CLAIMS

1. A method of preparing a gypsum-based product, comprising the steps of mixing calcined gypsum with polymer particles and water to provide a slurry, the polymer particles comprising principally polyvinyl acetate, in which

the polymer particles have a particle size distribution, measured using laser diffractometry, such that particles having a diameter of 4.5 μm or less provide at least 90% of the total particle volume, and

in which the particles additionally comprise polyvinyl alcohol and the polyvinyl alcohol phase is present as a surface layer extending partially or wholly around the exterior of the particle.

2. A method according to Claim 1, in which the polymer particles have a particle size distribution, measured using laser diffractometry, such that particles having a diameter of 4 μm or less provide at least 90% of the total particle volume.

3. A method according to Claim 2, in which the polymer particles have a particle size distribution, measured using laser diffractometry, such that particles having a diameter of 3.5 μm or less provide at least 90% of the total particle volume.

4. A method according to Claim 1, 2 or 3, in which the average polyvinyl acetate content of the particles is at least 90% by volume.

5. A method according to any preceding claim, in which the polymer particles are provided in the form of a water-based emulsion.

6. A method according to any preceding claim, in which the polymer particles are present in the slurry in an amount of at least 1 wt% relative to the calcined gypsum.

7. A method according to any preceding claim, further comprising the step of incorporating fibres, such as glass fibres, into the slurry.

8. A method according to Claim 7, in which the fibres are present in the slurry in an amount of at least 1 wt% relative to the calcined gypsum.

9. A method according to any preceding claim, in which the gypsum-based product is a board.

10. A method according to Claim 9, in which the board is provided with a liner on at least one face, the liner being, for example, a paper liner or a glass fibre mat.

11. A method according to any preceding claim, further comprising the steps of shaping the slurry and allowing it to set to provide a gypsum plasterboard.