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to 1 mol. of silica and chilling the material by artificial means through its critical temperature range to a temperature below approximately 1000°F within a period of about 5 sec., thereby forming a substantially transparent solid product which is substantially free from opaque crystalline material relatively insoluble in an aqueous solution of the transparent product.

Luminescent material. H. W. Leverenz (Radio Corporation of America). U. S. 2,110,161, March 8, 1938 (Jan. 31, 1935). A metallic orthogermanate activated by rhenium which gives to the combination the characteristic of becoming luminescent upon being excited by "radiant energy."

Luminescent material. H. W. Leverenz (Radio Corporation of America). U. S. 2,110,162, March 8, 1938 (Jan. 31, 1935). A metallic orthogermanate activated by a metal of the second subgroup of the first vertical column of the periodic system which gives to the combination the characteristic of becoming luminescent upon being excited by irradiations of "radiant energy."

Method of preparing TiO_2. R. H. Monk and A. S. Ross (American Zinc, Lead & Smelting Co.). U. S. 2,108,723, Feb. 15, 1938 (Nov. 11, 1935). In a process of preparing titanium dioxide, the steps comprise forming an aqueous and approximately neutral dispersion of a protective colloid and a salt relatively insoluble in water but completely soluble in the aqueous medium resulting from hydrolysis and then adding a concentrated titanium salt solution thereto.

Preparation of a zirconium oxycarbide and silicon carbide. C. J. Kinzie and D. S. Hake (Titanium Alloy Mfg. Co). U. S. 2,110,733, March 8, 1938 (March 1, 1934). (5) The method of converting zircon, containing compounds of iron and titanium as impurities, mixed with carbon-containing material into a zirconium compound essentially free of silicon, titanium, and iron but mixed with silicon carbide, comprises heating, without fusion but with substantial decomposition, the charge enveloped in a carbonaceous insulating mix in an electric resistance furnace to form a dark-colored powdered zirconium compound containing a relatively small amount of the silicon carbide. (7) A zirconium compound containing zirconium, carbon, and oxygen and probably having the structural formula (ZrO·C) obtained by high-temperature decomposition without fusion of zircon, containing compounds of iron and titanium as impurities, mixed with a carbonaceous material, the compound being characterized as an opaque black powder of particle size from 0.005 to 0.03 mm., substantially free of silicon and iron, and with less than 1/2 of 1% of titanium as an impurity.

Process of separating beryllium compounds from aluminum compounds. C. E. White and P. A. Parent. U. S. 2,110,010, March 1, 1938 (June 18, 1937). The process of separating aluminum from beryllium in acid solutions of the two comprises precipitating substantially all of the aluminum by the addition of sodium hexametaphosphate.

Sodium silicate adhesives. A. S. Wrygandt (E. I. du Pont de Nemours & Co.). U. S. 2,111,131, March 15, 1938 (Feb. 29, 1936).

Treatment of alumina-magnesia-chromite ore. A. E. Greene. U. S. 2,110,573, March 8, 1938 (June 8, 1936). The method of treating chromite containing substantial percentages of alumina and magnesia to separate the latter in substantially pure and unadulterated condition and to recover the chromium as an iron alloy consists in preparing a charge of the ground chromite-alumina-magnesia material together with carbonaceous reducing agent in sufficient amount to reduce substantially all of the chromium and iron oxides present, the carbonaceous material being substantially free from any agent which would materially lower the melting point of the unreduced remaining alumina-magnesia, reducing this charge in an arc chamber and causing fusion of the reduced metal and of the alumina-magnesia by means of the arc heat, cooling the charge, and separating the metal and alumina-magnesia products from one another.

General

Ceramic industry of West-Steirmark. F. Schwarz. *Sprechsaal*, 70 [40] 505-507; [41] 515-17 (1937).—The region of West-Steirmark, in the south of Austria, is well suited for the development of the stoneware, whiteware, and ceramic building materials industries. It has rich deposits of various high-grade raw materials, coal, and water power. The deposits of raw materials are described. M.V.C.

✓ **Dangerous dust and fumes—cause of industrial diseases.** F. M. R. Bulmer. *Can. Machinery*, 48, 27-29 (1937); *Chem. Abs.*, 31, 7142 (1937).—On the basis of the hazards involved, four classes are discussed. The so-called harmless dusts contain no silica. In heavy concentrations they cause irritation of the nose and throat and swelling of the lining of these and adjacent organs. Limestone is an example. Skin-irritating substances include acid and alkali fumes, dusts of Cr compounds, and certain Pb compounds, particularly tetra-ethyl lead. Definitely poisonous substances include Pb, As, and Cd dust. Skin trouble and erosion of the nose partition may be caused by As. Even minute quantities of Cd are very dangerous. Dusts producing scarring of the lungs (fibrosis) are usually those containing silica. Particles of 1 to 10 microns are most effective in producing silicosis which, if advanced, often develops into tuberculosis.

Financial statements calculated for short periods in hollow glass factories. H. Otten. *Glastech. Ber.*, 15 [8] 308-13 (1937). J.F.H.

Fine-dust filter—the problem and its solution. G. Stampe, K. Grosskopf, and K. F. Möllering. *Drager-Hefte*, No. 191, pp. 3571-82 (1937); *Chem. Abs.*, 31, 7701 (1937).—The occurrence, characteristics, and danger of fine dusts are discussed. Fine dusts are defined as dusts composed of particles less than 1 micron in diameter. Coarse dust is composed of particles between 1 and 3 microns in diameter. Several methods for the determination of particle size are described. Coarse dusts are easily caught by a filter of cotton or other fibers. Fine dusts require a specially constructed filter, such as that constructed by the Draeger Co., which has been thoroughly tested against several types of fine dust. It is designated "fine dust filter df 90." It has a prefilter of loosely pressed