

Search history

Search PN=(WO2015065711) (Results 1)

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Search [SP]: 1. a method of preparing a strengthened proppant comprising: mixing together (a) a compound selected from the group consisting of an alkali metal phosphate, phosphoric acid, ammonium phosphate, ammonium dihydrogen phosphate, and combinations thereof, and (b) a binder selected from the group consisting of an alkaline earth metal hydroxide, an alkaline earth metal oxide, a metal oxide, a metal hydroxide, an aluminosilicate, and combinations thereof in water to form an aqueous solution at least partially coating a plurality of proppant cores with the aqueous solution and exposing the aqueous solution-coated proppant cores to a temperature to polymerize the (a) compound selected from the group consisting of an alkali metal phosphate, a phosphoric acid, ammonium phosphate, and combinations thereof and (b) binder selected from the group consisting of a metal oxide, a metal hydroxide, an alkaline earth metal hydroxide, an alkaline earth metal oxide, an aluminosilicate, and combinations thereof to form a coating where the coating is selected from the group consisting of magnesium phosphate, calcium phosphate, aluminum phosphate, zirconium aluminum phosphate, zirconium phosphate, zirconium phosphonate, magnesium potassium phosphate, potassium aluminum phosphate, alkali metal transition metal phosphates, carbide materials, tungsten carbide, cements, polymer cements, polyamide-imides, polyether ether ketones (peek), and combinations thereof, to give the strengthened proppant. 2. the method of claim 1 where (a) the compound is alkali metal phosphate or phosphoric acid, or ammonium phosphate or ammonium dihydrogen phosphate and where the aqueous solution has a mole ratio of (a) compound/(b) binder ranging from about 0.1:1 to about 30:1. 3. the method of claim 1 where the (b) binder is selected from the group consisting of a metal oxide, a metal hydroxide, and combinations thereof, and the (a) compound is selected from the group consisting of alkali metal phosphate or phosphoric acid and mixtures thereof, and where the mole ratio of (b) binder to (a) compound in the aqueous solution ranges from about 0.1:1 to about 6:1. 4. the method of claim 1 where the aqueous solution further comprises fillers selected from the group consisting of silica sand, kevlar fibers, fly ash, sludges, slags, waste paper, rice husks, saw dust, volcanic aggregates, expanded perlite, pumice, scoria, obsidian, minerals, diatomaceous earth, mica, borosilicates, clays, metal oxides, metal fluorides, plant and animal remains, sea shells, coral, hemp fibers, manufactured fillers, silica, mineral fibers, mineral mats, chopped fiberglass, woven fiberglass, metal wools, turnings, shavings, wollastonite, nanoclays, carbon nanotubes, carbon fibers and nanofibers, graphene oxide, graphite, and combinations thereof. 5. the method of claim 1 where the proppant cores are heated prior to the coating with the aqueous solution. 6. the method of claim 5 where the proppant cores are heated to between about 0 and about 300 degrees centigrade. 7. the method of claim 1 where the proppant cores are selected from the group consisting of sand, ceramic beads, glass beads, bauxite grains, sintered bauxite, sized calcium carbonate, walnut shell fragments, aluminum pellets, silica, nylon pellets, nuts shells, gravel, resinous particles, alumina, minerals, polymeric particles, and combinations thereof. 8. the method of claim 1 where in the (a) compound is an alkali metal phosphate, and the (b) binder is selected from the group consisting of an alkaline earth metal hydroxide, an alkaline earth metal oxide, and combinations thereof, the alkali metal is selected from the group consisting of sodium, potassium and mixtures thereof and the alkaline earth metal is selected from the group consisting of calcium, magnesium and mixtures thereof, and the coating is selected from the group consisting of magnesium phosphate, aluminum phosphate, zirconium aluminum phosphate, zirconium phosphate, zirconium phosphonate, magnesium potassium phosphate, aluminosilicate and combinations thereof. 9. the method of claim 1 where the strengthened proppant has a density ranging from about 2 to about 2.63 g/cm³, and a compressive strength ranging from about 60 to about 130 mpa. 10. a method of preparing a strengthened proppant comprising: mixing together (a) a compound selected from the group consisting of an alkali metal phosphate, phosphoric acid, ammonium phosphate, ammonium dihydrogen phosphate, and combinations thereof, and (b) a binder selected from the group consisting of an alkaline earth metal hydroxide, an alkaline earth metal oxide, a metal oxide, a metal hydroxide, an aluminosilicate, and combinations thereof, in water to form an aqueous solution where the ratio of (a) compound/(b) binder ranging from about 0.1:1 to about 30:1 at least partially coating a plurality of proppant cores with the aqueous solution, where the proppant cores are selected from the group consisting of sand, ceramic beads, glass beads, bauxite grains, sintered bauxite, sized calcium carbonate, walnut shell fragments, aluminum pellets, silica, nylon pellets, nuts shells, gravel, resinous particles, alumina, minerals, polymeric particles, and combinations thereof and exposing the aqueous solution-coated proppant cores to a temperature to polymerize the (a) compound selected from the group consisting of an alkali metal phosphate, a phosphoric acid, ammonium phosphate and combinations thereof and (b) binder selected from the group consisting of an alkaline earth metal hydroxide, an alkaline earth metal oxide, a metal oxide, a metal hydroxide, an aluminosilicate in water, and combinations thereof to form a coating where the coating is selected from the group consisting of magnesium phosphate, calcium phosphate, aluminum phosphate, zirconium aluminum phosphate, zirconium phosphate, zirconium phosphonate, magnesium potassium phosphate, potassium aluminum phosphate, alkali metal transition metal phosphates, carbide materials, tungsten carbide, cements, polymer cements, polyamide-imides, polyether ether ketones (peek), and combinations thereof, to give the strengthened proppant. 11. the method of claim 10 where the aqueous solution further comprises fillers selected from the group consisting of silica sand, kevlar fibers, fly ash, sludges, slags, waste paper, rice husks, saw dust, volcanic aggregates, expanded perlite, pumice, scoria, obsidian, minerals, diatomaceous earth, mica, borosilicates, clays, metal oxides, metal fluorides, plant and animal remains, sea shells, coral, hemp fibers, manufactured fillers, silica, mineral fibers, mineral mats, chopped fiberglass, woven fiberglass, metal wools, turnings, shavings, wollastonite, nanoclays, carbon nanotubes, carbon fibers and nanofibers, graphene oxide, graphite, and combinations thereof. 12. the method of claim 10 where the proppant cores are heated prior to the coating with the aqueous solution. 13. the method of claim 12 where the proppant cores are heated to between about 0 and about 300 degrees centigrade. 14. the method of claim 10 where in the (a) compound is selected from the group consisting of an alkali metal phosphate, phosphoric acid, ammonium phosphate, ammonium dihydrogen phosphate, and combinations thereof, and the (b) binder is an alkaline earth metal hydroxide, an alkaline earth metal oxide, and combinations thereof, the alkali metal is selected from the group consisting of sodium, potassium and mixtures thereof and the alkaline earth metal is selected from the group consisting of calcium, magnesium and mixtures thereof, and the coating is selected from the group consisting of magnesium phosphate, aluminum phosphate, zirconium aluminum phosphate, zirconium phosphate, zirconium phosphonate, magnesium potassium phosphate, and combinations thereof. 15. the method of claim 10 where the strengthened proppant has a density ranging from about 2 to about 2.63 g/cm³, and a compressive strength ranging from about 60 to about 130 mpa. 16. a method of preparing a strengthened proppant comprising: mixing together (a) a compound selected from the group consisting of an alkali metal phosphate, phosphoric acid, ammonium phosphate, ammonium dihydrogen phosphate, and combinations thereof, and (b) a binder selected from the group consisting of an alkaline earth metal hydroxide, an alkaline earth metal oxide, a metal oxide, a metal hydroxide, and combinations thereof in water to form an aqueous solution where the ratio of (b) binder to (a) compound in the aqueous solution ranges from about 0.1:1 to about 6:1 at least partially coating a plurality of proppant cores with the aqueous solution, where the proppant cores are selected from the group consisting of sand, ceramic beads, glass beads, bauxite grains, sintered bauxite, sized calcium carbonate, walnut shell fragments, aluminum pellets, silica, nylon pellets, nuts shells, gravel, resinous particles, alumina, minerals, polymeric particles, and combinations thereof and exposing the aqueous solution-coated proppant cores to temperature to polymerize the (a) compound selected from the group consisting of an alkali metal phosphate, phosphoric acid, ammonium phosphate, ammonium dihydrogen phosphate, and combinations thereof and (b) (Results 13)

Search 2 and density (Results 2)

3:

Search [SP]: cross-reference to related application[0001] this application is a continuation-in-part of u.s. ser. no. 14/066,893 filed oct. 30, 2013, incorporated herein by reference in its entirety. technical field[0002] the present invention relates to proppants used in hydraulic fracturing treatments for subterranean formations, and more particularly relates to methods for making proppants and proppants made thereby where the proppants have a coating that imparts improved strength. technical background[0003] hydraulic fracturing is a common stimulation technique used to enhance production of hydrocarbon fluids from subterranean formations. in a typical hydraulic fracturing treatment, fracturing treatment fluid containing a solid proppant material is injected into the formation at a pressure sufficiently high enough to cause the formation to fracture or cause enlargement of natural fractures in the reservoir. the fracturing fluid that contains the proppant or propping agent typically has its viscosity increased by a gelling agent such as a polymer, which may be uncrosslinked or crosslinked, and/or a viscoelastic surfactant. during a typical fracturing treatment, propping agents or proppant materials are deposited in a fracture, where they remain after the treatment is completed. after deposition, the proppant materials serve to hold the fracture open, thereby enhancing the ability of fluids to migrate from the formation to the well bore through the fracture. because fractured well productivity depends on the ability of a fracture to conduct fluids from a formation to a wellbore, fracture conductivity is an important parameter in determining the degree of success of a hydraulic fracturing treatment and the choice of proppant may be critical to the success of stimulation.[0004] one problem related to hydraulic fracturing treatments is the creation of reservoir "fines" and associated reduction in fracture conductivity. these fines may be produced when proppant materials are subjected to reservoir closure stresses within a formation fracture which cause proppant materials to be compressed together in such a way that small particles ("fines") are generated from the proppant material and/or reservoir matrix. in some cases, production of fines may be exacerbated during production/workover operations when a well is shut-in and then opened up. this phenomenon is known as "stress cycling" and is believed to result from increased differential pressure and closure stress

that occurs during fluid production following a shut-in period. production of fines is undesirable because of particulate production problems, and because of reduction in reservoir permeability due to plugging of pore throats in the reservoir matrix.[0005] production of particulate solids with subterranean formation fluids is also a common problem. the source of these particulate solids may be unconsolidated material from the formation, proppant from a fracturing treatment and/or fines generated from crushed fracture proppant, as mentioned above. production of solid proppant material is commonly known as "proppant flowback." in addition to causing increased wear on downhole and surface production equipment, the presence of particulate materials in production fluids may also lead to significant expense and production downtime associated with removing these materials from wellbores and/or production equipment. accumulation of these materials in a well bore may also restrict or even prevent fluid production. in addition, loss of proppant due to proppant flowback may also reduce conductivity of a fracture pack.[0006] it will be appreciated that if proppant strength can be improved that at least two problems are addressed. first, proppants with improved strength can better hold the fracture open to facilitate the production of hydrocarbon fluids. second, stronger proppants do not disintegrate and exacerbate the production of fines. thus, it would be very desirable to discover methods to produce stronger proppants.summary[0007] in one non-limiting embodiment there may be provided a method of preparing a strengthened proppant that includes mixing together (a) a compound selected from the group consisting of an alkali metal phosphate, phosphoric acid, ammonium phosphate, ammonium di-hydrogen phosphate and combinations thereof, and (b) a binder in water to form an aqueous solution. the (b) binder is selected from the group consisting of an alkaline earth metal hydroxide, an alkaline earth metal oxide, a metal oxide, a metal hydroxide, an aluminosilicate, and combinations thereof. the method additionally includes at least partially coating a plurality of proppant cores with the aqueous solution, and then exposing the aqueous solution-coated proppant cores to a temperature to polymerize the (a) compound and (b) binder to form a coating where the coating includes, but is not necessarily restricted to, magnesium phosphate, calcium phosphate, aluminum phosphate, zirconium aluminum phosphate, zirconium phosphate, zirconium phosphonate, magnesium potassium phosphate, potassium aluminum phosphate, alkali metal transition metal phosphates, carbide materials, tungsten carbide, cements, polymer cements, polyamide-imides, polyether ether ketones (peek), and combinations thereof, to give the strengthened proppant. there are also provided the strengthened proppants produced by this method.brief description of the drawings[0008] the following descriptions should not be considered limiting in any way.[0009] fig. 1 is a schematic cross-section illustration of a coated proppant as described herein and[0010] fig. 2 is a chart of compressive strength for various proppant compositions in accordance with the methods described herein and as compared to a geopolymer alumino silica.[0011] it will be appreciated that fig. 1 is a schematic illustration, and that it is not necessarily to scale, and that certain proportions and features may be exaggerated for clarity. for instance, the proppant shown in fig. 1 is illustrated to be perfectly spherical, whereas actual proppants are typically only approximately spherical.detailed description[0012] it has been discovered that phosphate ceramics binders and other materials may be used as coatings in order to improve the strength of proppants, including, but not necessarily limited to, brown and white sand. the resulting coated proppant material show a dramatic improvement in the strength of both the white and brown sand. in both cases, the fines flowback obtained at a 10,000 psi (69 mpa) closure stress using the api standards are lower than about 10 wt percent.[0013] more specifically, a method and composition is described to coat proppant sand to dramatically increase its strength thereby extending its usage to formation closing stresses to at least about 5000 (34 mpa), alternatively at least to about 10,000 (69 mpa) and in another non-limiting embodiment to about 12,000 psi (83 mpa), and even up to 130 mpa (18,900 psi). in one non-limiting embodiment, the compressive strength ranges from about 35 independently to about 130 mpa, alternatively from about 50 independently to about 100 mpa, and in another non-restrictive embodiment from about 60 independently to about 83 mpa. by "withstanding" closure stresses in this range is meant that the coated proppant will not be crushed or disintegrated at these closure stresses and that, if generated, the amount of fines will be less than 10 weight percent of the total amount of proppant. the term "independently" as used herein with respect to a parameter range means that any lower threshold may be combined with any upper threshold to provide a suitable, acceptable alternative range.[0014] the coated proppant is slightly lighter (less dense) than sand and its apparent density is expected to range between about 2.3 independently to about 2.63 g/cm³, alternatively from between about 2.55 independently to about 2.6 g/cm³ in another non-restrictive version from about 2 to about 2.61 g/cm³. in another non-limiting embodiment, the density of the chemically bonded phosphate ceramics (cbpcs) and other materials themselves described herein ranges from about 1.8 to 2.5 g/cm³. [0015] inorganic polymers are used as coating materials by mixing a compound selected from the group consisting of an alkali metal phosphate, a phosphoric acid, ammonium phosphate and combinations thereof and a binder solution made of an alkaline earth metal hydroxide, an alkaline earth metal oxide, a metal oxide, a metal hydroxide, an aluminosilicate, and combinations thereof, in water which results in a very strong, rigid network. the resulting coatings have an amorphous, structure. the reaction is exothermic forming a solid polymer at room temperature or mild heat causing the molecules to poly-condense or polymerize. in one non-limiting embodiment, "room temperature" is defined as the temperature of the room where the reaction is conducted. the physical properties of the resultant rigid chain or net of are largely determined by the ratio of the compounds and the binders. by varying this ratio, the material may be made rigid, suitable for use as a concrete, cement, or waste encapsulating medium, or more flexible for use as an adhesive, sealant or as an impregnating resin. the coating process is similar to that of resin coated sand and is accomplished by coating heated sand in a mixer, such as a rotary mixer, with the solution including the compound and the binder when exposing the sample to a heat gun or other heat source for less than about ten minutes to trigger polymerization. the resulting proppant may or not then be put in an oven for about three hours to finish the p (Results 13)

Search SFT=(coated and proppants and (apparent density)) (Results 46)
5:

Search 5 and sand (Results 17)
6:

1) Family number: 30538312 (US2003102128A)

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Title: LIGHTWEIGHT PARTICULATE MATERIALS AND USES THEREFOR

Abstract: Source: US2003102128A Methods and compositions useful for **sand** control and/or hydraulic fracturing of subterranean formations that utilize relatively lightweight and/or substantially neutrally buoyant particles as particulate **sand** control or proppant material. Particles that may be employed include particulates of naturally-occurring materials that may be optionally strengthened or hardened by exposure to a modifying agent. Effectiveness of a modifying agent may be optionally enhanced by facilitating interaction between a modifying agent and one or more components present in a naturally occurring material by using enhancing agents and/or by using conditions that enhance interaction.

Classifications:

International (IPC 8-9): B23B33/00 B23B5/16 B23B5/18 B32B33/00 B32B5/16 B32B5/18 C04B38/08 C09K8/56 C09K8/60 C09K8/62 C09K8/68 C09K8/70 C09K8/80 E21B E21B33/138 E21B43/02 E21B43/04 E21B43/26 E21B43/267 (Advanced/Invention); C08J9/00 C08L25/16 C08L33/06 E21B43/22 (Advanced/Non-invention); B32B33/00 B32B5/16 B32B5/18 C04B38/08 C09K8/56 C09K8/60 E21B33/138 E21B43/02 (Core/Invention); C08J9/00 C08L25/00 C08L33/00 E21B43/16 (Core/Non-invention)
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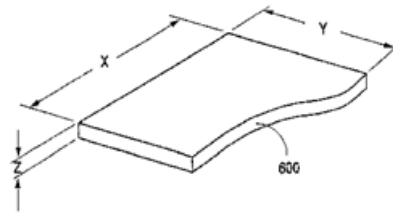


Fig. 1

Family:

Publication number	Publication date	Application number	Application date
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2) Family number: 31169925 (US2005019574A)

PatBase

Title: PARTICULATE MATERIAL CONTAINING THERMOPLASTICS AND METHODS FOR MAKING AND USING THE SAME

Abstract: Source: US2005019574A Disclosed herein is a particle comprising a particulate substrate; and a thermoplastic elastomer present on or in the substrate as an amount sufficient to improve the dust suppression of the particle above that which would occur if the thermoplastic elastomer was absent. Disclosed herein is a particle comprising a particulate substrate; and a thermoplastic elastomer, wherein the particle has a compressive strength retention of greater than about 50 percent as measured by a UCS test and a turbidity of about 10 to 200 NTU after a one hour ball mill test.

Classifications:

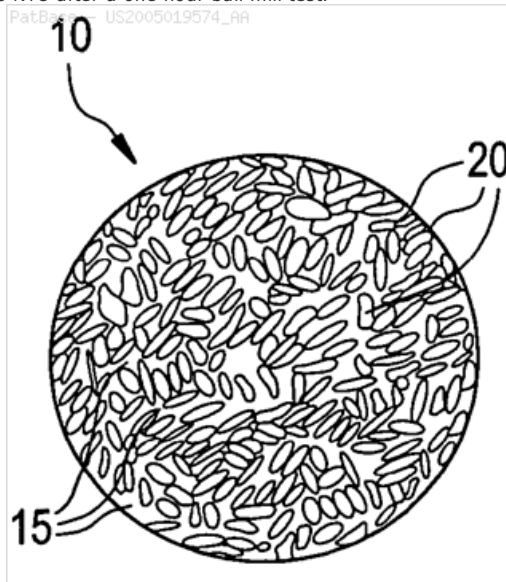
International (IPC 8-9): B01J2/30 B05D7/00 B22C1/22 B32B5/16 B32B9/00 C03C12/00 C03C17/32 C04B35/628 C04B41/48 C08G12/00 C09C3/10 C09C3/12 C09K8/516 C09K8/80 E21B43/04 E21B43/267 (Advanced/Invention); B01J2/30 B05D7/00 B22C1/16 B32B5/16 B32B9/00 C03C12/00 C03C17/28 C04B35/626 C04B41/45 C08G12/00 C09K8/50 C09K8/60 E21B43/02 E21B43/25 (Core/Invention); B32B C08J (Subclass/Invention)

International (IPC 1-7): B05D7/00 B32B5/16 B32B9/00

CPC: Y10T428/2982 Y10T428/2991 Y10T428/2993 Y10T428/2995 Y10T428/2996 Y10T428/2998 C09K8/805 C09C3/10 C01P2006/20

European: C09C3/10 C09K8/80B

US: 166/295 427/212 427/212S 427/214 427/221 427/23 427/230 427/230S 427/379 428/402 428/403 428/403P 428/404 428/405 428/406 428/406S 428/407 523/130 523/131 523/132 523/139 523/145



Family:

Publication number	Publication date	Application number	Application date
BRPI0409410 A	20060425	BR2004PI09410	20040415
CA2521007 AA	20050929	CA20042521007	20040415
CA2521007 C	20090811	CA20042521007	20040415
CN1839034 A	20060927	CN200480010315	20040415
EP1615763 A2	20060118	EP20040750144	20040415
EP1615763 A4	20120321	EP20040750144	20040415
NO20054421 A	20051115	NO20050004421	20050923
NO20054421 A0	20050923	NO20050004421	20050923
RU2005135444 A	20060610	RU20050135444	20040415
RU2344040 C2	20090120	RU20050135444	20040415
US2005019574 AA	20050127	US20040825087	20040415
US7270879 BB	20070918	US20040825087	20040415
WO04092254 A2	20041028	WO2004US11558	20040415
WO04092254 A3	20050623	WO2004US11558	20040415
WO04092254 C1	20060526	WO2004US11558	20040415

Priority:

UA19466269403P 20030415 UA20030462694P 20030415 US20040825087 20040415
WO2004US11558 20040415 US20030462694P 20030415 US20030462694P 20030415

Probable Assignee: HEXION INC

Assignee(s): (std): BORDEN CHEM INC ; HEXION SPECIALTY CHEMICALS INC ; KHEKSION SPESHELTI KEMIKALS IN ; MCCRARY LLOYD AVIS ; MCCRARY AVIS LLOYD

Assignee(s): WILMINGTON TRUST CO ; KHEKSION SPESHELTI KEMIKALS INK ; BORDEN CHCALS INC ; JPMORGAN CHASE BANK NA COLLATERAL AGENT AS ; WILMINGTON TRUST CO COLLATERAL AGENT AS ; WILMINGTON TRUST FSB COLLATERAL AGENT AS ; MOMENTIVE SPECIALTY CHEMICALS INC ; MOMENTIVE SPECIALTY CHCALS INC ; WILMINGTON TRUST NATIONAL ASSOCIATION ; MOMENTIVE SPECIALTY CHEMICALS INC F K A HEXION SPECIALTY CHEMICALS INC ; WILMINGTON TRUST NATIONAL ASSOCIATION COLLATERAL AGENT AS ; LAWTER INT INC ; OILFIELD TECHNOLOGY GROUP INC ; JPMORGAN CHASE BANK NA AS ADMINISTRATIVE AGENT ; JPMORGAN CHASE BANK NA AS COLLATERAL AGENT ; HEXION INC ; HEXION CI HOLDING CO CHINA LLC ; HEXION INC WAS KNOWN AS HEXION SPECIALTY CHEMICALS INC.. ; HEXION INT INC WAS KNOWN AS BORDEN CHEMICAL INTERNATIONAL INC.. ; HEXION INVESTMENTS INC WAS KNOWN AS BORDEN CHEMICAL INVESTMENTS INC.. ; HEXION US FINANCE CORP ; HSC CAPITAL CORP ; FLEET CAPITAL CORP ; JPMORGAN CHASE BANK NA ; JPMORGAN CHASE BANK NA ADMINISTRATIVE AGENT AS ; BORDEN CHEMICAL CANADA INC ; BORDEN CHEMICAL FOUNDRY LLC ; BORDEN CHEMICAL GB LTD ; BORDEN CHEMICAL INC ; BORDEN CHEMICAL UK LTD

Inventor(s): (std): AVIS LLOYD MCCRARY ; MAKKREHRI EHVIS LLOYD ; MCCRARY AVIS LLOYD ; MCCRARY LLOYD AVIS ; SHONAIDE GABRIEL OBAFEMI

Inventor(s): MCCRARY AVIS

Agent(s): OGILVY RENAULT LLP SENCRL SRL; NORTON ROSE FULBRIGHT CANADA LLP SENCRL SRL; CANTOR COLBURN LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU

3) Family number: 32760010 (US2006078682A)

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Title: PARTICLES FOR USE AS **PROPPANTS** OR IN GRAVEL PACKS, METHODS FOR MAKING AND USING THE SAME

Abstract: Source: US2006078682A Disclosed herein is a **coated** particle comprising a substrate comprising an inorganic material, wherein the inorganic material comprises silica and alumina in a silica to alumina weight ratio of about 2.2 to about 5; and wherein the inorganic material has a bulk density of less than or equal to about 1 g/cm³; and a **coating** disposed upon the substrate. Disclosed herein too is a method of treating a subterranean formation comprising injecting a fracturing fluid into the subterranean formation; wherein the fracturing fluid comprises an inorganic particle that comprises silica and alumina in a silica to alumina weight ratio of about 2.2 to about 5; and wherein the inorganic particle has a bulk density of less than or equal to about 1 g/cm³.

Classifications:

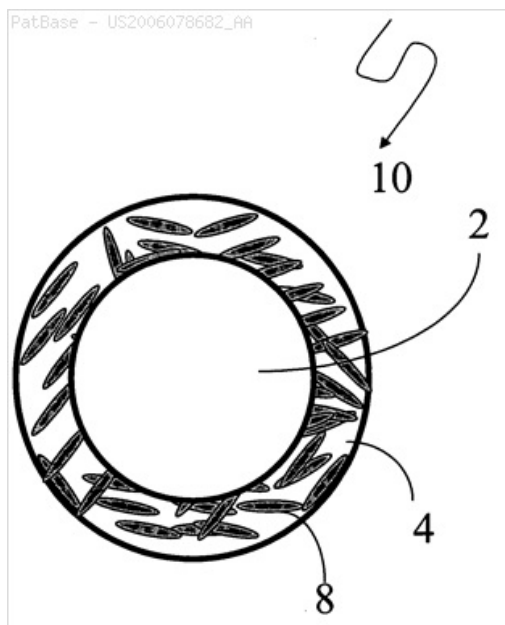
International (IPC 8-9): B05D7/00 B05D7/24 B32B27/00 B32B5/16 B32B5/66 C08F2/46 C09K17/00 C09K3/14 C09K8/56 C09K8/80 E21B33/13 (Advanced/Invention);

B05D7/00 B05D7/24 B32B27/00 B32B5/16 C08F2/46 C09K17/00 C09K3/14 C09K8/60 E21B33/13 (Core/Invention)

CPC: Y10T428/2982 Y10T428/2991 Y10T428/2993 Y10T428/2995 Y10T428/2996 Y10T428/2998 C09K3/1436 C09K8/62 C09K8/805

European: C09K3/14C C09K8/62 C09K8/80B

US: 166/295 427/212 427/212S 427/215 427/221 427/221S 427/372.2 427/372.200P 427/487 427/487P 428/402 428/403 428/403S 428/404 428/404S 428/405 428/406 428/407 428/407S

**Family:**

Publication number	Publication date	Application number	Application date
BRPI0515437 A	20080722	BR2005PI15437	20050920
CN101432132 A	20090513	CN200580031633	20050920
CN101432132 B	20121128	CN200580031633	20050920
EP1791691 A2	20070606	EP20050798756	20050920
EP1791691 A4	20100623	EP20050798756	20050920
NO20071536 A	20070416	NO20070001536	20070323
US2006078682 AA	20060413	US20050230693	20050920
US2009238988 AA	20090924	US20090437747	20090508
US7919183 BB	20110405	US20050230693	20050920
US8227026 BB	20120724	US20090437747	20090508
WO06034298 A2	20060330	WO2005US33711	20050920
WO06034298 A3	20090402	WO2005US33711	20050920
WO10129119 A1	20101111	WO2010US29898	20100405

Priority:

US20040611350P 20040920 US20050230693 20050920 US20090437747 20090508
 WO2005US33711 20050920

Probable Assignee: HEXION INC

Assignee(s): (std): GREEN JOHN W ; HEXION SPECIALTY CHEMICALS INC ; HEXION SPECIALTY CHEMICALS RES ; MCDANIEL ROBERT R ; MCCRARY AVIS L ; MCCRARY AVIS LLOYD ; XU LIANG ; MOMENTIVE SPECIALTY CHEMICALS INC ; MOMENTIVE SPECIALTY CHEM INC

Assignee(s): JPMORGAN CHASE BANK NA ; HEXION INT INC WAS KNOWN AS BORDEN CHEMICAL INTERNATIONAL INC.. ; HEXION INVESTMENTS INC WAS KNOWN AS BORDEN CHEMICAL INVESTMENTS INC.. ; HEXION US FINANCE CORP ; HSC CAPITAL CORP ; BORDEN CHEMICAL FOUNDRY LLC ; MOMENTIVE SPECIALTY CHICALS INC ; WILMINGTON TRUST NATIONAL ASSOCIATION ; MOMENTIVE SPECIALTY CHEMICALS INC F K A HEXION SPECIALTY CHEMICALS INC ; WILMINGTON TRUST NATIONAL ASSOCIATION COLLATERAL AGENT AS ; LAWTER INT INC ; OILFIELD TECHNOLOGY GROUP INC ; JPMORGAN CHASE BANK NA AS COLLATERAL AGENT ; JPMORGAN CHASE BANK NA AS ADMINISTRATIVE AGENT ; WILMINGTON TRUST CO ; JPMORGAN CHASE BANK NA ADMINISTRATIVE AGENT AS ; JPMORGAN CHASE BANK NA COLLATERAL AGENT AS ; WILMINGTON TRUST CO COLLATERAL AGENT AS ; WILMINGTON TRUST FSB COLLATERAL AGENT AS ; HEXION SPECIALTY CHEMICALS RESEARCH BELGIUM S A ; HEXION SPECIALTY CHEMICALS RESEARCH BELGIUM SA ; HEXION CI HOLDING CO CHINA LLC ; HEXION INC ; HEXION INT WAS KNOWN AS HEXION SPECIALTY CHEMICALS INC..

Inventor(s): (std): MCCRARY AVIS L ; MCCRARY AVIS LLOYD ; MCCRARY AVIS LOYD ; MCDANIEL ROBERT R ; XU LIANG ; MCCRARY AVIS LLOYD ; GREEN JOHN W

Inventor(s): ROBERT R MCDANIEL ; AVIS LLOYD MCCRARY ; MCCRARY AVIS ; MCDANIEL ROBERT

Agent(s): RESOLUTION PERFORMANCE PRODUCTS LLC, ATTN: LISA JONES; RESOLUTION PERFORMANCE PRODUCTS LLC ATTN LISA JONES; HEXION SPECIALTY CHEMICALS INC; JONES LISA KIMES

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST

4) Family number: 42496505 (US2008277115A)

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Title: INCREASING BUOYANCY OF WELL TREATING MATERIALS

Abstract: Source: US2008277115A A composite proppant having an increased buoyancy comprising a proppant substrate such as a porous ceramic or a silica **sand coated** with a material of a lesser actual density than the **apparent density** of the proppant substrate to increase the buoyancy of the composite proppant.

Classifications:

International (IPC 8-9): B32B5/16 C09K7/00 C09K8/74 C09K8/80 E21B43/26 E21B43/267 (Advanced/Invention);

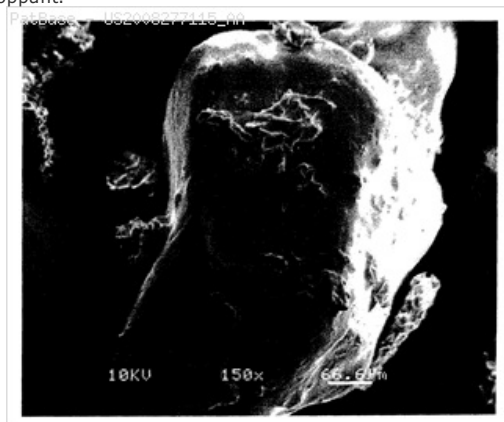
C09K8/60 E21B43/25 (Core/Invention)

International (IPC 1-7): C09K7/00

CPC: Y10S507/924 E21B43/267 C09K8/805

European: C09K8/80B E21B43/267

US: 166/280.1 166/280.2 166/280.200P 507/269 507/924

**Family:**

Publication number	Publication date	Application number	Application date
AR066529 AA	20090826	AR2008P101993	20080509
CA2685839 AA	20081120	CA20082685839	20080507
CA2685839 C	20150714	CA20082685839	20080507
CL2008001375 A1	20081114	CL20080001375	20080509
CL52026 B	20160219	CL20080001375	20080509
CL52026 B	20160224	CL20080001375	20080509
RU2009145962 A	20110620	RU20090145962	20080507
RU2478779 C2	20130410	RU20090145962	20080507
US2008277115 AA	20081113	US20070747359	20070511
US8058213 BB	20111115	US20070747359	20070511
WO08141039 A1	20081120	WO2008US62890	20080507

Priority:

US20070747359 20070511 WO2008US62890 20080507

Probable Assignee: GEORGIA PACIFIC CHEMICALS LLC

Assignee(s): (std): ARON MICHAEL JOSEPH ; DZHORDZHIA PEHSIFIK KEMIKALZ EHLEHLSI ; FENNELL BEDFORD W ; GEORGIA PACIFIC CHEMICALS LLC ; PETRELLA JESSE ; REDIGER RICHARD

Inventor(s): (std): ARON MAJKL DZHOZEZ ; ARON MICHAEL JOSEPH ; FENNELL BEDFORD V ; FENNELL BEDFORD W ; PETRELLA DZHESSSE ; PETRELLA JESSE ; REDIGER RICHARD ; RIDAJDZHER RICHARD

Inventor(s): REDIGER RICHARD PETRELLA JESSE ARON MICHAEL JOSEPH FENNELL BEDFORD W

Agent(s): BLAKE CASSELS AND GRAYDON LLP; PORZIO; PATENT GROUP GA30-43, GEORGIA-PACIFIC LLC; PATENT GROUP GA30 43 GEORGIA PACIFIC LLC; MICHAEL S; LEE ERIC M

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

5) Family number: 42964635 (US2009044942A)

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Title: CELLULOSIC PARTICULATES AND METHOD OF MANUFACTURE AND USE THEREOF

Abstract: Source: US2009044942A Spherical porous and non-porous cellulose particulates for use in **sand** control as well as stimulation procedures, may be prepared by first dissolving cellulosic materials (such as fibrous cellulose, wood pulp linters, cotton balls and/or paper), in the substantial absence of water or a nitrogen-containing base, in an ionic liquid. The solution is then combined with a cellulose-insoluble liquid to render the spherical particulates. The surface of the cellulosic particulates may be treated with a **coating** or penetrating layer.

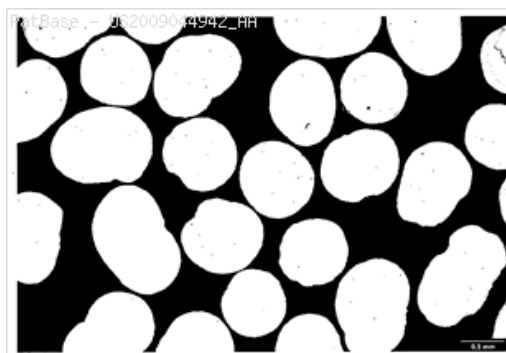
Classifications:

International (IPC 8-9): E21B43/267 (Advanced/Invention); E21B43/25 (Core/Invention)

CPC: C08B1/003 C08J3/14 C08J2301/02 C08J2397/02 C09K8/5751 C09K8/5758 C09K8/80

European: C08B1/00B C08J3/14 C09K8/575B C09K8/575B8 C09K8/80 M08J301/02 M08J397/02

US: 166/278 166/280.2 166/280.200P 166/308.3 507/214 507/214S



Family:

Publication number	Publication date	Application number	Application date
US2009044942 AA	20090219	US20080191255	20080813
US8276664 BB	20121002	US20080191255	20080813

Priority:

US20070964472P 20070813 US20080191255 20080813

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BAKER HUGHES INC ; BJ SERVICES CO ; GUPTA D V SATYANARAYANA

Assignee(s): BJ SERVICES CO LLC ; BSA ACQUISITION LLC

Inventor(s): (std): GUPTA D V SATYANARAYANA

Inventor(s): GUPTA DV SATYANARAYANA

Agent(s): JONES AND SMITH LLP; JOHN WILSON

6) Family number: 44966481 (US2011297383A)

© PatBase

Title: PROPPANT

Abstract: Source: US2011297383A A proppant comprises a particle and a polycarbodiimide **coating** disposed on the particle. The polycarbodiimide **coating** comprises the reaction product of a polymeric isocyanate and a monomeric isocyanate, in the presence of a catalyst. A method of forming the proppant comprises the steps of providing the particle, providing the polymeric isocyanate, providing the monomeric isocyanate, providing the catalyst, reacting the polymeric isocyanate and the monomeric isocyanate in the presence of the catalyst to form the polycarbodiimide **coating**, and **coating** the particle with the polycarbodiimide **coating**.

Classifications:

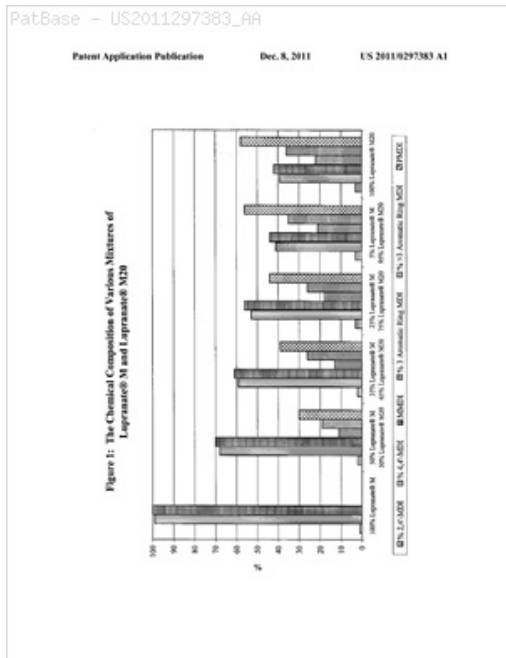
International (IPC 8-9): B05D7/00 C09K8/62 C09K8/80 C09K8/92 E21B43/26 E21B43/267 (Advanced/Invention); C09K8/60 (Core/Invention)

International (IPC 1-7): C09K7/00 E21B43/26

CPC: E21B43/267 C09K8/805 C09K8/62

European: C09K8/62 C09K8/80 C09K8/80B

US: 166/280.2 166/308.1 166/308.100P 427/212 427/212S 427/385.5 507/204 507/204S 507/219 507/219S



Family:

Publication number	Publication date	Application number	Application date
AR073417 AA	20101103	AR2009P104176	20091029
AU2009309692 AA	20100506	AU20090309692	20091029
AU2009309692 BB	20150205	AU20090309692	20091029
BRPI0919963 A2	20151208	BR2009PI19963	20091029
CN102203211 A	20110928	CN200980143276	20091029
CN102203211 B	20131218	CN200980143276	20091029
CO6341481 A2	20111121	CO20110065405	20110526
EA023407 B1	20160630	EA20110000710	20091029
EA201100710 A1	20111230	EA20110000710	20091029
ECSP11011078 A	20110630	EC2011SP11078	20110524
EP2350228 A1	20110803	EP20090752319	20091029

IN03512CN2011 A	20120831	IN2011CN03512	20110523
US2011297383 AA	20111208	US20090126905	20091029
US2013068460 AA	20130321	US20120678991	20121116
US9714378 BB	20170725	US20120678991	20121116
US9719011 BB	20170801	US20090126905	20091029
WO10049467 A1	20100506	WO2009EP64244	20091029

Priority:

US20080109226	20081029	US20080109226P	20081029	US20090229093	20090728
US20090126905	20091029	US20090229093	20090728	US20090229093P	20090728
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Probable Assignee: BASF SE

Assignee(s): (std): BASF SE ; TANGUAY CHRISTOPHER M ; ERICKSON JOHN ; KUMAR RAJESH ; MANEA VICTORIA ; HUARNG JYH CHIARNG ; ALEMDAROGLU FIKRI EMRAH

Assignee(s): BASF

Inventor(s): (std): ERICKSON JOHN ; HUARNG JYH CHIARNG ; KUMAR RAJESH ; MANEA VICTORIA ; TANGUAY CHRISTOPHER M ; YANG MICHAEL T ; VICTORIA MANEA ; JYH CHIARNG HUARNG ; JOHN ERICKSON ; EMRAH ALEMDAROGLU FIKRI ; TANGUAY CHRISTOPHER ; RAJESH KUMAR ; MANEA VICTOR ; ERICKSON JOHN P ; ALEMDAROGLU FIKRI EMRAH

Inventor(s): CHRISTOPHER M TANGUAY ; FIKRI EMRAH ALEMDAROGLU ; JOHN P ERICKSON ; CHRISTOPHER TANGUAY

Agent(s): WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; OSCAR CORREA BARBOSA; HOWARD AND HOWARD ATTORNEYS PLLC; BASF SE

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

7) Family number: 50479952 (US2012012326A)

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Title: SHAPED COMPRESSED PELLETS FOR SLOW RELEASE OF WELL TREATMENT AGENTS INTO A WELL AND METHODS OF USING SAME

Abstract: Source: US2012012326A Shaped particulates which have been compressed from a composite of a well treatment agent and adsorbent in a matrix may be introduced into horizontal or deviated oil or gas wells. The well treatment agent of the shaped pellets may be used to prevent and/or control the formation of deposits in a production well.

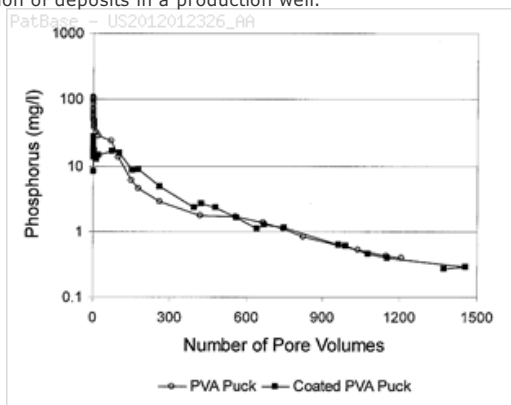
Classifications:

International (IPC 8-9): C04B35/01 C04B35/10 C04B38/00 C04B40/06 C09K8/03 C09K8/52 C09K8/524 C09K8/528 C09K8/536 C09K8/54 C09K8/588 C09K8/62 C09K8/70 C09K8/72 C09K8/80 C09K8/92 E21B37/06 E21B41/02 E21B43/00 E21B43/02 E21B43/04 E21B43/08 E21B43/10 E21B43/12 E21B43/16 E21B43/22 E21B43/25 E21B43/26 E21B43/267 E21B43/28 (Advanced/Invention); C09K8/536 (Core/Invention)

CPC: C09K8/524 E21B37/06 C09K8/528 C09K2208/20 C09K2208/22 C09K2208/26 C09K2208/32 C09K8/03 C04B38/009 C04B40/0641 C09K8/54 C09K8/805 C09K8/80 C09K8/536 C04B35/10 C04B38/0045 C04B38/068 C04B38/0675 C09K8/70 C09K8/92 C09K8/62 C09K8/72 E21B41/02 E21B43/084 E21B43/088 E21B43/25

European: C09K8/524 C09K8/536 C09K8/54 C09K8/80B E21B37/06

US: 166/278 166/280.2 166/300 166/305.1 166/308.1 166/308.3 166/310 166/311 507/202 507/230 507/230S 507/269 507/90



Family:

Publication number	Publication date	Application number	Application date
AR082258 AA	20121121	AR2011P102595	20110718
AR086048 AA	20131113	AR2012P101417	20120424
AU2012249983 AA	20121101	AU20120249983	20120420
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SG194642 A1	20131230	SG20130079546	20120420
TH145941 A	20160304	TH20131006133	20120420
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Priority:

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WO2012US34507 20120420

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): DARBY JOHN GREGORY ; GUPTA D V SATYANARAYANA ; BAKER HUGUES INC ; BAKER HUGHES INC ; BEJKE KHYUZ INKORPOREJTED ; SHEN DONG

Assignee(s): GUPTA DV SATYANARAYANA ; BJ SERVICES CO LLC ; BAKER HUGHES INCORPORATION ; BAKER HUGHES A GE CO LLC

Inventor(s): (std): D V SATYANARAYANA GUPTA ; DARBY JOHN GREGORY ; GUPTA D V SATYANARAYANA ; SHEN DONG

Inventor(s): GUPTA DV SATYANARAYANA ; JOHN GREGORY DARBY ; SATYANARAYANA GUPTA DV ; DONG SHEN ; DV SATYANARAYANA GUPTA

Agent(s): FREEHILLS PATENT ATTORNEYS; FPA PATENT ATTORNEYS PTY LTD; BERESKIN AND PARR LLP SENCRL SRL; SIM AND MCBURNEY; SILVANA MARIA LOPEZ DIAZ; HOFFMANN BENJAMIN; JOHN WILSON; JONES AND SMITH LLP; JONES DELFLACHE LLP; JONES JOHN WILSON

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

8) Family number: 53751012 (US2013126158A)

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Title: METHOD OF USING CONTROLLED RELEASE TRACERS

Abstract: Source: US2013126158A Fluids produced from a fractured subterranean formation may be monitored by pumping into the well a fracturing fluid which contains a tracer. The method may be used to monitor produced hydrocarbons as well as produced water. The tracer may also be used in a **sand** control, frac pack or acid fracturing operation. The tracer is a component of a composite where it may be immobilized within a matrix (such as an emulsion) or porous particulate, onto a support or compressed with a binder into a solid particulate. The tracer may be slowly released from the composite.

Classifications:

International (IPC 8-9): C09K8/03 C09K8/56 C09K8/62 C09K8/80 C9K8/03 E21B43/26 E21B43/267 E21B43/27 E21B47/00 E21B47/10 E21B47/11 (Advanced/Invention)

CPC: E21B47/00 E21B43/267 C09K8/03 C09K8/62 C09K2208/30 E21B47/1015

US: 166/250.12

Family:

Publication number	Publication date	Application number	Application date
AU2012340949 AA	20130530	AU20120340949	20121112
AU2012340949 BB	20160804	AU20120340949	20121112
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CA2852295 C	20170321	CA20122852295	20121112
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CO6930353 A2	20140428	CO20140077091	20140409
EP2782971 A1	20141001	EP20120795189	20121112
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NZ623134 A	20160826	NZ20120623134	20121112
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RU2618796 C2	20170511	RU20140125201	20121112
US2013126158 AA	20130523	US20120678431	20121115
WO13078031 A1	20130530	WO2012US64666	20121112

Priority:

US20110562887P 20111122 US20120678431 20121115 WO2012US64666 20121112

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BEJKE KHYUZ INKORPOREJTED ; BRANNON HAROLD DEAN ; GUPTA D V SATYANARAYANA ; BAKER HUGHES INC

Assignee(s): BAKER HUGHES INCORPORATION ; GUPTA DV SATYANARAYANA

Inventor(s): (std): BRANNON HAROLD DEAN ; BRENNON KHAROLD DIN ; D V SATYANARAYANA GUPTA ; GUPTA D V SATYANARAYANA ; GUPTA SATYANARAYANA D V ; HAROLD DEAN BRANNON

Inventor(s): GUPTA SATYANARAYANA DV ; GUPTA DV SATYANARAYANA ; DV SATYANARAYANA GUPTA

Agent(s): FREEHILLS PATENT ATTORNEYS; FPA PATENT ATTORNEYS PTY LTD; BERESKIN AND PARR LLP SENCRL SRL; SIM AND MCBURNEY; MABEY KATHERINE FRANCES; JONES JOHN WILSON

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

9) Family number: 53751058 (US2013126177A)

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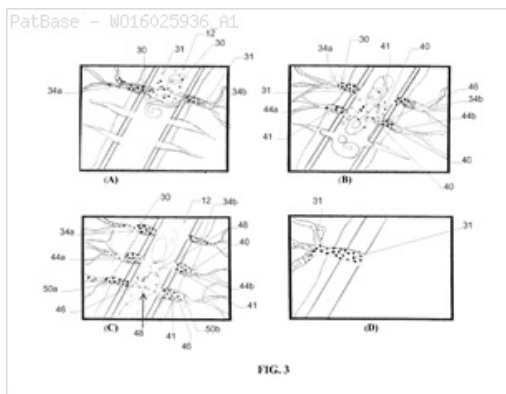
Abstract: Source: US2013126177A A method for building a plug in a horizontal wellbore using a fluid pill containing a suspended well treatment agent. The well treatment agent contains an ultra lightweight (ULW) deformable core and a viscosifying polymer and crosslinking agent **coated** onto the core. The fluid pill is pumped into the wellbore at the end of a fracturing treatment. The fluid pill is displaced by a displacement fluid and the fluid pill transforms to a thickened gel. The thickened gel is formed by the in-situ reaction of the viscosifying polymer and crosslinking which become disassociated from the ULW deformable core. The gelled fluid containing the ULW deformable core assists in the bridging of the ULW deformable core and forming the bridge plug.

Classifications:

International (IPC 8-9): C04B24/02 C09K8/42 C09K8/50 C09K8/506 C09K8/508 C09K8/512 C09K8/516 C09K8/536 C09K8/56 C09K8/60 C09K8/62 C09K8/68 C09K8/70 C09K8/76 C09K8/80 C09K8/86 C09K8/88 C09K8/92 C9K8/506 C9K8/516 C9K8/536 C9K8/68 C9K8/70 C9K8/76 C9K8/86 C9K8/92 E21B21/00 E21B33/12 E21B33/13 E21B33/134 E21B33/138 E21B43/04 E21B43/11 E21B43/14 E21B43/16 E21B43/25 E21B43/26 E21B43/267 E21B43/30 (Advanced/Invention)

CPC: C04B24/02 C09K8/506 C09K8/536 C09K2208/32 C09K8/805 C09K8/512 C09K8/516 C09K8/62 C09K2208/18 E21B21/003 E21B33/134 E21B43/305 C09K8/5086 C09K8/70 C09K8/76 C09K8/86 C09K8/885 C09K8/92 E21B43/14 C09K8/80 E21B43/267 C09K8/68 E21B33/138 C09K8/60 E21B43/25 E21B43/26 E21B43/261 C09K8/44 C09K8/508 C09K8/725 C09K8/88 C09K8/5751

US: 166/276 166/279 166/280.1 166/285 166/292 166/294 166/305.1 166/308.1 166/308.5 166/310



Family:

Publication number	Publication date	Application number	Application date
AU2013280404 AA	20140103	AU20130280404	20130626
AU2013280404 BB	20170202	AU20130280404	20130626
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US9580642 BB	20170228	US20140556883	20141201
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WO14004689 A3	20140619	WO2013US47922	20130626
WO16025936 A1	20160218	WO2015US45445	20150815

Priority:

US20110302722	20111122	US20120664640P	20120626	US20140556883	20141201
US20140512232	20141010	US20140461123	20140815	US20130928006	20130626
WO2013US47922	20130626	US20160217684	20160722	WO2015US45445	20150815

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BAKER HUGHES INC ; BAKER HUGHES INCOPRORATED ; BRANNON HAROLD DEAN ; HUDSON HAROLD GENE

Assignee(s): GUPTA DV SATYANARAYANA ; JENSEN ANNA ; STARKS II THOMAS RAY ; NELSON SCOTT G ; LEMONS JIMIE DEVON ; CASTILLO DORIANNE ARLENE ; BAKER HUGHES A GE CO LLC

Inventor(s): (std): JENSEN ANNA ; LEMONS JIMIE DEVON ; NELSON SCOTT G ; NELSON SCOTT GREGORY ; STARKS II THOMAS RAY ; STARKS LL THOMAS RAY ; HUDSON HAROLD GENE ; BRANNON HAROLD DEAN ; BESTAOUI SPURR NAIMA ; CASTILLO DORIANNE ARLENE ; D V SATYNARAYANA GUPTA ; GOMAA AHMED M ; GUPTA D V SATYANARAYANA

Inventor(s): GUPTA DV SATYANARAYANA ; DV SATYNARAYANA GUPTA ; DV SATYANARAYANA GUPTA

Agent(s): FREEHILLS PATENT ATTORNEYS; FPA PATENT ATTORNEYS PTY LTD; PATENT ATTORNEY SERVICES; BERESKIN AND PARR LLP SENCRL SRL; SIM AND MCBURNEY; HOFFMANN BENJAMIN; VON FUENER NICOLAI; DR TOETI HERATY N ROOSSENSO; JONES AND SMITH LLP; JOHN WILSON; JONES DELFLACHE LLP; JONES JOHN WILSON

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

ceramics.

Classifications:

International (IPC 8-9): A61K8/25 A61K8/89 A61Q3/02 B01D39/20 B01D53/22 B01D67/00 B01D71/04 B01J2/02 B01J2/04 B01J2/06 B24D3/00 B24D3/28 B28B11/16 B28B11/24 B28B3/26 C01B31/18 C01B31/20 C01B31/30 C01B31/36 C01B32/956 C01B32/977 C01B33/021 C01B33/037 C01B33/113 C04B35/14 C04B35/515 C04B35/52 C04B35/524 C04B35/56 C04B35/565 C04B35/571 C04B35/589 C04B35/626 C04B35/63 C04B35/64 C04B35/65 C04B35/80 C08G77/00 C08G77/12 C08G77/20 C08G77/50 C08G85/00 C08J5/00 C08K3/00 C08K3/34 C08K7/02 C08L83/04 C08L83/14 C09B69/10 C09C1/28 C09D101/18 C09D101/28 C09D105/00 C09D107/02 C09D11/00 C09D11/037 C09D11/14 C09D133/14 C09D163/00 C09D175/16 C09D183/04 C09D201/00 C09D5/18 C09D5/29 C09D5/32 C09D7/12 C09J1/00 C09J119/00 C09J183/04 C09K21/02 C09K21/14 C09K8/588 C09K8/66 C09K8/80 C23C16/32 C30B23/00 C30B23/02 C30B25/02 C30B29/06 C30B29/36 E21B10/46 E21B15/00 E21B17/00 E21B17/01 E21B33/06 E21B33/12 E21B43/01 E21B43/10 E21B43/12 E21B43/26 E21B43/267 F41H5/02 H01L21/02 H01L29/16 H01L29/66 (Advanced/Invention); C01B33/113 C08G77/00 C08G77/12 (Advanced/Non-invention)

CPC: C09K2208/00 E21B43/01 C04B35/6269 C04B2235/3463 C04B2235/5481 C04B2235/94 B01D53/228 B01D67/0067 B01D71/04 B01D2323/12 B01D2323/06 B01D2323/21 B01D2325/02 C04B2235/6586 B01D39/20 C09K8/66 C08K3/0033 C09D7/1216 C09D133/14 C09D163/00 C09D101/28 C09D101/18 C09D105/00 C09D11/00 A61K8/25 A61Q3/02 C09J119/006 C09D11/037 A61K2800/412 A61K2800/43 C09D183/04 C04B2235/408 C04B2235/5296 C04B2235/6567 B01D69/141 B01D71/024 Y10T428/131 B01D2256/16 C01B3/503 C04B35/589 C04B2235/5248 C04B2235/616 C08J3/24 E21B17/00 E21B17/01 E21B17/085 E21B33/1208 C04B38/0022 C04B35/6264 C04B2235/40 E21B10/46 E21B43/10 E21B33/12 E21B15/00 E21B43/121 E21B33/06 C08J2383/07 B24D3/28 C01P2004/51 C01P2004/62 C09C1/0081 C08J5/00 E21B43/26 E21B43/267 C09K8/588 C01B31/301 C23C16/325 C01P2002/30 C01P2006/32 C30B23/00 C30B23/025 C30B29/36 C30B29/06 H01L29/1608 H01L29/66068 H01L29/66893 H01L21/02381 H01L21/0262 F41H5/0414 C04B37/005 C04B37/045 C04B2235/721 C04B2235/95 C04B2235/9607 C04B2237/083 C04B2237/365 C04B2237/385 C01B33/113 B01J2/04 C08L83/00 B01J2/003 B01J2/06 C04B2235/727 C04B2235/785 C04B2235/76 C04B2235/766 C04B2235/767 C04B2235/9684 H01L21/02378 H01L21/02529 C04B35/515 C04B35/64 B01J2/18 C04B35/63 C04B2235/6021 C04B33/1352 C04B2235/3217 C04B2235/5445 Y02P40/69 C04B2235/72 C08G77/20 C08G77/80 B28B3/26 B28B11/16 B26D1/28 B26D7/26 B29B9/065 C04B35/565 C04B35/62695 H01L21/02167 H01L21/324 C01P2006/80 C04B2235/383 C04B2235/3834 C09C1/28 C09D7/1283 C09D7/1275 C09D5/32 C09D5/18 C09D175/16 C09K21/02 C09D5/29 C09D107/02 C09D11/14 C01P2006/62 C01P2006/64 C01P2004/61 C01P2006/19 Y02P40/63 C04B35/56 C04B35/5603 C04B35/571 C04B35/806 C04B2235/3418 C04B2235/3826 C04B2235/44 C04B2235/48 C04B2235/483 C04B2235/528 C04B2235/5427 C04B2235/5436 C04B2235/6581 C04B2235/77 C04B2235/96 C08G77/12 C08G77/50 C08L83/04 C30B25/02 C01B32/956 C01B31/36 C01B32/907 C01B31/18 C01B31/20 C08G18/6225 H01L29/745 A61K8/891 C01P2006/10 C08K3/34 C09D11/033 C09D11/108 C04B2235/3895 C09K8/80 C23C16/401

US: 106/197.01 106/203.3 106/217.7 106/285 106/287.13 106/31.68 106/31.69 106/475 106/491 106/504 166/105 166/179 166/208 166/242.1 166/243 166/280.2 166/335 166/367 166/381 166/75.11 175/425 252/601 264/13 264/638 29/557 423/325 423/345 424/61 427/397.7 428/34.4 428/367 428/402 501/154 501/87 501/90 507/117 507/219 507/269 51/298 524/14 524/315 524/361 524/365 524/423 524/442 524/443 524/570 524/577 524/588 524/612 524/79 525/474 525/478 525/50 525/55 528/31 528/32 95/55 96/4

Family:

Publication number	Publication date	Application number	Application date
AP201508964 A0	20151231	AP20150008964	20140703
AU2014285028 AA	20150108	AU20140285028	20140703
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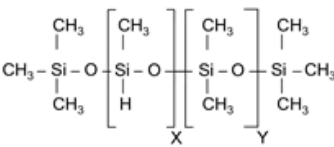


FIG. 1

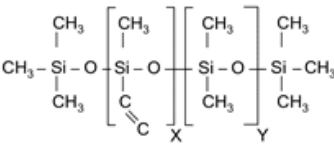


FIG. 2

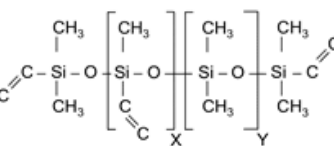


FIG. 3

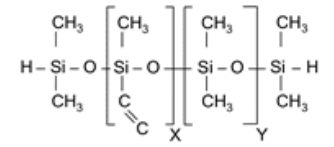


FIG. 4

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US: 106/197.01 106/203.3 106/217.7 106/285 106/287.13 106/31.68 106/31.69 106/475 106/491 106/504 166/105 166/179 166/208 166/242.1 166/243 166/280.2 166/335 166/367 166/381 166/75.11 175/425 252/601 264/13 264/638 29/557 423/325 423/345 424/61 427/397.7 428/34.4 428/367 428/402 501/154 501/87 501/90 507/117 507/219 507/269 51/298 524/14 524/315 524/361 524/365 524/423 524/442 524/443 524/570 524/577 524/588 524/612 524/79 525/474 525/478 525/50 525/55 528/31 528/32 95/55 96/4

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WO15143390 A2	20150924	WO2015US21861	20150320
WO15143390 A3	20151217	WO2015US21861	20150320
WO16049344 A2	20160331	WO2015US51997	20150924
WO16049344 A3	20160519	WO2015US51997	20150924
WO16049362 A2	20160331	WO2015US52038	20150924
WO16049362 A3	20160616	WO2015US52038	20150924
WO16118704 A1	20160728	WO2016US14245	20160121

Priority:

US20130788632P	20130315	US20130818906P	20130502	US20130818981P	20130503
US20130843014P	20130704	US20130890808P	20131014	US20140021002P	20140703
US20140268150	20140502	US20140212896	20140314	US20140324038	20140703
US20140324050	20140703	US20140324056	20140703	US20140055397P	20140925
US20140055461P	20140925	US20140055497P	20140925	US20140946598P	20140228
US20140514257	20141014	US20150634814	20150228	US20150106094P	20150121
US20150634828	20150228	US20150634822	20150228	US20150634819	20150228
US20140968774P	20140321	US20150664538	20150320	US20150789722	20150701
US20150112025P	20150204	US20150864196	20150924	US20150864125	20150924
US20150864162	20150924	US20150193046P	20150715	US20150232355P	20150924
WO2014US36522	20140502	WO2014US45494	20140703	US20150864498	20150924
US20150864642	20150924	US20150864539	20150924	WO2014US60500	20141014
WO2015US18210	20150228	WO2015US18211	20150228	US20160002773	20160121
US20160210590	20160714	US20160279543P	20160115	WO2015US51997	20150924
US20160348112	20161110	US20160275055	20160923	WO2015US52038	20150924
US20160299373	20161020				

Probable Assignee: MELIOR INNOVATIONS INC

Assignee(s): (std): BRICCO BRUCE A ; DUKES DOUGLAS ; KEITH GEORGE ; HOPKINS ANDREW ; ELY JOHN ; DYK THOMAS ; HOPKINS ANDREW R ; DUKES DOUGLAS M ; DIWANJI ASHISH P ; MUELLER MICHAEL ; LAND MARK ; SHERWOOD WALTER ; MELIOR TECHNOLOGY INC ; WILDING JR OLIVER ; MELIOR INNOVATIONS INC ; MOELLER TIMOTHY ; LAND MARK S ; SHERWOOD WALTER J ; MOELLER TIM C ; MUELLER MICHAEL J ; MOLNAR MICHAEL ; BENAC BRIAN ; BENAC BRIAN L ; MOELLER TIMOTHY C ; MELIOR TECH INC

Assignee(s): SANDGREN GLENN ; BRICCO BRICCO A ; WILDING OLIVER

Inventor(s): (std): HOPKINS ANDREW ; HOPKINS ANDREW R ; TAN YI ; WILDING OLIVER ; WILDING JR OLIVER ; SHERWOOD WALTER J ; SHERWOOD WALTER ; SANDGREN GLENN ; SANDGREN GLEN ; MUELLER MICHAEL J ; MUELLER MICHAEL ; MOLNAR MICHAEL ; MOELLER TIMOTHY C ; MOELLER TIMOTHY ; MOELLER TIM C ; LAND MARK S ; LAND MARK ; KEITH GEORGE ; HOPKINS ANDREW P ; HOPKINS ANDREW ; HOPKINS ADREW R ; ELY JOHN ; DYK THOMAS ; DUKES DOUGLAS M ; DUKES DOUGLAS ; DIWANJI ASHISH P ; DIWANJI ASHISH ; BRICCO BRUCE A ; BRICCO BRICCO A ; BENAC BRIAN L ; BENAC BRIAN ; RINZLER CHARLES C

Inventor(s): ANDREW HOPKINS ; BRIAN BENAC ; DOUGLAS DUKES ; GEORGE KEITH ; MICHAEL MUELLER ; OLIVER WILDING ; THOMAS DYK ; TIMOTHY MOELLER ; WALTER SHERWOOD ; JOHN ELY ; MARK LAND

Agent(s): SPRUSON AND FERGUSON ; CASSAN MACLEAN ; BUNGARTZ CHRISTOPHERSEN PARTNERSCHAFT MBB PATENTANWALTE ; BUNGARTZ CHRISTOPHERSEN PARTNERSCHAFT MBB PATENTANWALTE ; STEPTOE AND JOHNSON LLP ; GLEN P ; BELVIS GLEN P ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: A PROPPANT

Abstract: Source: US2016032178A A proppant includes a particle present in an amount of from 90 to 99.5 percent by weight and a polymeric **coating** disposed about the particle and present in an amount of from 0.5 to 10 percent by weight, based on the total weight of the proppant. The polymeric **coating** includes the reaction product of an acrylate copolymer and an isocyanate. The acrylate copolymer includes styrene units and has a hydroxyl number of from 20 to 500 mg KOH/g. A method of forming the proppant includes the steps of combining the acrylate copolymer and the isocyanate to react and form the polymeric **coating** and **coating** the particle with the polymeric **coating** to form the proppant.

Classifications:

International (IPC 8-9): C08G18/62 C08K3/00 C08K5/00 C08L75/04 C09K8/62 C09K8/68 C09K8/80

E21B43/267 (Advanced/Invention)

CPC: E21B43/267 C09K8/805 C09K8/62

US: 507/224

Family:

Publication number	Publication date	Application number	Application date
AR095544 AA	20151028	AR2014P101160	20140314
AU2014237158 AA	20140925	AU20140237158	20140311
AU2014237158 BB	20170831	AU20140237158	20140311
CA2907042 AA	20150915	CA20142907042	20140311
CN105229115 A	20160106	CN201480022581	20140311
EP2970757 A1	20160120	EP20140717276	20140311
ID201700283 A	20170127	ID2015P0005675	20140311
IN06382CN2015 A	20160701	IN2015CN06382	20151014
JP2016516851 T2	20160609	JP20160501189T	20140311
KR20150127230 A	20151116	KR20157028468	20140311
MX2015012963 A1	20151201	MX20150012963	20140311
US2016032178 AA	20160204	US20140774408	20140311
WO14150440 A1	20140925	WO2014US23270	20140311

Priority:

US20130792116P 20130315

US20140774408 20140311

WO2014US23270 20140311

Probable Assignee: BASF SE

Assignee(s): (std): BASF SE

Assignee(s): FITZGERALD SHAWN ; KLOTS TIMOTHY D ; TANGUAY CHRISTOPHER M

Inventor(s): (std): FITZGERALD SHAWN ; KLOTS TIMOTHY D ; TANGUAY CHRISTOPHER M

Inventor(s): TIMOTHY D KLOTS ; SHAWN FITZGERALD ; CHRISTOPHER M TANGUAY

Agent(s): WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; ROBIC; HERZOG FIESSER AND PARTNER PATENTANWALTE PARTG MBB; SETIAWAN ADI SH; LAPRAIRIE DAVID M ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

12) Family number: 57897447 (US2016046856A)

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Title: METHOD FOR PREPARING ULTRA-LIGHT-WEIGHT (ULW) PROPPANT APPLIED ON OIL AND GAS WELLS

Abstract: Source: US2016046856A A method for preparing an ultra-light-weight (ULW) proppant usable in the oil and gas industry. The method uses silane coupling agent and organic acid to modify silica fume (SF) to obtain modified SF that is lipophilic and hydrophobic. The modified SF is used as inorganic phase, and the polymerizable monomer is used as organic phase, and the organic-inorganic composite microspheres are obtained through suspension polymerization. The ULW proppant is obtained by drying, screening, and pre-oxidization of the composite microsphere. The ULW proppant has a density of about 1.109 grams per cubic centimetre-1.278 grams per cubic centimetre, which is close to that of water, a crushing rate of <5 percent at 52 Mpa, and a crushing rate of <7 percent at 69 Mpa. In the oil and gas industry application, water or salt water can be used to replace the high viscose guanidine gum as carrier, thus reduced cost of fracturing, and reduced environment pollution.

Classifications:

International (IPC 8-9): C08F2/20 C08F2/44 C08F220/14 C08K3/34

C08K9/06 C09K8/80 (Advanced/Invention)

CPC: C09K8/80 C09K2208/10

US: 1/1 507/230

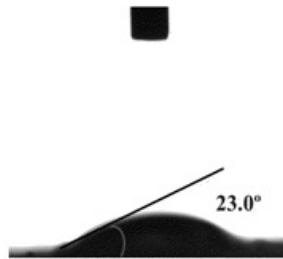


FIG 1

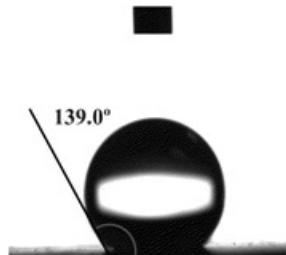


FIG 2

Family:

Publication number	Publication date	Application number	Application date
CN104177538 A	20141203	CN201410398511	20140813
CN104177538 B	20160622	CN201410398511	20140813
US2016046856 AA	20160218	US20150825851	20150813
US9410077 BB	20160809	US20150825851	20150813

Priority:

CN201410398511 20140813

Probable Assignee: UNIV CHINA GEOSCIENCES WUHAN**Assignee(s):** (std): CHINA UNIV OF GEOSCIENCES WUHAN ; CHINA UNIV OF GEOSCIENCES WUHAN ; UNIV CHINA GEOSCIENCES WUHAN**Inventor(s):** (std): CHEN TAO ; CHEN YUTING ; JING LURU ; LUO WENJUN ; WANG YIXIA ; YAN CHUNJIE ; ZHANG YONGHAN**Agent(s):** LOCKE LORD LLP; TIM TINGKANG**13) Family number: 58643518 (US2016137908A)**

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Title: IMPROVED SUSPENSION OF PROPPANT PARTICLES IN HYDRAULIC FRACTURING LIQUID

Abstract: Source: US2016137908A Systems and methods for suspending proppant particles are described. Systems and methods may include a composition including a hydraulic fracturing fluid, one or more proppant particles in the hydraulic fluid, and a density modifier associated with the one or more proppant particles to create one or more modified proppant particles. The association of the density modifier with the one or more proppant particles may modify the density of the one or more modified proppant particles relative to the one or more proppant particles.

Classifications:

International (IPC 8-9): C09K8/03 C09K8/50 C09K8/64 C09K8/66 C09K8/68 C09K8/70 C09K8/80 C09K8/88 C09K8/90 E21B43/26 (Advanced/Invention)

CPC: C09K8/94 C09K8/68 C09K8/80 C09K8/66 C09K8/882 C09K8/90 C09K2208/04 C09K8/805 C09K8/64 C09K8/665 C09K8/703 C09K8/88

US: 507/200 507/202 507/204 507/219 507/221 507/231 507/269

Family:

Publication number	Publication date	Application number	Application date
AU2013399143 AA	20150305	AU20130399143	20130830
AU2013399143 BB	20160908	AU20130399143	20130830
CA2912164 AA	20151110	CA20132912164	20130830
GB201519793 A0	20151223	GB20150019793	20130830
GB2540825 A1	20170201	GB20150019793	20130830
US2016137908 AA	20160519	US20130904927	20130830
WO15030805 A1	20150305	WO2013US57616	20130830

Priority:

US20130904927 20130830

WO2013US57616 20130830

Probable Assignee: HALLIBURTON ENERGY SERVICES INC

Assignee(s): (std): HALLIBURTON ENERGY SERV INC ; HALLIBURTON ENERGY SERVICES INC

Assignee(s): NGUYEN PHILIP D ; ALWATTARI ALI

Inventor(s): (std): ALWATTARI ALI ; NGUYEN PHILIP D ; PHILIP D NGUYEN ; ALI ALWATTARI

Agent(s): PIZZEYS PATENT AND TRADE MARK ATTORNEYS; PHILLIPS ORMONDE FITZPATRICK; NORTON ROSE FULBRIGHT CANADA LLP SENCRL SRL; CHAMBERS SCOTT A ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

14) Family number: 59084032 (US2015114640A)

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Title: **PROPPANTS** WITH IMPROVED STRENGTH

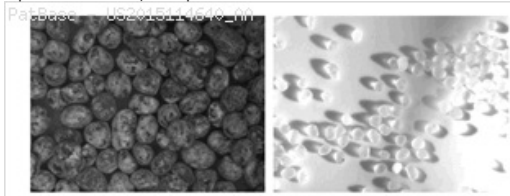
Abstract: Source: US2015114640A Cements, such as alkali activated aluminosilicate, may be used as **coatings** on **proppants**, such as brown **sand** and white **sand**, to improve the strength thereof. The resulting **coated proppants** show increased strength as well as produced fines of lower than about 10 wt percent at 10,000 psi closure stress.

Classifications:

International (IPC 8-9): B05D3/02 C09K8/46 C09K8/60 C09K8/80 E21B43/267 (Advanced/Invention)

CPC: C09K8/805 C09K8/62 C09K2208/08 C09K2208/10 B05D3/0218 B05D3/0254 E21B43/267

US: 166/280.2 427/212 427/215 427/314 507/204 507/219 507/269 507/271 507/274



Family:

Publication number	Publication date	Application number	Application date
AU2014342806 AA	20150507	AU20140342806	20141015
CA2927216 AA	20160412	CA20142927216	20141015
CN105683331 A	20160615	CN201480059577	20141015
CO16110204 A2	20161031	CO20160110204	20160429
EP3063246 A1	20160907	EP20140859137	20141015
EP3063246 A4	20170531	EP20140859137	20141015
IN201617012656 A	20160831	IN201617012656	20160411
MX2016005031 A1	20160719	MX20160005031	20141015
US2015114640 AA	20150430	US20130066893	20131030
US2017073576 AA	20170316	US20160360696	20161123
WO15065711 A1	20150507	WO2014US60671	20141015

Priority:

US20130066893 20131030 US20160360696 20161123 WO2014US60671 20141015

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BAKER HUGHES INC

Assignee(s): BAKER HUGHES INCORPORATION ; BESTAOUI SPURR NAIMA ; QU QI ; STEPHENSON CHRISTOPHER J

Inventor(s): (std): BESTAOUI SPURR NAIMA ; QU QI ; STEPHENSON CHRISTOPHER J

Inventor(s): CHRISTOPHER J STEPHENSON ; NAIMA BESTAOUI SPURR ; QI QU

Agent(s): FREEHILLS PATENT ATTORNEYS; FPA PATENT ATTORNEYS PTY LTD; SIM AND MCBURNEY; CAROLINA MERCEDES DAZA MONTALVO; VON FUENER NICOLAI; CHANDLER KIMBERLY L

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

15) Family number: 55522970 (WO15067555A3)

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Title: POROUS **PROPPANTS**

Abstract: A proppant particle for use in a hydrocarbon production operation is disclosed. The proppant particle has porous structure, the porous structure being formed of any of a plurality of carbon nanofibres or tubes synthesized on the surface of a core, and an alumina spinel based porous particle. The use of either of these types of material for a porous structure gives a lightweight proppant particle with adequate strength. This means that less water and/or chemicals are required to disperse the proppant particles during an operation such as fracking.

Classifications:

International (IPC 8-9): C09K8/80 (Advanced/Invention)

CPC: C09K8/80 C09K8/805 E21B43/267

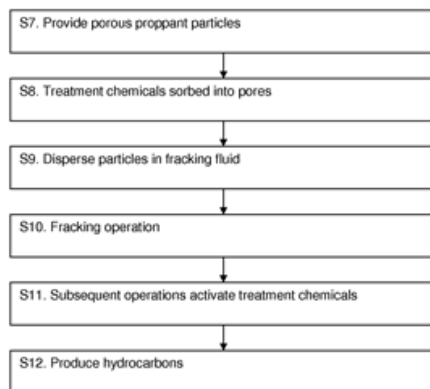


Figure 9

Family:

Publication number	Publication date	Application number	Application date
GB201319557 A0	20131218	GB20130019557	20131106
GB2520018 A1	20150513	GB20130019557	20131106
WO15067555 A2	20150514	WO2014EP73555	20141103
WO15067555 A3	20150806	WO2014EP73555	20141103

Priority:

GB20130019557 20131106

Probable Assignee: STATOIL PETROLEUM AS**Assignee(s):** (std): STATOIL PETROLEUM AS**Inventor(s):** (std): RYTTER ERLING**Inventor(s):** ERLING RYTTER**Agent(s):** MITCHELL MATTHEW

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

16) Family number: 61322790 (US2017114273A)

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Title: COMPOSITE PROPPANT, METHOD FOR PRODUCING A COMPOSITE PROPPANT AND METHODS FOR THE USE THEREOF

Abstract: Source: US2017114273A The disclosure relates to the oil and gas industry, in particular, to a composite proppant modified by a polymeric carrier for the purpose of improving transport properties and delayed release of inhibitors from proppant. A composite proppant is provided which comprises at least one solid particle attached to at least one polymeric carrier facilitating a decrease in the composite proppant settling rate, where the polymeric carrier comprises inclusions of at least one inhibitor for inorganic or organic scales. The disclosure also relates to a method for manufacturing of such composite proppant and methods for using the same during hydraulic fracturing of a subterranean formation, and for treatment of organic fossils during downhole production after hydraulic fracturing of subterranean formation.

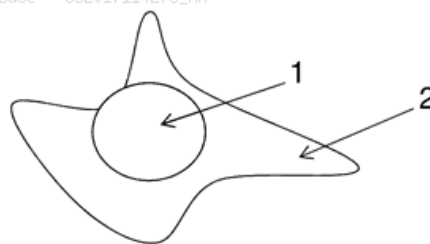
Classifications:

International (IPC 8-9): C09K8/524 C09K8/80 C09K8/92 E21B37/06 E21B43/267 (Advanced/Invention)

CPC: E21B37/06 E21B43/267 C09K8/805 C09K8/524 C09K8/80 C09K2208/08

US: 507/224

PatBase - US2017114273_AA

**Family:**

Publication number	Publication date	Application number	Application date
CN106687560 A	20170517	CN201480080333	20140630
EA201692430 A1	20170428	EA20160092430	20140630
US2017114273 AA	20170427	US20140318707	20140630
WO16003304 A1	20160107	WO2014RU00474	20140630

Priority:

WO2014RU00474 20140630

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): IVANOV MAXIM GRIGORIEVICH ; PRAD RES AND DEV LTD ; SCHLUMBERGER CA LTD ; SCHLUMBERGER HOLDINGS ; SCHLUMBERGER SERVICES PETROL ; SCHLUMBERGER TECHNOLOGY BV

Assignee(s): SCHLUMBERGER TECHNOLOGY CORP ; SCHLUMBERGER HOLDINGS LTD ; SERVICES PETROLIERS SCHLUMBERGER ; PRAD RESEARCH AND DEVELOPMENT LTD ; SCHLUMBERGER CANADA LTD

Inventor(s): (std): IVANOV MAXIM GRIGORIEVICH ; NAYDUKOVA SVETLANA ANATOLYEVNA ; OLUSHOLA HORATIO DA

COSTA SHADO ; SHADO OLUSHOLA HORATIO DA COSTA

Agent(s): MARKOVA IRINA IVANOVNA

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

17) Family number: 63710812 (US2016289530A)

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Title: DRILLING FLUIDS WITH LEAKOFF CONTROL AND DRILL CUTTINGS REMOVAL SWEEPS

Abstract: Source: US2016289530A A method of drilling a wellbore in a subterranean formation comprises circulating a water-based or oil-based drilling fluid in the subterranean formation; the water-based or oil-based drilling fluid comprising a carrier, and a superabsorbent polymer present in an amount effective to reduce fluid leakoff during the drilling operation, the superabsorbent polymer comprising crosslinks formed before the superabsorbent polymer is combined with the carrier.

Classifications:

International (IPC 8-9): C09K8/02 C09K8/035 C09K8/04 C09K8/12 C09K8/34 C09K8/52 C09K8/575 C09K8/62 C09K8/68 C09K8/70 C09K8/76 C09K8/80 E21B21/00 E21B33/134 E21B33/138 E21B37/06 E21B43/04 E21B43/26 E21B43/267 (Advanced/Invention)

CPC: C09K8/12 E21B21/003 E21B21/00 C09K8/035 C09K8/34 C09K8/62 C09K8/80 C09K8/703 C09K8/706 E21B43/267 E21B43/26 C09K2208/26 C09K8/76 E21B33/138 C09K8/685 C09K8/5756 E21B43/04 C09K8/70 E21B37/06 E21B33/134 C09K8/52 C09K8/68

US: 166/276 166/280.2 166/305.1 166/308.1 166/308.2 175/65

Family:

Publication number	Publication date	Application number	Application date
AU2016243602 AA	20161006	AU20160243602	20160330
US2016289530 AA	20161006	US20160083334	20160329
US2016289541 AA	20161006	US20160084598	20160330
US2016289542 AA	20161006	US20160084795	20160330
US2016289547 AA	20161006	US20160084567	20160330
US2016289549 AA	20161006	US20160084833	20160330
US2016290104 AA	20161006	US20160084539	20160330
WO16160897 A1	20161006	WO2016US24859	20160330
WO16160899 A1	20161006	WO2016US24861	20160330
WO16160902 A1	20161006	WO2016US24864	20160330
WO16160904 A1	20161006	WO2016US24868	20160330
WO16160927 A1	20161006	WO2016US24925	20160330
WO16160928 A2	20161006	WO2016US24926	20160330
WO16160928 A3	20161117	WO2016US24926	20160330

Priority:

US20150140105P	20150330	US20160083334	20160329	US20160084598	20160330
US20160084795	20160330	US20160084567	20160330	US20160084539	20160330
US20160084833	20160330	WO2016US24868	20160330		

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BAKER HUGHES INC ; BRANNON HAROLD DEAN ; CARMAN PAUL S ; GUPTA D V SATYANARAYANA ; NELSON SCOTT GREGORY ; STARKS II THOMAS RAY ; HUDSON HAROLD G ; LI LEIMING ; NELSON SCOTT G ; SUN HONG ; QU QI ; ZHOU JIA ; WANG XIAOLAN

Assignee(s): GUPTA DV SATYANARAYANA

Inventor(s): (std): HUDSON HAROLD G ; LI LEIMING ; NELSON SCOTT G ; NELSON SCOTT GREGORY ; QU QI ; STARKS II THOMAS RAY ; SUN HONG ; WANG XIAOLAN ; ZHOU JIA ; STARKS THOMAS RAY II ; GUPTA D V SATYANARAYANA ; BRANNON HAROLD DEAN ; CARMAN PAUL S

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Agent(s): PATENT ATTORNEY SERVICES; FPA PATENT ATTORNEYS PTY LTD

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