

C l a i m s

1. A method for the manufacture of a high alumina hydraulic binder comprising hydrating a source of aluminium ions with a source of calcium ions in the presence of water to form mineral hydrates and subsequently heating said mineral hydrates to form said high alumina hydraulic binder.
2. A method as claimed in claim 1, wherein a source of sulphate ions is mixed with said source of aluminium ions and said source of calcium ions prior to and/or during hydration.
3. A method as claimed in claim 1 or claim 2, wherein said source of aluminium ions comprises water treatment residuals.
4. A method as claimed in claim 3, wherein organic material present in said water treatment residuals forms a source of fuel energy during said heating step, air or oxygen being added to the mixture during said heating step to facilitate oxidation of said organic material.
5. A method as claimed in any preceding claim, further comprising comminuting said hydrated minerals prior to said heating step.
6. A method as claimed in any preceding claim, wherein said hydrated minerals are heated to at least 350°C in said heating step.
7. A method for the manufacture of calcium aluminate cement comprising the steps of mixing a source of calcium ions with water treatment residuals, or other aluminium rich waste residuals, in the presence of water, in a mixing step, such that mineral hydrates are formed, and subsequently heating the resulting mineral hydrates to a temperature of at least 350°C in a thermal treatment step to oxidise organic material present and to at least partially dehydrate the hydrated minerals to form the resulting cement product.

8. A method for the manufacture of calcium sulphoaluminate cement comprising the steps of mixing a source of calcium ions and sulphate salts with water treatment residuals, or other aluminium rich waste residuals, in the presence of water, in a mixing step, such that mineral hydrates are formed, and subsequently heating the resulting mineral hydrates to a temperature of at least 350°C in a thermal treatment step to oxidise organic material present and to at least partially dehydrate the hydrated minerals to form the resulting cement product.
9. A method as claimed in claim 7 or claim 8, wherein the mineral hydrates are comminuted prior to said thermal treatment step.
10. A method as claimed in any of claims 7 to 9, wherein said water treatment residuals are at least partially dewatered prior to said mixing step.
11. A method as claimed in any of claims 7 to 10, wherein air is added to the material during the thermal treatment stage to facilitate oxidation of organic material.
12. A method as claimed in any preceding claim, wherein said source of calcium ions comprises lime or hydrated lime.