

Patents ALERT

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Cement & Concrete Composites

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6160041

NON-CEMENTIOUS CONCRETE-LIKE MATERIAL

John D. Neuner,
USA
assigned to Hexcel Corporation

A polymer-based blend which may be cured to form a non-cementitious concrete-like material. The polymer-based blend includes 90–100 parts by weight low viscosity epoxy resin, 1–10 parts by weight of an aliphatic glycidyl ether epoxy diluent, 40–50 parts by weight polyoxy-propyleneamine curing agent, 30–100 parts by weight intumescent powder, 90–110 parts by weight hollow ceramic microspheres having a density of between 0.30 and 0.60 g/cm³ and 0.01–0.10 part by weight air release agent. The hollow ceramic microspheres are dispersed uniformly throughout the polymer-based blend to provide a non-cementitious material which, upon curing, becomes a concrete-like material. The non-cementitious concrete-like material is well suited for use as a substitute for concrete and may be used alone or in combination with reinforcing materials.

6165262

CEMENT ADDITIVE AND CEMENT COMPOSITION USING SAME

Katsuyuki Kono, Tsutomu Yuasa, Tsuyoshi Hirata,
Japan
assigned to Nippon Shokubai Company Ltd.

A novel cement admixture is provided which fulfills the function as a thickener basically, possesses an ability to inhibit segregation of materials, excels in workability as well, and permits a decrease in the amount of addition while keeping these functions intact. The cement admixture is characterized by comprising a cement additive formed of a polymer resulting from polymerizing a monomer mixture having methyl acrylate as a main component thereof and a cement water reducing agent.

6165346

CATHODIC PROTECTION OF CONCRETE

David Whitmore,
Canada

An existing concrete structure is restored by embedding sacrificial anodes into the concrete layer at spaced positions over the layer and connecting the anodes to the reinforcing members to provide a cathodic protection against corrosion. Each anode is inserted into a drilled hole in the layer of sufficient depth to expose the reinforcement. A steel pin passes

through a bore in the cylindrical anode and is attached to the reinforcement by arc welding or by impact so as to hold the anode rigidly within the hole. The hole is filled by a settable filler material. In order to maintain effective current conduction from the anode to the reinforcement through the filler over an extended period to maintain the required protection, a material to hold the pH in a preferred range of the order of 12–14 and a deliquescent material to absorb moisture into the filler are added.

6166112

CEMENT ADMIXTURE AND CEMENT COMPOSITION

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Japan
assigned to Nippon Shokubai Company Ltd.

The invention provides: a cement admixture which has excellent cement dispersibility and can afford high slump retainability; and a cement composition which has excellent cement dispersibility and high slump retainability. The cement admixture comprises a polycarboxylic acid as an effective component, wherein the polycarboxylic acid is obtained by a process including the steps of: charging a" parts by weight of a polyalkylene glycol (A) and b" parts by weight of a (meth)acrylic acid monomer (B) into a reactor in the range of $\{(a/n^{1/2})/b\} \times .100$ less than or equal to 200, wherein n is an average molar number of the added oxyalkylene groups in the polyalkylene glycol (A) and is a number of 1–300; carrying out an esterification reaction of the resultant mixture in the reactor, thus obtaining a polyalkylene glycol (meth)acrylate (C); and copolymerizing the resultant polyalkylene glycol (meth)acrylate (C) and the (meth)acrylic acid monomer (B), thus obtaining the polycarboxylic acid.

6166119

FLOWABILITY ADDITIVE

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A cement pumpability-enhancing additive which confers good pumpability on cementitious compositions such as concrete consists essentially of: (a) polyethylene glycol; (b) diethylene glycol monobutyl ether and/or a derivative thereof; (c) polysaccharide; and (d) a thickening polymer selected from the group consisting of polyacrylic acid derivatives, polyacrylic amide derivatives, cellulose ethers, polyphenyl ethers and polyalkylene glycol fatty acid esters; the weight solids proportions of (a), (b), (c), and (d) in the additive being, respectively, 5–55%, 10–80%, 1–20% and 1–20%. The additive is preferably used with a cement dispersing agent.

6170575

CEMENTING METHODS USING DRY CEMENTITIOUS MATERIALS HAVING IMPROVED FLOW PROPERTIES

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assigned to Halliburton Energy Services Inc.

Cement compositions and methods of cementing within subterranean formations penetrated by well bores wherein the flow properties of one or more dry particulate cementitious materials are improved and wherein the materials can be readily conveyed out of storage tanks and the like. A preferred composition of the present invention comprises a particulate flow enhancing additive dry-blended with one or more dry particulate cementitious materials, said flow enhancing additive being comprised of a particulate solid material carrying a flow inducing polar chemical, and a sufficient amount of water to form a pumpable slurry. The methods basically include the steps of dry-blending the particulate flow enhancing additive with the one or more dry particulate cementitious materials; forming a pumpable slurry using the one or more cementitious materials having the particulate flow enhancing additive blended therewith; pumping the slurry into a well bore; and then allowing the slurry to solidify within the subterranean formation.

6171386

CEMENTING COMPOSITIONS, A METHOD OF MAKING THEREFORE, AND A METHOD FOR CEMENTING WELLS

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USA
assigned to Benchmark Researchand Technology Inc.

A cement composition includes cement, water in an amount from about 30% to 200% by weight of cement, and

an interpolymer latex in an amount from about 10% to 50% by weight of cement. The interpolymer latex includes at least one conjugated diene monomer having 4–8 carbon atoms in an amount from about 5% to 95% by weight of the interpolymer latex, at least one vinyl aromatic monomer having 8–12 carbon atoms in an amount from about 5% to 95% by weight of the interpolymer latex, and a copolymerizable functional monomer in an amount from about 0.5% to 50% by weight of the interpolymer latex. A method of making a cement composition involves placing the above ingredients in a suitable mixer well known to those of ordinary skill in the art and mixing the ingredients until they form the cement composition. A method for cementing a subterranean zone penetrated by a well bore involves forming a cement composition according to the above method, pumping the cement composition into the subterranean zone to be cemented by way of the well bore, and allowing the cement composition to set within the subterranean zone.

6172147

ADDITIVE FOR PRODUCTION OF HIGHLY WORKABLE MORTAR CEMENT

Angel Abelleira, John Hallock,
USA
assigned to W. R. Grace and Company-Conn.

Mortar cement additives provide workability while retaining strength by employing a multi-stage polymer comprising a hydrophobically-modified, ionically-soluble polymer stage, the polymer being soluble at a pH of 6 and above; and an air-entraining agent. The additives also employ, as optional ingredients, set retarding agents and superplasticizers. Exemplary methods of the invention involve addition of the multi-stage polymer and an air entraining agent to the mortar cement, preferably during intergrinding of Portland cement in the mill. Cement compositions comprising the polymer and an air-entraining agent are also disclosed.