

Patents ALERT

This section contains abstracts of recently issued patents in the United States and published patent applications filed from over 90 countries under the Patent Cooperation Treaty and compiled in accordance with interest profiles developed by the Editors.

Cement & Concrete Composites

Further information about complete patents can be obtained from: **REEDFAX Document Delivery System**

275 Gibraltar Road, Horsham, PA 19044, USA. Phone: +1 215 441-4768, Fax: +1 215 441-5463

WWW: www.reedfax.com

6485560**METHODS OF PROTECTING CONCRETE FROM
FREEZE DAMAGE**

George W. Scherer, Jeffrey Chen, John Valenza
USA

Assigned to The Trustees of Princeton University

A method of protecting a cementitious mixture from freeze damage is provided. The method consists of incorporating an entrainment air composition into the cementitious mixture to form air voids in the concrete, and further adding an effective agent for nucleating ice, preferably, in the air voids, such that upon the freezing of concrete formed from the cementitious mixture, ice is nucleated in air voids. In one embodiment, the air entrainment composition includes ceramic shells, which could be impregnated with an agent for nucleating ice such as metaldehyde.

6486260**CEMENT ADDITIVE, CEMENT COMPOSITION
AND POLYCARBOXYLIC ACID POLYMER**

Tsutomu Yuasa, Hirokatsu Kawakami, Tsuyoshi Hirata
Japan

Assigned to Nippon Shokubai Company Ltd.

The present invention has for its object to provide an economical cement additive capable of reducing the amount of water to be added to cement compositions and still capable of providing cement compositions with high fluidity, good processability, and a proper level of air-entraining ability resulting from sufficient foaming prevention, at low addition levels, a cement composition in which the above cement additive is used, and a polycarboxylic acid polymer excellent in dispersing effects on cement particles or inorganic powders or pigments and capable of being used with advantage as a cement additive or a dispersant for various uses. The invention provides, among others, a cement additive comprising, as main component, a polycarboxylic acid polymer (X) which has; repeating units (A), (B), (C) and (D), wherein none of the proportion of occurrence S1 of repeating unit (A) the proportion of occurrence T1 of repeating unit (B) and the proportion of occurrence E1 of repeating unit (C) is not equal to zero, the average number n of moles of an oxyalkylene group as added in repeating unit (B) is not less than 110, and that the

weight average molecular weight of said polycarboxylic acid polymer is not less than 10000.

6488762**COMPOSITION OF MATERIALS FOR USE IN
CELLULAR LIGHTWEIGHT CONCRETE AND
METHODS THEREOF**

Caijun Shi
Canada

Assigned to Advanced Materials Technologies, LLC

A more economical and light-color cellular concrete is provided by the replacement of Portland cement with ground glass powder in a cellular lightweight concrete mixture and the resulting method to make cellular concrete products. The use of ground glass also increases the stability of the cellular lightweight concrete mixture during the foaming or aeration process. The products are suitable for use in structural applications, insulation, and as a lightweight aggregate.

6488763**LIGHT WEIGHT HIGH TEMPERATURE WELL
CEMENT COMPOSITIONS AND METHODS**

Lance E. Brothers, Susan M. Turkett, Barry B. Ekstrand, D. Chad Brenneis, Jerry D. Childs
USA

Assigned to Halliburton Energy Services Inc.

The present invention provides methods of cementing subterranean zones using cement compositions comprising calcium aluminate, fly ash, sodium polyphosphate and water.

6488764**CEMENT COMPOSITION WITH POLYMERIC
LATEXES PREPARED IN THE PRESENCE OF
AMPS SEED**

Ira John Westerman
USA

Assigned to OMNOVA Solutions Inc.

A cement composition comprising a polymeric latex prepared by aqueous emulsion polymerization of a

monomeric mixture comprising styrene and butadiene in the presence of a seed polymer prepared by aqueous emulsion polymerization of styrene and a salt of 2-acrylamido-2-methylpropanesulfonic acid.

6494951

CEMENTING COMPOSITIONS USING DRY CEMENTITIOUS MATERIALS HAVING IMPROVED FLOW PROPERTIES

Baireddy R. Reddy, Ronald E. Sweatman, James F. Heathman, Russell M. Fitzgerald, Ronald J. Crook
USA
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.

6497078

ADHESIVE COMPOSITION FOR CHEMICALLY INERT SUBSTRATE

Shah A. Haque, Richard Chmiel, David Birt, Jr., Richard L. Iazzetti, Thomas G. Priest
USA
Assigned to Forty Ten L.L.C.

A unique adhesive composition consisting of two parts, a resin and a curing agent, is disclosed. The composition has good adhesion to chemically inert substrates, both flexible and rigid. It is useful for sealing discontinuity in

concrete slabs, tanks, decks, pipe lining or combinations thereof.

6497283

WELL CEMENT ADDITIVES, COMPOSITIONS AND METHODS

Larry S. Eoff, B. Raghava Reddy
USA
Assigned to Halliburton Energy Services Inc.

Improved well cement additives, compositions and methods of using the compositions are provided. The well cement additives are basically comprised of a first monomer selected from the group of 2-acrylamido-2-methylpropane sulfonic acid, 2-allyloxy-2-hydroxy-1-propane sulfonic acid and vinylsulfonic acid, a second monomer selected from the group of N,N-dimethylacrylamide, acrylamide, N-vinylpyrrolidone, N-vinylacetamide and acrylonitrile and a third monomer selected from the group of C6 to C22 dimethylaminopropylmethacrylamide bromide, chloride and iodide and C6 to C22 dimethylaminoethylmethacrylate bromide, chloride and iodide.

6500252

HIGH STRENGTH FOAMED WELL CEMENT COMPOSITIONS AND METHODS

Jiten Chatterji, Bobby J. King, Frank Zamora, Clyde R. Anderson, Billy J. Bennett, Roger S. Cromwell
USA
Assigned to Halliburton Energy Services Inc.

High strength foamed well cement compositions and methods of cementing subterranean zones penetrated by well bores are provided. The foamed well cement compositions are basically comprised of a hydraulic cement, hydrophilic fibers, water sufficient to form a pumpable slurry, a mixture of foaming and foam stabilizing surfactants and sufficient gas to foam the slurry.

6503318

CONDUCTIVE CONCRETE COMPOSITION

Glendon B. Pye, Robert E. Myers, Mark R. Arnott, James J. Beaudoin, Peter J. Tumidajski
Canada
Assigned to National Research Council of Canada

The invention provides conductive concrete suitable for commercial and large-scale production. The conductive concrete uses carbonaceous particles as conductive phase, to achieve concrete with resistivities as low as 2 Ocm and compressive strengths over 30 Mpa (both measured at 28 days).

6503625

FIBERS FOR REINFORCING MATRIX MATERIALS

Klaus-Alexander Rieder, Neal S. Berke, Stephen J. Fyler, Michael Macklin
USA

Assigned to W. R. Grace and Company-Conn.

Exemplary mechanically-flattened fibers of the invention comprise generally elongate bodies having varied width or thickness dimensions and micro-diastrophic surface deformities. Preferred fibers are elongate synthetic polymer or multipolymer blend fibers for reinforcing matrix materials such as concrete, shotcrete, gypsum-containing materials, asphalt, plastic, rubber, and other matrix materials. Preferred methods for manufacturing such fibers comprise subjecting synthetic polymer fibers to compressive forces sufficient to achieve flattening and surface micro-diastrophism without substantially shredding and abrading the fibers. Further exemplary fibers and methods involve mechanically-flattening intertwined or braided fibers or fiber bundles, thereby providing fibers having physical impressions thereon of the intertwining or braiding and, optionally though preferably of micro-diastrophic surface deformities.

6506247

LOW SILICA FURNACE CEMENT

Fred Richard Scholer
USA

Assigned to Hercules Chemical Company Incorporated

A refractory furnace cement is provided, that can be formulated to be air setting and substantially free of silica. The composition can be formed with a refractory agent, a rheology modifier, a corrosion inhibitor, a binder, such as a sodium silicate type binder, a flocculating agent and various inorganic fillers, to promote thermal stability, shelf stability, appropriate setting times and cold mortar strength.

6488766

AGGREGATE USING RECYCLED PLASTICS

Earl T. Balkum
USA

The present invention comprises an aggregate for use in cementitious building materials which-successfully incorporates plastic such as recycled plastic scrap of diverse types and a abrasive, inorganic grit particles. The plastic scrap is impregnated with a grit, such as sand, glass or other inorganic material. The plastic will then bond satisfactorily with a cementitious binder. Impregnation is accomplished by heating the plastic in particulate form, the grit or both, then mixing the plastic and grit. The aggregate can be reinforced by the addition of metallic or artificial fibers. Optionally, the aggregate can be formed with gas filled voids by adding sodium bicarbonate or borax during the heating process or by using plastics which "off-gas" during heating. In a further option, adhesive can be added to the cementitious mix, thereby fusing plastic particles together such that a skeleton providing reinforcement or support is formed in the cured aggregate.

6489032

CEMENT STRUCTURE CONTAINING A WATERPROOFING LAYER

Karoly Discho, Max Oppliger
Switzerland
Assigned to MBT Schweiz AG

A process of providing a waterproof concrete structure comprising the steps of (a) providing a layer of a concrete composition on a support; (b) spraying on to this concrete composition a waterproofing layer; and (c) applying to the waterproofing layer a further layer of a concrete composition; characterized in that the waterproofing layer is provided by a composition which comprises an aqueous dispersion of coalescable particles of thermoplastic polymer. The method is useful in the waterproofing of tunnel linings.

6489381

CEMENT COMPOSITIONS COMPRISING REDISPERSIBLE POLYMER POWDERS

Stefan Dreher, Joachim Pakusch, Mario Sandor, Bernd Reck, Claudia Wood, Hans-Jurgen Denu

Germany

Assigned to BASF Aktiengesellschaft

Cement-based compositions comprising per 100 parts by weight of cement from 1 to 500 parts by weight of a polymer built up from (a) 30–99.5% by weight of at least one alkyl ester of (meth)acrylic acid, (b) 0–70% by weight of at least one vinylaromatic, (c) 0.5–10% by weight of at least one alkyl polyethoxy(meth)acrylate of the formula

where R1 is a hydrogen atom or a methyl group, R2 is a C1 to C4 alkyl group and n is an integer from 1 to 55, (d) 0–10% by weight of at least one ethylenically unsaturated mono-or dicarboxylic acid, such as acrylic acid, methacrylic acid, maleic acid, itaconic acid, or anhydride, amide or hydroxyalkylamide thereof, (e) 0–10% by weight of acrylonitrile or methacrylonitrile, and (f) 0–50% by weight of further ethylenically unsaturated compounds other than (a) to (e).