5976241
08/09/97
02/11/99

ACTIVATED KAOLIN POWDER COMPOUND FOR MIXING WITH CEMENT AND METHOD OF PREPARING THE SAME

Kim, Moon Han, Hwang, Hey Zoo, Hwang, Jung Ha, Cha, Hee Sung, Kim, Kwang Choon, Lee, Jong Kuk
Mok-dong, Yangchen-ku, Seoul
assigned to Kim, Moon Han, Kwak, Jeong Hwan
C04B 1400

The activated kaolin powder compound is prepared by heating natural kaolin to 480°C within at most 1 h, calcinating the heated kaolin at high temperature by heating to 980°C over at least 1 h, quenching the calcinated kaolin with water or air, and pulverizing the quenched kaolin to give particle sizes of 2 m or less. The activated kaolin powder compound is employed in an amount of about 5–15% by weight of cement for preparing mortar or cement. The cement composition containing the activated kaolin powder compound can provide a mortar or concrete having superior properties in compressive strength, flexural strength and water permeability.

5976242
04/06/97
02/11/99

SETTING-RETARDER AND ITS APPLICATION TO CONCRETE, MORTARS AND/OR GROUTS

Blanc, Alain, Fontaine, Catherine,
Saint Denis, Chambourcy, France
assigned to Axim
C04B 2430 C04B 2412

A hydraulic-cement setting retarder included in concrete, mortars, or grouts to control setting time as a function of the retarder dosage. Specifically, the retarder is a cyclic amino resin of formula (I): [Figure] where (a) R1 is a hydrogen atom, a hydroxymethal radial or a group of formula (II); (b) R2 is a group of formula (II); (c) R is a linear or branched C1–C4 alkyl radical, or a group of formula (III) ##STR2##; (d) R3 and R4 each are a hydrogen atom, and C1–C4 linear or branched alkyl radical or a group of formula (III).

5980627
10/06/98
09/11/99

PRODUCTION OF COMMERCIALLY USEFUL MATERIALS FOR WASTE GYPSUM BOARDS

Marcoux, Gaetan, Beshay, Alphonse
Candiac, Beaconsfield, Canada
assigned to Gaetan, Marcoux
C04B 1400 C04B 1402 C04B 1804 C04B 2004

A commercially useful material is produced from waste gypsum boards containing calcium sulfate dihydrate, by a method comprising the steps of (a) grinding the waste gypsum boards to obtain particles having a substantially uniform size; (b) drying the particles obtained in step (a) to obtain moisture-free particles; (c) heating the moisture-free particles obtained in step (b) at a temperature of 128–162°C to convert the calcium sulfate dihydrate to calcium sulfate hemihydrate; (d) adding water to the particles obtained in step (c) to form a paste; (e) forming the paste obtained in step (d) into a shaped product of a predetermined size; and (f) drying the shaped product obtained in step (e) at a temperature of 105–120°C to obtain a commercially useful material. The materials produced by the method of the invention can be used for a variety of industrial and household purposes. Typical uses include the absorption of oil, grease and chemicals on floors and elsewhere, in animal toilet applications as a cat box absorbent, as carriers for chemicals, such as pesticides and herbicides, in various agricultural and horticultural applications. They can also be used as fillers for agricultural and horticultural applications. When admixed with an adhesive agent such as Portland cement, epoxy or polyester adhesives, they can be applied onto walls and/or floors to provide a decorative coating.

5981630
14/01/98
09/11/99

FIBERS HAVING IMPROVED SINUSOIDAL CONFIGURATION, CONCRETE REINFORCED THEREWITH AND RELATED METHOD

Banthia, Nemkumar, Hingson, E. Richard, Dubey, Ashish

Burnaby, Ringgold, Vancouver, Canada, USA
assigned to Synthetic Industries Inc
E04C 500 B32B 2700

Fiber additives for addition to proportioned concrete comprise a plurality of thermoplastic fibers having a profile geometry defined by the equation, wherein the amplitude a_0 falls within a range of from about 0.1 d_f to 2.0 d_f and the period falls within a range of from about 2 d_f to 15 d_f for fibers having a diameter d_f of from about 0.5–1 mm; the peak pull-out stress $_{peak}$ and the specific pull-out energy absorbed to a maximal displacement of 7.5 mm_{peak}, both increase linearly with a deformity factor defined by the equation, where $\alpha = 0.8$ and $\beta = -1$, such that the peak pull-out stress is defined by the equation, and the specific pull-out energy is defined by the equation, the fiber additives having an optimum deformity, $D_{critical}$ being that deformity where the ultimate tensile strength of the fiber equals k_1, $D_{critical} + C$, and where loads are measured in N; energy in N mm; length dimensions are in mm, and the values of k_1, k_2, C and C_1 are determined based upon the ultimate tensile strength of the fiber and by plotting deformation versus pull-out stress to obtain the value for $D_{critical}$. The present invention also provides concrete having improved crack resistance and a method for improving the bond slip performance of fibers in concrete utilizing the sinusoidally configured fibers of the present invention.

5985989
09/07/97
16/11/99

METHOD OF MAKING A WATER REDUCING ADDITIVE FOR CEMENT

Shawl, T. Edward, Zhou, Xinhau
Wallingford, West Chester, USA
assigned to ARCO Chemical Technology LP
C08K 506

Substances useful as water reducing and superplasticizer additives for cement compositions are formed by in situ polymerization of one or more ethylenically unsaturated acid monomers such as acrylic acid or maleic anhydride in a reaction medium comprising a polyether such as polypropylene glycol or a copolymer of ethylene oxide and propylene oxide to form a carboxylic acid polymer, followed by reaction of the polyether and carboxylic acid polymer. The composition and properties of the resulting additives may be readily varied as desired through the use of different acid monomers, polyethers, reaction conditions, reagent proportions and the like.

5988396
18/08/98
23/11/99

ULTRASONIC CONDITIONING AND WET SCRUBBING OF FLY ASH

Minkara, Y. Rafic, Heavilon, L. Jerry
Kennesaw, Marietta, USA
assigned to ISG Resources Inc
B03D 102 B03B 100 B02C 1918

Processes for treating fly ash to enhance the fly ash as a pozzolan for portland cement mixes and to separate therefrom a substantial carbon compound and/or to increase the fineness of the fly ash include the treatment of a fly ash slurry with ultrasonic energy using ultrasonic horns immersed in a slurry of fly ash and water and imparting to said slurry such ultrasonic energy as to cause microscopic cavities to form and implode with high localized energy to break up fly ash agglomerations along cleavage lines and to break up carbon particles and matrices which have entrapped fly ash microspheres therein to release the microspheres into the slurry. A conditioner agent may be added at or during ultrasonic treatment to enhance the flotation of the carbon compound.

5989330
12/12/97
23/11/99

ACID RESISTANT CEMENT COMPOSITION

Semler, Charles, Hawisher, Thomas, Pieterse, Herman, Williams, Richard
Tuscon, Savoy, Toronto, Canada, USA
assigned to Barrick Gold Corporation
C09D 100 C09D 106A

A cement composition for use in acidic environments containing an acid resistant particulate aggregate of fused mullite aggregate or other aggregate material, with quartz, and microsilica in combination with a colloidal silica sol binder and being substantially free of Na compounds and K compounds which react in the pres-