Claims

1. A solid particulate calcium nitrate composition having particles with an average particle size of between 0.1 mm and 1 mm and comprising an anti-caking agent, CHARACTERIZED IN THAT the anti-caking agent consists of a solid particulate silicate with an average particle size of between 0.05 µm and 750 µm and wherein the solid particulate silicate is present in an amount of 0.01 weight% to 2 weight%;
wherein the solid particulate silicate is selected from the list consisting of silicon dioxide, silica fume or diatomaceous earth.

2. Solid particulate calcium nitrate composition according to claim 1, wherein the solid particulate calcium nitrate composition further comprises a solid particulate anhydrous calcium nitrate and having particles with an average particle size of between 0.1 mm and 1 mm.

3. Solid particulate calcium nitrate composition according to claim 1, wherein the solid particulate calcium nitrate composition further comprises a solid particulate potassium calcium nitrate and having particles with an average particle size of between 0.1 mm and 1 mm.

4. Solid particulate calcium nitrate composition according to claim 1, wherein the solid particulate calcium nitrate composition further comprises solid particulate ammonium calcium nitrate and having particles with an average particle size of between 0.1 mm and 1 mm.

5. Solid particulate calcium nitrate composition according to any one of claims 2 to 4, wherein the solid particulate anhydrous calcium nitrate, the solid particulate potassium calcium nitrate or the solid particulate ammonium calcium nitrate and the solid particulate silicate have a similar average particle size.

6. Solid particulate calcium nitrate composition according to any one of claims 1 to 5, wherein the solid particulate silicate is present in an amount of 0.05 weight% to 2 weight%, and most preferably in an amount of 0.1 weight% to 1 weight% of the weight content of the solid particulate calcium nitrate composition.

7. Solid particulate calcium nitrate composition according to any one of claims 1 to 6, wherein the solid particulate silicate is a solid particulate silicon dioxide.

8. Solid particulate calcium nitrate composition according to claim 7, wherein the solid particulate silicate is an amorphous solid particulate silicon dioxide.

9. Solid particulate calcium nitrate composition according to claim 8, wherein the amorphous solid particulate silicon dioxide consists of a silica fume, a diatomaceous earth or mixtures thereof.

10. Solid particulate calcium nitrate composition according to any one of claims 1 to 9, wherein the composition has a caking number below 20.

11. A pre-blend binder composition comprising a hydraulic binder and 0.5 weight% to 5 weight% solid particulate calcium nitrate composition according to any of claims 1 to 10.

12. A dry mortar mixture or a tile adhesive composition, at least comprising
- a fine aggregate, preferably sand; and
- a pre-blend binder composition according to claim 11.

13. A dry concrete mixture, at least comprising
- a coarse aggregate consisting of stones and/or gravel, and a fine aggregate, preferably sand; and
- a pre-blend binder composition according to claim 11.

14. A method for producing a solid particulate calcium nitrate composition according to any of claims 1 to 10, comprising the steps of:
- providing a freshly produced and cooled anhydrous solid particulate calcium nitrate, solid particulate potassium calcium nitrate or solid particulate ammonium calcium nitrate, having particles with an average particle size of between 0.1 mm and 1 mm; and
- adding to the freshly produced and cooled anhydrous solid particulate calcium nitrate, solid particulate potassium calcium nitrate or solid particulate ammonium calcium nitrate, a solid particulate silicate having particles with an average particle size of between 0.05 µm and 750 µm in an amount of 0.01 weight% to 2.00 weight% of the weight content of the solid particulate calcium nitrate composition as anti-caking agent for the anhydrous solid particulate calcium nitrate, solid particulate potassium calcium nitrate or solid particulate ammonium calcium nitrate;
wherein the solid particulate silicate is selected from the list consisting of silicon dioxide, silica fume or diatomaceous earth.

15. The method according to claim 14, wherein the solid particulate calcium nitrate composition further comprises a solid particulate anhydrous calcium nitrate and having particles with an average particle size of between 0.1 mm and 1 mm.

16. The method according to claim 14, wherein the solid particulate calcium nitrate composition further comprises a solid particulate potassium calcium nitrate and having particles with an average particle size of between 0.1 mm and 1 mm.

17. The method according to claim 14, wherein the solid particulate calcium nitrate composition further comprises solid particulate ammonium calcium nitrate and having particles with an average particle size of between 0.1 and 1 mm.

18. The method according to any one of claims 14 to 17, wherein the solid particulate anhydrous calcium nitrate, the solid particulate potassium calcium nitrate or the solid particulate ammonium calcium nitrate and the solid particulate silicate have a similar average particle size.

19. The method according to any one of claims 14 to 18, wherein the solid particulate silicate is present in an amount of 0.01 to 2.00 weight%, preferably in an amount of 0.05 to 2 weight%, and most preferably in an amount of 0.1 to 1 weight% of the weight content of the solid particulate calcium nitrate composition.

20. The method according to any one of claims 14 to 19, wherein, the solid particulate silicate is a solid particulate silicon dioxide.

21. The method according to claim 20, wherein the solid particulate silicate is an amorphous solid particulate silicon dioxide.

22. The method according to claim 21, wherein the amorphous solid particulate silicon dioxide consists of a silica fume, a diatomaceous earth or mixtures thereof.

23. The method according to any one of claims 14 to 22, wherein the composition has a caking number below 20.

24. Use of a solid particulate silicate having particles with an average particle size of between 0.05 and 750 µm as anti-caking agent for a solid particulate calcium nitrate composition having particles with an average particle size of between 0.1 and 1 mm;

wherein the solid particulate silicate is selected from the list consisting of silicon dioxide, silica fume or diatomaceous earth.

25. Use of a solid particulate calcium nitrate composition according to any of claims 1 to 10 as a setting accelerator for a cementitious binder.

26. Use according to claim 25, wherein the cementitious binder is used in a dry mortar mixture, a dry concrete mixture or a tile adhesive composition.