filler materials (e.g. for joining adjacent wallboards/tiles/panels etc.) and moulds for casting metal products.

The calcium sulphate-based product may be a composite product e.g. it may be a wallboard having a gypsum matrix core (containing the shrinkage resistance additive) sandwiched between two liners (e.g. paper liners or fibreglass matting). In this embodiment, the method comprises drying an aqueous slurry comprising calcined gypsum and MPP between two liners (e.g. paper liners or fibreglass matting).

The term "calcined gypsum" is intended to refer predominantly to calcium sulphate hemihydrate ($CaSO4.^{1}/_{2}H_2O$) but may also encompass any other calcium sulphate compound having a lower bound water content than calcium sulphate dihydrate (e.g. calcium sulphate anhydrite).

Preferably, the MPP/melamine pyrophosphate shrinkage resistance additive is included in the slurry in an amount from 0.1 to 20 wt%, preferably 1 to 10wt%, more preferably 1 to 5 wt% and most preferably 2 to 5 wt%.

The preferred shrinkage resistance additive is MPP. This has been found not to accelerate the setting time of calcined gypsum, unlike APP.

The calcium sulphate-based product preferably contains no glass fibres. The glass fibres are typically used to form a mechanical network within the gypsum which helps maintain the structural integrity of the product after exposure to heat. The present inventors believe that the addition of MPP/melamine pyrophosphate reduces high temperature shrinkage to such an extent that the glass fibres are no longer necessary. Therefore, preferably, the method comprises drying an aqueous slurry comprising gypsum and MPP/melamine pyrophosphate in the absence of inorganic (glass) fibres.

CLAIMS

1. A calcium sulphate-based product comprising gypsum and a shrinkage resistance additive wherein the shrinkage resistance additive is melamine polyphosphate or melamine pyrophosphate.

2. The product according to claim 1 wherein the shrinkage resistance additive is provided in an amount from 0.1 to 20 wt%.

3. The product according to claim 2 wherein the shrinkage resistance additive is provided in an amount from 2 to 5wt%.

4. The product according to any one of claims 1 to 3 comprising substantially no glass fibres.

5. The product according to any one of the preceding claims further comprising an accelerator.

6. The product according to any one of the preceding claims wherein the product is a wallboard, panel, tile, joint filler material or mould for metal casting.

7. The product according to claim 6 wherein the product is a composite wallboard comprising a core of the gypsum and shrinkage resistance additive sandwiched between two liners.

8. A method of forming a calcium sulphate-based product by drying an aqueous slurry comprising calcined gypsum and a shrinkage resistance additive wherein the shrinkage resistance additive is melamine polyphosphate or melamine pyrophosphate.

9. The method according to claim 8 wherein the aqueous slurry contains melamine polyphosphate in an amount from 0.1 to 20wt%.

10. The method according to claim 9 wherein the aqueous slurry contains melamine polyphosphate in an amount from 2 to 5wt%.

11. The method according to any one of claims 8 to 10 wherein the aqueous slurry comprises substantially no glass fibres.

12. The method according to any one of claims 8 to 11 wherein the aqueous slurry the further comprises an accelerator.

13. The method according to any one of claims 8 to 11 wherein the product is a wallboard, tile, panel, joint filler material or mould for casting metal.

14. The method according to claim 13 wherein the product is a composite wallboard and the method comprises drying the aqueous slurry between two liners.

15. A calcium sulphate-based product formed by the method according to any one of claims 8 to 14.

16. Use of melamine polyphosphate or melamine pyrophosphate as an additive in a gypsum matrix for reducing shrinkage in a calcium sulphate-based product during heat exposure.

17. The use according to claim 16 wherein the calcium sulphate-based product is a wallboard, tile, panel, joint filler material or mould for casting metal.

18. The use according to claim 16 or claim 17 wherein an amount of from 0.1 to 20 wt% of the additive is used for reducing shrinkage.

19. The use according to claim 18 wherein an amount of from 2 to 5 wt% of the additive is used for reducing shrinkage.