



New connection on: : 04-04-2018 : 06:39:37 - Last disconnection on: : 03-04-2018 : 23:01:24

V 4.0.0.44358(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#(D201802)) (RPM D201802)

Welcome to EPOQUE Rebuild under the Production Environment

[No database/cluster active] ..fi epodoc

 Database: EPODOC

[EPODOC: SS 1] gypsum and (fiber_glass or (fiber 1d glass) and crytal+

An opening or closing bracket is missing. *ERROR(-101304)*

[SS 1] gypsum and (fiber_glass or (fiber 1d glass)) and crytal+

Results in EPODOC 0

[SS 2] gypsum and (fiber_glass or (fiber 1d glass))

Results in EPODOC 935

[SS 3] gypsum and (fiber_glass or (fiber 1d glass)) and crystal+

Results in EPODOC 28

[SS 4] ..v

[EPODOC: SS 4] ..li 18-28



18/28 © EPODOC / EPO

PN - [CN101311337](#) A 20081126

PNFP - CN101311337B B 20100616

PR - CN2008111193 20080425

AP - CN2008111193 20080425

DT - I

PA - (A)

UNIV NORTHEASTERN [CN]

	- (B) UNIVNORTHEASTERN
TI	- (A B) Process for preparing calcium sulphate whiskers by using flue gas desulfurization gypsum
AB	- (A) The invention discloses a method for using flue gas desulfurization gypsum to prepare calcium sulfate whisker, comprising process steps of size mixing, high-temperature crystallization , drying and coating, etc. The method utilizes the flue gas desulfurization gypsum as the raw material, which has low production cost, short technological process and saves natural gypsum mine and effectively relieves the environmental pollution problem of the flue gas desulfurization gypsum . The product purity can be up to more than 98 percent, which can be used as filler with medium intensity or as friction material, building material or insulating material, and the like, instead of asbestos. The product can also partly replace organic macromolecular compounds such as glass fiber , resin, rubber and plastic, and the like, and has good describability. - (B) The invention discloses a method for using flue gas desulfurization gypsum to prepare calcium sulfate whisker, comprising process steps of size mixing, high-temperature crystallization , drying and coating, etc. The method utilizes the flue gas desulfurization gypsum as the raw material, which has low production cost, short technological process and saves natural gypsum mine and effectively relieves the environmental pollution problem of the flue gas desulfurization gypsum . The product purity can be up to more than 98 percent, which can be used as filler with medium intensity or as friction material, building material or insulating material, and the like, instead of asbestos. The product can also partly replace organic macromolecular compounds such as glass fiber , resin, rubber and plastic, and the like, and has good describability.
19/28	© EPODOC / EPO
PN	- US2006029787 A1 20060209
PR	- US20040983870 20041108; US20040910113 20040803
AP	- US20040983870 20041108
DT	- *; Rep
CT	- R141 (A1) US6902797 B2 20050607 [] (POLLOCK JACOB FREAS [US], et al); US4623738 A 19861118 [] (SUGERMAN GERALD [US], et al)
CCI	- D04H1/4218
CCA	- Y10T428/249924
TI	- Gypsum boards having a titanate or zirconate coupling agent with glass fiber reinforcements
AB	- A bond is created between gypsum crystals and between gypsum crystals and glass fiber reinforcement in a gypsum board during cure by incorporation of titanium or zirconium based coupling compositions incorporated in the gypsum slurry. The commercially available titanium or zirconium based coupling has a generic formula of the type [RO-]-

nTi-[-OXR'Y]4-n or [RO-]-nZr-[-OXR'Y]4-n. These coupling compositions chemically bond to glass fibers by replacing the -OH groups present on the glass fibers in aqueous solutions with Ti-O or Zr-O bonds. The X functionality of the coupling composition is selected to be a phosphato or pyrophosphato group to form bond with calcium ions of the **gypsum crystal**. The bond created by the titanium or zirconium based coupling composition results in load transfer between **gypsum crystals** in the **gypsum** matrix and between the glass fibers and **gypsum** matrix, resulting in improved flexure strength and nail pullout resistance.

20/28 © EPODOC / EPO

PN - [US2005202228](#) A1 20050915

PNFP - US7235288 B2 20070626

PR - US20040913768 20040806; US20040796950 20040310

AP - US20040913768 20040806

DT - *; Rep

CT - || STSE (B2)

[US4174230](#) A 19791113 [] (HASHIMOTO MITSUO [JP], et al)

[US4241136](#) A 19801223 [] (DERESER ERNST [BE])

[US4349610](#) A 19820914 [] (PARKER DANIEL)

[US4645548](#) A 19870224 [] (TAKE TAKAO [JP], et al)

[US4824890](#) A 19890425 [] (GLOVER SHEDRIC O [US], et al)

[US4935301](#) A 19900619 [] (RERUP HANS J [CA], et al)

[US5786080](#) A 19980728 [] (ANDERSEN PER JUST [US], et al)

[US2004082240](#) A1 20040429 [] (RODRIGUES KLEIN A [US])

[US2004082241](#) A1 20040429 [] (RODRIGUES KLEIN A [US])

- || R141 (A1)

[US4645548](#) A [];

[US4824890](#) A [];

[US2004082240](#) A1 [];

[US2004082241](#) A1 [];

[US4935301](#) A [];

[US5786080](#) A [];

[US4349610](#) A [];

[US4174230](#) A [];

[US4241136](#) A []

CCI - [D04H5/12](#)

CCA - [Y10T428/249932](#) ; [Y10T442/2369](#) ; [Y10T428/24993](#)

PA - (B2)

JOHNS MANVILLE [US]

TI - (A1 B2)

Polymeric bonding of **glass fiber** reinforcements with silane based coatings in **gypsum** board

AB - (A1 B2)

A bond is created between a **gypsum** matrix formed from an aqueous acidic **gypsum** slurry comprising a monomer mixture. The monomer mixture is composed of a monomer having acidic functionality and a monomer having hydroxyl or amine

functionality. A silane-based sizing composition is coated onto glass fibers causing a cross-linking network of silane and monomer mixture to form during curing of the **gypsum** board. Hydrophilic water extraction at the **gypsum** matrix-sizing interface reduces void formation and promotes bonding with the crosslinked monomer mixture and growth of smaller **gypsum crystals** within larger **crystals** in microstructurally identifiable regions adjacent to the **glass fiber**. A bond is created between a **gypsum** matrix formed from an aqueous acidic **gypsum** slurry comprising a monomer mixture. The monomer mixture is composed of a monomer having acidic functionality and a monomer having hydroxyl or amine functionality. A silane-based sizing composition is coated onto glass fibers causing a cross-linking network of silane and monomer mixture to form during curing of the **gypsum** board. Hydrophilic water extraction at the **gypsum** matrix-sizing interface reduces void formation and promotes bonding with the crosslinked monomer mixture and growth of smaller **gypsum crystals** within larger **crystals** in microstructurally identifiable regions adjacent to the **glass fiber**. Alternatively, the silane based sizing composition has branched chains that diffuse into a wet **gypsum** mix containing the monomer mixture. During **gypsum** cure, the diffusion and crosslinking of monomer mixture triggers formation of interpenetrating pseudo polymeric networks within a microstructurally identifiable region adjacent to the **glass fiber**. Bonds formed between the **gypsum** matrix and the silane based sizing composition increase the strength, flexure resistance and nail pull out resistance of the **gypsum** board.

21/28 © EPODOC / EPO

- PN - [US2006029785](#) A1 20060209
- PR - US20040910113 20040803
- AP - US20040910113 20040803
- DT - *; Rep
- CT - || R141 (A1)
[US2006029786](#) A1 20060209 [] (WANG LANCE [US], et al);
[US2006029787](#) A1 20060209 [] (WANG LANCE [US], et al);
[US6902797](#) B2 20050607 [] (POLLOCK JACOB FREAS [US], et al);
[US4623738](#) A 19861118 [] (SUGERMAN GERALD [US], et al)
- CCI - [D04H1/4218](#) ; [D04H1/72](#) ; [D04H13/00](#)
- CCA - [Y10T428/249924](#)
- TI - **Gypsum** boards with **glass fiber** reinforcements having a titanate or zirconate coupling coating
- AB - A bond is created between a **gypsum** matrix and titanium or zirconium based coupling coating applied onto a **glass fiber** during **gypsum** board cure. The commercially available titanium or zirconium based coupling has a generic formula of the type [RO-]-nTi-[-OXR'Y]4-n or [RO-]-nZr-[-OXR'Y]4-n. These coupling compositions chemically bond to glass fibers by replacing the -OH groups present on the glass fibers in aqueous solutions with Ti-O or Zr-O bonds. In order to bond with calcium ions in hydrated **gypsum crystals**, the X functionality is selected to be a phosphate or pyrophosphato group. The bond between the **glass fiber** and the titanium or zirconium based coupling composition is due to the formation of a monolayer, while the bond between the hydrated **gypsum crystal** and the coupling composition is intermittent due to the acicular structure of **gypsum crystals**. The titanium or zirconium based coupling

composition coating on glass fibers bonded to the **gypsum** matrix results in load transfer between the **gypsum** matrix and the glass fibers, resulting in improved flexure strength and nail pullout resistance. The Titanate/Zirconate can also be used as a board mechanical properties enhancing agent without addition of **glass fiber**.

22/28 © EPODOC / EPO

PN - [US2005202227](#) A1 20050915

PR - US20040796950 20040310

AP - US20040796950 20040310

DT - *; Rep

CT - || R141 (A1)
[US2005009428](#) A1 [];
[US2006013950](#) A1 [];
[US4645548](#) A [];
[US5718785](#) A [];
[US6521086](#) B2 [];
[US4195110](#) A [];
[US5397631](#) A [];
[US3948673](#) A [];
[US4824890](#) A [];
[US4825045](#) A [];
[US5407536](#) A [];
[US6723670](#) B2 [];
[US6875308](#) B2 [];
[US4265979](#) A [];
[US4741773](#) A [];
[US4935301](#) A [];
[US4394414](#) A [];
[US5429839](#) A [];
[US5786080](#) A [];
[US6416861](#) B1 [];
[US6106607](#) A [];
[US4349610](#) A [];
[US5552187](#) A [];
[US6294253](#) B1 [];
[US2005202258](#) A1 [];
[US2005238863](#) A1 [];
[US6955844](#) B2 [];
[US5981406](#) A [];
[US2003219580](#) A1 [];
[US4241136](#) A [];
[US4710405](#) A [];
[US6001496](#) A [];
[US2004266303](#) A1 [];
[US2004266304](#) A1 []

CCI - [B32B13/02](#) ; [B32B13/08](#) ; [B32B13/14](#) ; [E04C2/043](#)

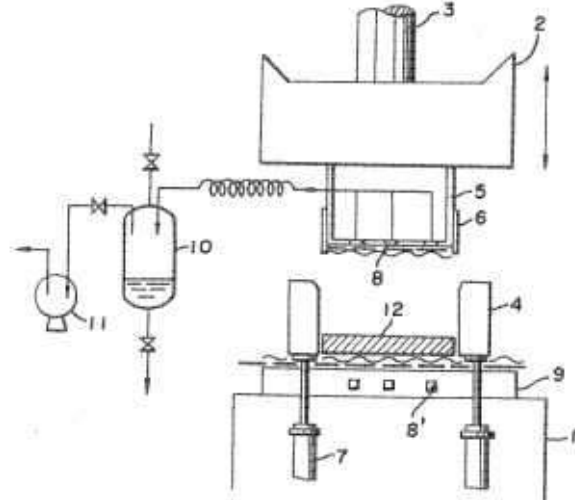
CCA - [B32B2250/40](#) ; [B32B2262/101](#) ; [B32B2305/08](#) ; [B32B2305/24](#) ; [B32B2305/28](#) ;

[B32B2307/3065](#) ; [B32B2307/546](#) ; [B32B2607/00](#) ; [Y10T428/249932](#)

- TI - Silane based coatings on **glass fiber** reinforcements in **gypsum** board
- AB - A bond is created between a **gypsum** matrix and a silane-based sizing composition coated onto a **glass fiber** and **gypsum** matrix during manufacture of **gypsum** board. Hydrophilic water extraction at the **gypsum** matrix-sizing interface reduces void formation and promotes the growth of smaller calcium sulphate dihydrate **crystals** within larger calcium sulphate dihydrate **crystals** in microstructurally identifiable regions adjacent to the **glass fiber**. The resulting **gypsum** board exhibits excellent strength, flexure resistance and nail pull out resistance. An alternative approach utilizes a silane based sizing composition having branched chains that diffuse into a wet **gypsum** mix. During **gypsum** cure, the diffusion triggers formation of pseudo polymeric networks in a microstructurally identifiable region adjacent to the **glass fiber**. Bonds formed between the **gypsum** matrix and the silane based sizing composition increase the strength, flexure resistance and nail pull out resistance of the **gypsum** board.

23/28 © EPODOC / EPO

- PN - [US4127628](#) A 19781128
- PR - JP19760044294 19760419
- AP - US19770788928 19770419
- DT - **
- CT - [GB1204541](#) A []; [US2655710](#) A [];
[US2738285](#) A []; [US3974024](#) A []
- CCI - [C04B28/14](#)
- CLC - [C04B28/14](#), [C04B14/40](#),
[C04B14/42](#), [C04B40/00](#),
[C04B40/0071](#), INV
[C04B28/14](#), [C04B14/40](#),
[C04B14/42](#), [C04B38/10](#),
[C04B40/00](#), [C04B40/0071](#), INV



- PA - MITSUBISHI CHEM IND
- TI - Molded **gypsum** product and process for preparing the same
- AB - A molded **gypsum** product comprises a matrix of **crystalline gypsum** and reinforcing fibers of **glass fiber** and asbestos fiber uniformly distributed in said matrix in a multi-layer structure having at least one higher density layer and at least one lower density layer which is continuously adjacent to said higher density layer and having an average apparent bulk

density of 0.3 to 0.9 g/cc.

24/28 © EPODOC / EPO

PN - [JPH07172899](#) A 19950711

PNFP - JP2711078B B2 19980210

PR - JP19940239309 19941003

AP - JP19940239309 19941003

DT - I

CT - || STSE (A)
[JPS63503455](#) A 19881215 []

FI - B28B1/52; C04B14/02&A; C04B14/02&A; C04B24/14; C04B24/38&A; C04B24/14; C04B24/38&A; C04B28/14; E04F13/08&E

FT - 2E110/AA57; 2E110/AB04; 2E110/AB23; 2E110/BA05; 2E110/BB13; 2E110/BB38; 2E110/BC07; 2E110/DC34; 2E110/GB16X; 2E110/GB62X; 4G012/PA17; 4G012/PA19; 4G012/PA20; 4G012/PA24; 4G012/PB13; 4G012/PB17; 4G012/PB21; 4G012/PB40; 4G012/PC05; 4G012/PC11; 4G012/PC12; 4G052/AB05; 4G052/AB27; 4G052/BA01; 4G052/BA07; 4G052/DA01; 4G052/DA08; 4G052/DB12; 4G112/PA17; 4G112/PA19; 4G112/PA20; 4G112/PA24; 4G112/PB13; 4G112/PB17; 4G112/PB21; 4G112/PB40; 4G112/PC05; 4G112/PC11; 4G112/PC12

PA - (A)
HANASAKADAN KK

TI - (A)
ORNAMENTAL MATERIAL FOR BUILDING

AB - (A)
PURPOSE: To obtain an ornamental material having the same feeling as natural marble, flame resistant and seamless and capable of freely selecting pattern by blending a hydraulic **gypsum**, a coagulation modifier and a glue aq. solution. CONSTITUTION: The ornamental material for building contains 100 pts.wt. hydraulic **gypsum** composed mainly of beta-type **gypsum** hemihydrate, 1-2 pts.wt. coagulation modifier and 30-40 pts.wt. 2-3% glue aq. solution. Potassium citrate, ammonium phosphate, carboxymethyl cellulose and the like are exemplified as the coagulation modifier. It is conceivable that the coagulation modifier surrounds **crystal** forming nucleuses and disturbs the **crystal** growth to retard the coagulation. At the time of using for the ornament of an actual building, the thickness of the ornamental material is controlled to about 5mm. Then, a reinforcing material is used on the rear. As the reinforcing material, a material obtained by weaving natural fibers such as hemp, artificial fibers such as nylon, **glass fiber**, carbon fiber, metallic fiber or the like into a sheet with a coarse mesh and hardening with a usual **gypsum** is used.

25/28 © EPODOC / EPO

PN - [JPS55167152](#) A 19801226

PR - JP19790072631 19790608

AP - JP19790072631 19790608

DT - I

FI - C03C14/00; C03C3/19; C23D5/00

FT - 4G062/AA08; 4G062/AA09; 4G062/AA15; 4G062/BB01; 4G062/CC10; 4G062/DA01; 4G062/DA02; 4G062/DA03; 4G062/DA04; 4G062/DB04; 4G062/DC04; 4G062/DC05; 4G062/DC06; 4G062/DD03; 4G062/DD04; 4G062/DE01; 4G062/DE02; 4G062/DE03; 4G062/DE04; 4G062/DF01; 4G062/EA01; 4G062/EA02; 4G062/EA03; 4G062/EA04; 4G062/EB01; 4G062/EB02; 4G062/EB03; 4G062/EB04; 4G062/EC01; 4G062/ED01; 4G062/ED02; 4G062/ED03; 4G062/ED04; 4G062/EE03; 4G062/EE04; 4G062/EF01; 4G062/EG01; 4G062/FA01; 4G062/FA10; 4G062/FB01; 4G062/FC01; 4G062/FD01; 4G062/FE01; 4G062/FF01; 4G062/FG01; 4G062/FH01; 4G062/FJ01; 4G062/FK01; 4G062/FL01; 4G062/GA01; 4G062/GA10; 4G062/GB01; 4G062/GC01; 4G062/GD01; 4G062/GE01; 4G062/HH01; 4G062/HH03; 4G062/HH05; 4G062/HH07; 4G062/HH09; 4G062/HH11; 4G062/HH13; 4G062/HH15; 4G062/HH17; 4G062/HH20; 4G062/JJ01; 4G062/JJ03; 4G062/JJ05; 4G062/JJ07; 4G062/JJ10; 4G062/KK01; 4G062/KK03; 4G062/KK05; 4G062/KK07; 4G062/KK10; 4G062/MM05; 4G062/NN32; 4G062/PP03; 4G062/PP05; 4G062/PP11; 4G062/PP18; 4G062/PP20

PA - MATSUSHITA ELECTRIC WORKS LTD

TI - GLAZE COMPOSITION

AB - PURPOSE: To raise the strength of a glassy film formed by baking frit-contg. glaze composition and make the film less breakable by adding inorg. fibers to the composition. CONSTITUTION: To 100pts.wt. of frit are added 5-20pts.wt. of one or more kinds of inorg. fibers selected from a group consisting of asbestos, **glass fiber**, II-type anhydrous **gypsum** having needle **crystal**, needle alumina, carbon fiber, ceramic fiber and rock wool. It is effective to use low m.p. frit, as the above-mentioned frit, having a composition 95mol% or more of which other than water consists of, by mol, P₂O₅ 2-20%, SiO₂ 0-25%, R₂O (R₂O is at least Li₂O among Li₂O and Na₂O) 12-24%, RO (RO is at least CaO >= 3% among CaO, MgO and ZnO) 5-25%, Al₂O₃ 14-25% and B₂O₃ 10-65%. When a glaze composition contg. the above-mentioned two components is glazed and calcined at 550-700 deg.C to form a glassy film, the resulting enamel or the like has high strength and is hard to break.

26/28 © EPODOC / EPO

PN - [JPH029775](#) A 19900112

PR - JP19890053002
19890307; JP19880060207
19880316



AP - JP19890053002 19890307

DT - I

FI - C04B35/66; C04B35/66&Z

FT - 4G033/AA02; 4G033/AA06;
4G033/AA24; 4G033/AB01;
4G033/AB02; 4G033/AB10;
4G033/AB12; 4G033/AB22;
4G033/AB23; 4G033/AB27;
4G033/BA00

PA - ASAHI CHEMICAL IND

TI - EXTRUSION MOLDING
COMPOSITION EXCELLENT IN FIRE

RESISTANCE

AB

- PURPOSE: To obtain extrusion molding composition for an autoclave excellent in fire resistance by incorporating both ultrafine powder of **crystalline** silica rock and alumina into a mixture for extrusion molding consisting of a hydraulic binders reinforcing fiber, a thickening agent and water, etc.

CONSTITUTION: Both ultrafine powder of **crystalline** silica rock and alumina are incorporated into a mixture for extrusion molding which is constituted of a hydraulic binder such as portland cements reinforcing fiber such as alkali resistant **glass fiber**, a thickening agent such as cellulose derivative, the other required **gypsum**, a plasticizing auxiliary and water. As the above-mentioned ultrafine powder of **crystalline** silica rock, the weight-mean particle diameter is smaller than about 5 μ m and especially it is preferably smaller than about 0.5 μ m and its loadings are preferably about 5-70wt.% for the whole solid substance. Further alpha-alumina and Al(OH)₃, etc., are utilized as alumina and its loadings are preferably about 1-7% expressed in terms of Al₂O₃ for total solid. An extrusion-molded stock which is large flexural strength and excellent in fire resistance is obtained without using asbestos by extrusion-molding the composition obtained thereby and thereafter curing the molded body at high temp. and high pressure in an autoclave.

PN - [GB1442484](#) A 19760714

PR - JP19730047458 19730424; JP19730135040 19731129

AP - GB19740015867 19740410

DT - **

CCI - [C04B28/14](#) ; [C04B28/18](#) ; [C04B28/188](#)

CLC - [C04B28/188](#) , [C04B7/02](#) , [C04B22/143](#) , [C04B40/024](#) , [C04B40/0259](#) , INV
- [C04B28/188](#) , [C04B7/32](#) , [C04B22/143](#) , [C04B40/024](#) , [C04B40/0259](#) , INV
- [C04B28/188](#) , [C04B18/141](#) , [C04B22/143](#) , [C04B40/024](#) , [C04B40/0259](#) , INV
- [C04B28/18](#) , [C04B14/06](#) , [C04B40/024](#) , INV
- [C04B28/14](#) , [C04B7/02](#) , [C04B14/043](#) , [C04B40/024](#) , [C04B40/0259](#) , INV

CCA - [C04B2111/28](#) ; [Y02W30/94](#) ; [Y02P40/615](#)

PA - NIPPON SYNTHETIC CHEM IND

TI - PROCESS FOR PREPARING FIRE-RESISTING MOULDINGS

AB - 1442484 **Gypsum** compositions NIPPON GOHSEI KAGAKU KOGYO KK 10 April 1974 [24 April 1973 29 Nov 1973] 15867/74 Heading C1H Fire resistant mouldings result from mixing **gypsum** with 5-100% of Ca silicate and water to form a slurry, moulding and drying the formed shape. The **crystalline** calcium silicate may be xonotlite or tobermorite. Cement such as portland, blast furnace or alumina cement may be added in amount 10-30% by wt. of the total amount of **gypsum** and **crystalline** calcium silicate. Fillers such as cellulose **fiber**, asbestos, **glass fiber**, perlite or clay may be added.

28/28 © EPODOC / EPO

PN - [CN1803427](#) A 20060719

PNFP - CN100457410C C 20090204

PR - CN2006142205 20060123

AP - CN2006142205 20060123

DT - I

PA - (A C)
SHANDONG TAIHE DONGXIN CO LTD [CN]

TI - (A C)
Method for producing paper **gypsum** board using desulfurated **gypsum** and ardealite

AB - (A)
The invention discloses a making method of paper plaster board, which comprises the following steps: mixing the phosphogypsum and desulfuration plaster according to the weight ratio at 50-90:50-10; drying until the free water content under 5 percent; sintering the plaster at 160-220 deg C continually to form the calcined **gypsum** powder with 5-9 percent **crystal** water; cooling in the bin; placing to obtain the architecture plaster powder; stirring the plaster powder with white corn starch latex, foaming agent, **glass fiber** and water evenly into material paste; compounding the roof and bottom of paper plaster board through plate-typed molder. The invention saves the natural plaster resource and cost, which improves the product property.