

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, wherein
5 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.
2. The method of claim 1, wherein the polymer particles have a particle size distribution, measured using laser diffractometry, such that particles having a diameter of 4 μm or
10 less provide at least 90% of the total particle volume.
3. The method of claim 2, wherein the polymer particles have a particle size distribution, measured using laser diffractometry, such that particles having a diameter of 3.5 μm or
15 less provide at least 90% of the total particle volume.
4. The method of any one of the preceding claims, wherein the average polyvinyl acetate content of the particles is at least 90% by volume.
- 20 5. The method of any one of the preceding claims, wherein the particles additionally comprise polyvinyl alcohol.
6. The method of claim 5, wherein the polyvinyl alcohol phase is present as a surface layer extending partially or wholly around the exterior of the particle.
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7. The method of any one of the preceding claims, wherein the polymer particles are provided in the form of a water-based emulsion.

8. The method of claim 7, further comprising the step of incorporating a further quantity of water into the slurry, in addition to the water-based emulsion.
9. The method of any one of the preceding claims, wherein the polymer particles are present in the slurry in an amount of at least 1 wt% relative to the calcined gypsum.
10. The method of any one of the preceding claims, further comprising the step of incorporating fibres, such as glass fibres, into the slurry.
11. The method of claim 10, wherein the fibres are present in the slurry in an amount of at least 1 wt% relative to the calcined gypsum.
12. The method according to any one of the preceding claims, wherein the gypsum-based product is a board.
13. The method according to claim 12, wherein 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.
14. The method of any one of the preceding claims, further comprising the steps of shaping the slurry and allowing it to set to provide a gypsum plasterboard.