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[54] **WATER-RESISTANT SHAPED STRUCTURE OF GYPSUM AND PROCESS FOR PRODUCTION THEREOF**

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **260/42.13**; 106/111
[58] **Field of Search** 106/109, 110, 111; 260/42.13

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[57] **ABSTRACT**

A water-resistant shaped structure of gypsum comprising (A) calcium sulfate dihydrate formed by hardening of calcium sulfate capable of hydration reaction, (B) a calcium type filler for filling up spaces among crystalline particles of said calcium sulfate dihydrate and (C) a water-insoluble or hardly water-soluble salt of a polybasic acid having a second stage dissociation constant of 10^{-3} to 10^{-10}, especially 10^{-4} to 10^{-9}, as measured at 25° C., said calcium type filler (B) being at least one calcium compound selected from the group consisting of calcium hydroxide, calcium carbonate, calcium silicate, calcium aluminosilicate, and non-water-hardenable anhydrous gypsum and partially hydrated products thereof, wherein the amount of the calcium type filler (B) and the water-insoluble or hardly water-soluble calcium salt (C) is 15 to 75% based on the total amount of the components (A), (B) and (C) as calculated as calcium, the amount of the water-insoluble or hardly water-soluble calcium salt (C) is 0.1 to 30% based on the total amount of the components (A), (B) and (C) as calculated as calcium, the water-insoluble or hardly water-soluble calcium salt (C) is distributed predominantly in the surface portion of the shaped structure, and said surface portion has a pore volume smaller than 0.50 ml/g in pores having a radius in the range of 75 to 75000 Å and a pore volume smaller than 0.20 ml/g in pores having a radius in the range of 4000 to 10000 Å.

16 Claims, 1 Drawing Figure