outstanding need to provide cast molds that are made of affordable materials, which can be easily broken down when releasing the cast.

SUMMARY

[006] The present disclosure provides a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between about 20 μm to 60μm.

[006a] In one aspect of the present disclosure, there is provided a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; wherein said composition is a casting mold composition that is capable of being degraded or broken down by washing it with water.

[006b] In another aspect of the present disclosure, there is provided a casting mold comprising a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm.

[006c] In a further aspect of the present disclosure, there is provided a mold-liner comprising a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm.

[006d] In another aspect of the present disclosure, there is provided a method of forming a dry casting mold comprising the steps of: (a) providing a casting mold composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; (b) mixing said casting mold composition with water so as to form a pliable wet mixture; (c) forming a 3 dimensional casting mold from said wet mixture; (d) drying said casting mold so as to form a dry casting mold.

[006e] In a further aspect of the present disclosure, there is provided a method of forming a curable material cast product comprising the steps of: (a) providing a casting mold having an empty cavity in the form of said product; said casting mold formed from a casting mold composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; (b) filling said casting mold with a pre-curable material; (c) curing said pre-cured material in said filled casting mold; (d) washing said casting mold with water so as to breakdown said casting mold; thereby receiving said curable material cast product.

[006f] In a further aspect of the present disclosure, there is provided a method of forming a patterned curable material product comprising the steps of: (a) providing a cast mold composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; (b) mixing said cast mold composition with water so as to form a pliable wet mixture; (c) applying said mixture on a casting mold; (d) letting said mixture dry so as to form a patterned casting mold; (e) filling said patterned casting mold with a pre-curable material; (f) curing said material in said filled patterned casting mold; (g) washing said pattern composition with water so as to break it down; thereby receiving said patterned product.

[007] In some examples, said CaO is in the amount of at least 30%wt of the composition. In some examples, said MgO is in the amount of at least 0.5%wt of the composition. In some examples, said SiO is in the amount of at least 0.5%wt of the composition. In some examples, said Al_2O_3 is in the amount of at least 0.5%wt of the composition. In some examples, said CaO is in the amount of between about 30% to 60%wt of the composition. In some

examples, said MgO is in the amount of between about 0.5% to 20%wt of the composition. In some examples, said SiO is in the amount of between about 0.5% to 5.5%wt of the composition. In some examples, said Al_2O_3 is in the amount of between about 0.5% to 1.5%wt of the composition.

[008] In some examples, said composition of the present disclosure further comprises at least one of Fe_2O_3, TiO_2, K_2O, Na_2O, P_2O_5, Mn_2O_3 and SO_3 and any combinations thereof.

[009] The present disclosure further provides a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between about 20 μm to 60μm, for use in the preparation of a casting mold.

[0010] In some examples, said casting mold is a curable material casting mold. In other examples, said casting mold is a mold-liner. In further examples, said casting mold of the present disclosure can be degraded or broken down by washing it with water.

[0011] When referring to “curable material” it should be understood to encompass any material that becomes hardened, as compared with its pre-curable form, upon exposure to a curing process, including, but not limited to, heat, pressure, steam, additives, energy (UV, IR, microwave, X-ray and so forth), radiation, vulcanization and so forth or any combinations thereof. During the curing process, the material hardens due to internal processes that change the physical and/or chemical properties, such processes include, but are not limited to: formation of cross-linking bonds, loss of water (dehydration), reducing the space between the polymer chains of the material and so forth.

[0012] Examples of curable materials include concrete, resins, polymers, thermosetting polymers, thermoplastic polymers, plaster and so forth, and any combinations thereof. In some examples, said curable material is concrete.

[0013] When referring to the breaking down of the casting mold made of a composition of the present disclosure, it should be understood to relate to the disintegration of the casting mold so as to break it to parts and remove it from the casted cured material within it. The breaking down is performed using water.

[0014] The present disclosure further provides a casting mold comprising a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between about 20 μm to 60μm.

[0015] The present disclosure further provides a mold-liner comprising a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between about 20 μm to 60μm.

[0016] The present disclosure further provides a method of forming a casting mold comprising the steps of: (a) providing a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3

wherein the average particle size of said solid particles is between about 20 μm to 60μm; (b) mixing said composition with water so as to form a pliable wet mixture; (c) forming a 3 dimensional mold from said wet mixture; (d) drying said mold so as to form a dry casting mold.

[0017] The present disclosure further provides a method of forming a curable material cast product comprising the steps of: (a) providing a casting mold having an empty cavity in the form of said product; said casting mold comprising a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between about 20 μm to 60μm; (b) filling said casting mold with pre-cured material; (c) curing said material in said filled casting mold; (d) washing said casting mold with water so as to breakdown said casting mold; thereby receiving said cast product.

[0018] The present disclosure further provides a method of forming a patterned curable material product comprising the steps of: (a) providing a pattern forming composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between about 20 μm to 60μm; (b) mixing said pattern forming composition with water so as to form a pliable wet mixture; (c) applying said pattern forming composition on a curable material casting mold; (d) letting said pattern forming composition dry so as to form a patterned casting mold; (e) filling said patterned casting mold with a pre-curable material; (c) curing said material in said filled patterned casting mold; (d) washing said pattern composition with water so as to break it down; thereby receiving said patterned product.

CLAIMS

What is claimed is:

1. A composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; wherein said composition is a casting mold composition that is capable of being degraded or broken down by washing it with water.
2. A composition of claim 1, wherein said CaO is in the amount of at least 30%wt of the composition.
3. A composition of claim 1, wherein said MgO is in the amount of at least 0.5%wt of the composition.
4. A composition of claim 1, wherein said SiO is in the amount of at least 0.5%wt of the composition.
5. A composition of claim 1, wherein said Al_2O_3 is in the amount of at least 0.5%wt of the composition.
6. A composition according to any one of the preceding claims, wherein CaO is in the amount of between 30% to 60%wt of the composition.
7. A composition according to any one of the preceding claims, wherein said MgO is in the amount of between 0.5% to 20%wt of the composition.
8. A composition according to any one of the preceding claims, wherein said SiO is in the amount of between 0.5% to 5.5%wt of the composition.
9. A composition according to any one of the preceding claims, wherein said Al_2O_3 is in the amount of between 0.5% to 1.5%wt of the composition.
10. A composition according to any one of the preceding claims further comprising at least one of Fe_2O_3, TiO_2, K_2O, Na_2O, P_2O_5, Mn_2O_3 and SO_3 and any combinations thereof.
11. A composition of claim 1, wherein said casting mold is a mold-liner.

12. A casting mold comprising a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm.

13. A mold-liner comprising a composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm.

14. A method of forming a dry casting mold comprising the steps of: (a) providing a casting mold composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; (b) mixing said casting mold composition with water so as to form a pliable wet mixture; (c) forming a 3 dimensional casting mold from said wet mixture; (d) drying said casting mold so as to form a dry casting mold.

15. A method of forming a curable material cast product comprising the steps of: (a) providing a casting mold having an empty cavity in the form of said product; said casting mold formed from a casting mold composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; (b) filling said casting mold with a pre-curable material; (c) curing said pre-cured material in said filled casting mold; (d) washing said casting mold with water so as to breakdown said casting mold; thereby receiving said curable material cast product.

16. A method of forming a patterned curable material product comprising the steps of: (a) providing a cast mold composition comprising solid particles of CaO, SiO, MgO, Al_2O_3 wherein the average particle size of said solid particles is between 20 μm to 60μm; (b) mixing said cast mold composition with water so as to form a pliable wet mixture; (c) applying said mixture on a casting mold; (d) letting said mixture dry so as to form a patterned casting mold; (e) filling said patterned casting mold with a pre-curable material; (f) curing said material in said filled patterned casting mold; (g) washing said

pattern composition with water so as to break it down; thereby receiving said patterned product.