, complications, and diagnosis. Lead absorption and lead poisoning. Robert A. Kehoe. *Ibid.*, pp. 1261–79. Toxic properties of selected less familiar metals. Carey P. McCord and J. J. Prendergast. *Ibid.*, pp. 1281–1302. Recent progress in aviation medicine. B. F. Jones. *Ibid.*, pp. 1303–30. Papers briefly abstracted in *Ind. Med.*, 11, 395–96, 406 (July, 1942). K.R.

Synthetic foundry sands with cement as binders. K. Endell and W. Strassmann. *Giesserei*, 29 [21] 349–56 (1942).—The influence of the amount of cement and water content on shearing strength and gas permeability of synthetic foundry sands was investigated with three German cement types: (1) normal Portland cement, (2) high-grade Portland cement, and (3) alumina cement. An optimum water content exists for every cement depending on the time the highest mechanical strength is required. Normally setting Portland cement needs only very little water to obtain its highest strength after setting 1 to 3 days, whereas high-grade cement and, especially, alumina cement require considerably more water for the same purposes. Ordinary Portland cement is unsatisfactory for foundry purposes as it has too little strength, at least for 10% additions; with higher additions, however, gas permeability is reduced too much. Alumina cement has the highest strength after 24 hr., but high-grade cement (Nova) reaches the same values after 72 hr., and its high initial mechanical strength is obtained with much less water. Also, it sinters at 1400°C., which is lower than the alumina cement with 40% alumina. The highest shearing strength in 10% Novo cement after 48 hr. was 7.5 kg. per cm.$^2$ with 7% water content. M.Ha.

George Westinghouse scholarship winners announced. Anon. *Bull. Amer. Ceram. Soc.*, 23 [6] 208 (1944).

Can the ceramist use emulsions? LOGAN GRUPELLI. *Bull. Amer. Ceram. Soc.*, 23 [8] 288–90 (1944).—5 references.

Construction of Chicago's first subway—architectural treatment of public areas. ALFRED SHAW. *Jour. West. Soc. Engrs.*, 49 [2] 186–87 (1944).—This extensive discussion of Chicago's subway includes a chapter on the selection of materials for finishing the stations, approaches, and platform areas. Considerable study was given to materials to be used, and it was finally decided that they should all be of a vitreous type. The walls are finished with glass and terra cotta, and the escalator panels are porcelain enamel. The cost of finishing these areas is such a small part of the total cost of construction that it was decided to use the best-suited material, irrespective of cost, to produce the most desirable finish with the lowest maintenance cost. See "Ceramic. . .," *Ceram. Abs.*, 22 [7] 128 (1943). C.S.P.

Dust collection. T. J. BARRY. *Jour. Can. Ceram. Soc.*, 13, 53–56 (1944).—B. discusses the settling chamber and cyclone, viscous, wet, and cloth collectors. G.A.K.

Dust as an industrial health hazard. F. W. HUTCHINSON. *Heating & Ventilating*, 41 [6] 57–61 (1944).—H. reviews the literature on the physiological effects of some hazardous industrial dusts and summarizes present-day criteria acceptable as a basis for the design of dust-control systems. Most of the article deals with silicosis, although asbestosis and miscellaneous siliceous and nonsiliceous dusts are mentioned. M.R.

Dust removal and collection. R. R. ROBINSON. *Jour. Can. Ceram. Soc.*, 13, 50–53 (1944).—R. gives reasons for removing dust from working spaces, methods of eradicating dust and fumes, and the disposition of these foreign substances after they have been removed. G.A.K.

Industrial exhaust ventilation in industrial hygiene. A. D. BRANDT. *Heating, Piping & Air Conditioning*, 16 [7] 428–33 (1944).—B. discusses the value of exhaust ventilation in industrial hygiene and finds that the average worker shows no ill effects of atmospheric contaminants if they are below the allowable concentration. Local exhaust ventilation is best suited for specific and major sources of contamination, while general ventilation is best suited for scattered and minor sources. The designer of exhaust-ventilation systems should have a good knowledge of the fundamentals of air flow into suction openings and should know how contaminants are released and how they react. In general, there are four main types of local exhaust hoods, and for each the entering air flow is different. With the information available today there is little excuse for the existence of atmospheric contamination of such order that the health of the workers is affected adversely. 13 references, 4 diagrams. M.R.

Notes and news of Indian ceramic industry. ANON. *Trans. Indian Ceram. Soc.*, 2 [2] 130–32 (Sept., 1943).—Items concerning (1) proposed publication of a handbook of Indian ceramic industries, (2) opening of two new sheet-glass works, and (3) construction of two new recuperative glass furnaces are given. P.S.D.

Prospects for ceramic industry in India. N. V. RAGHUNATH. *Trans. Indian Ceram. Soc.*, 2 [2] 90–94 (Sept., 1943).—R. reviews briefly the economic aspects of the development of ceramic industries in Japan and the U. S. Recognizing that existing Indian conditions are quite different from those of Japan and America at the time of their ceramic infancy and reviewing the existing Indian needs, R. concludes that the best prospects for development should be in the following ceramic products: (1) household porcelain, (2) electrical insulators, (3) sanitary ware, (4) refractories, and (5) salt-glazed pipes. P.S.D.

Review of the more significant developments in ceramic industry and technology for 1943. G. A. KIRKENDALE. *Jour. Can. Ceram. Soc.*, 13, 5–10 (1944). G.A.K.

Technical Translations Clearinghouse. ANON. *Bull. Amer. Ceram. Soc.*, 23 [8] 281 (1944).

Water spray on shovel controls dust while loading rock in TVA quarry. F. N. CHERICO. *Pit & Quarry*, 37 [1] 63–64 (1944).—C. describes the mechanical water-spray system installed on electric shovels excavating and loading rock at the Fontana Dam project in North Carolina. Silica-dust concentrations have been greatly reduced where these systems are effective. 1 diagram, 4 photos. M.R.

George Westinghouse. ANON. *Bull. Amer. Ceram. Soc.*, 23 [8] 256–58 (1944).—2 photos.


*A Running Bibliography. . . .*

The Enamel Bibliography and Abstracts, which is presented in this issue of *The Bulletin*, pp. 299–302, contains approximately 5000 references. Of this number all but approximately fifty were reviewed in *Ceramic Abstracts* in the past ten years.

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