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MONTHLY PUBLICATION DEVOTED TO THE ARTS AND SCIENCES RELATED TO THE SILICATE INDUSTRIES

Utilization of flue dust. C. S. DARLING. *Mech. World Eng. Record*, 118 [3053] 1–6 (1945).—The utilization of ash from power stations and industrial plants may become important in the future because of the tendency to use raw coals with higher ash percentage. Storage and handling systems that can be adapted to handle any quantity of ash are described. The utilization of ash should be undertaken only after investigation of the economic aspect, not from the viewpoint of the supplier but from that of the user. Particular care must be taken when dealing with subsieve analysis, and various standard sieves are compared. The thermal conductivity of fly ash is discussed. 9 illustrations. P.G.

Ventilation and dust hazard. ANON. *Foundry Trade Jour.*, 76 [1501] 65 (1945).—Dust hazards in Britain are reviewed and compared with some American standards, including those of New York State. A.J.B.

War veterans in the postwar ceramic industry. J. E. EAGLE. *Bull. Amer. Ceram. Soc.*, 24 [8] 290–92 (1945).

SEPARATE PUBLICATIONS

Cast Iron in the Chemical and Process Industries. F. L. LA QUE. Gray Iron Founders' Society, Inc., Washington 6, D. C., 1945. 28 pp. Price $1.00.—La Que, head of the Corrosion Engineering Section of the International Nickel Co., Inc., presents extensive data on the corrosion rates of cast iron exposed to the action of substances commonly handled by chemical structures. Results of laboratory and plant tests with more than 300 corrosive media, in an alphabetical range from acetic acid to zinc sulfate, are shown. The four appended tables also list the many chemicals regularly handled by cast-iron pumps and valves and those resisted satisfactorily by high-silicon irons. Factors dictating cast irons for corrosive service, the availability of the material, design for chemical-industry equipment, and many specific applications are discussed. Pointing to the corrosive-service-per-dollar factor, the booklet states that in some applications the nature of the corrosive media is such that, despite a fairly rapid attack on cast iron, no other material can be expected to render long enough service to justify a higher initial cost. Differences in the manner in which cast iron resists corrosion are related directly to the structure of the material and particularly to the presence of graphite flakes in a ferritic, pearlitic, or austenitic matrix. The corrosion-resisting characteristics of gray iron may be altered by alloying and by foundry techniques, since both affect the size, shape, and distribution of the graphite particles and influence the corrodibility of the matrix.

Health of Workers in Dusty Trades: VII, Restudy of a Group of Granite Workers. A. E. RUSSELL. *U. S. Pub. Health Bull.*, No. 269, 71 pp. (1941). Price 15c from Supt. of Documents, Washington, D. C.—The original study of Vermont granite workers was completed in 1926 and reported in *ibid.*, No. 187, which has become one of the classics of silicosis study. In 1937–1938, 116 out of the original 642 workers were re-examined, and the results are reported. A few were also re-examined in 1931. Two or three X rays of each of 19 characteristic cases are presented, and the progress of the disease can be easily followed. Tables show the progress of silicosis (*a*) in granite cutters who continued at their occupation, (*b*) in those who changed to nondusty occupations, and (*c*) in those exposed to 20 million particles of granite dust per cubic foot or less. In group *a*, the disease made moderate progress in 31 out of 64 workers and marked progress in an additional 31, while 30 had tuberculous complications. In group *b*, 6 out of 18 made moderate progress and 8 out of 18 marked progress, with 9 cases of tuberculosis complications. In group *c*, moderate progress was made in 2 cases out of 33, and there was one case of tuberculosis, in a subject who was not silicotic. Those who serve longest are most subject to change in diagnosis to the more advanced stages of the disease. Most workers who had been exposed to 40 to 60 m.p.c.f. over a period of years had silicosis, whether they changed occupation or not. Those similarly exposed to about 6 m.p.c.f. were practically free from silicosis. In the remaining group (those exposed to an average of 20 m.p.c.f.), the etiology of silicosis is doubtful, and it appears that a safe limit lies somewhere between 9 and 20 million particles. These figures apply only to granite containing 31 to 38% free silica. The figures published by the National Silicosis Conference are given for comparison, the permissible maximum safe concentrations varying from 4.5 m.p.c.f. for South Africa dust, 80% free silica, to 50 m.p.c.f. for Pennsylvania mines with 5% free silica. Suitable ventilation and medical supervision are recommended. F.S.M

PATENTS

Binder for core sand of waste sulfite lye. CHEMISCHE WERKE (Albert A. Greth and Karl Brückel, inventors). Ger. 741,652, Nov. 15, 1943 (March 24, 1942); cl. 31*c*. abstracted in *Chem. Zentr.*, 1944, I [16] 958.—The binder consists of mixtures of waste sulfite lye with hardenable phenol- and/or amino-condensation resins. The cores are both very strong and waterproof. M.HA.

Binders of waste sulfite lye for foundry molds and cores. F. RASCHIG G.M.B.H. (Karl Thönnessen, inventor). Ger. 743,092, Dec. 17, 1943 (March 20, 1942); cl. 31*c*; abstracted in *Chem. Zentr.*, 1944, I [16] 958.—Urea is added to the binder, preferably in amounts of 5 to 15%. The sand cores made with this binder have a high dry strength even without additions of oil or residues of oil or fat distillation. M.HA.

Cyclic organosilicon compounds. W. I. PATNODE AND R. W. SCHIESSLER (General Electric Co.). U. S. 2,381,002, Aug. 7, 1945 (March 4, 1942). 4 claims. Cl. 260-607.—1. A silicon compound having the formula $(Cl_2SiCH_2)_x$, wherein x is equal to at least 3.

Halogenated organosilicon compounds. W. I. PATNODE AND R. W. SCHIESSLER (General Electric Co.). U. S. 2,381,000, Aug. 7, 1945 (March 4, 1942). 6 claims. Cl. 260-607.—1. An organosilicon compound having the formula $X_3Si(CH_2)_nSiX_2Y$, where X represents a halogen atom, Y represents an atom selected from the group consisting of hydrogen and a halogen atom of the same type as that represented by X, and n is an integer and is at least 1 and not more than 4.

Making terra cotta, ceramics, and porcelain impermeable. GIOVANNI MAURI. Swiss 225,956, May 17, 1943 (June 8, 1942); abstracted in *Chem. Zentr.*, 1944, II [1/2] 63.—The porous objects are dipped into molten sulfur at 125°C., quickly heated in it to 180°, and then quenched in cold water. To the molten sulfur, neutral substances or coloring matter can be added, e.g., aluminum or bronze powder or graphite. M.HA.

Manufacture of plastic masses for foundry cores, etc. FERDINAND C. WEIPERT (Soc.). Belg. 449,117, Nov. 2, 1943 (Feb. 9, 1943); abstracted in *Chem. Zentr.*, 1944, I [25/26] 1422.—Quartz sand (100 kg.) is mixed with 4.5 magnesite and 6 kg. $MgCl_2$ lye. M.HA.

Preparation of organosilicon halides. E. G. ROCHOW (General Electric Co.). U. S. 2,380,995, Aug. 7, 1945 (Sept. 26, 1941). 17 claims. Cl. 260-607.—1. The method of preparing organosilicon halides which comprises effecting reaction between silicon and a hydrocarbon halide.

Preparation of organosilicon halides. M. M. SPRUNG AND W. F. GILLIAM (General Electric Co.). U. S. 2,380,999, Aug. 7, 1945 (March 4, 1942). 9 claims. Cl. 260-607.—1. The method which comprises effecting reaction at an elevated temperature between silicon and a halogenated hydrocarbon in the presence of an inert gas.

Refractory mold. P. F. COLLINS (Austenal Laboratories, Inc.). U. S. 2,380,945, Aug. 7, 1945 (July 11, 1942). 6 claims. Cl. 22-188.—1. A plastic mix for making a refractory mold, the mix comprising a refractory filler and a binder comprising a noninflammable liquid which in its original condition and prior to mixing therewith of the refractory filler contains inorganic silica substantially all of which is present as silica in the form of an aqueous sol with a relatively small amount of alkali-metal compound.