Claims

[Claim 1] Method for the preparation of a free-flowing powder composition comprising at least one substrate, said substrate having pores and an external surface between said pores, wherein said external surface is functionalized with at least one accelerator for a hydraulic setting composition, said accelerator being a hygroscopic or deliquescent solid, and wherein after 15 minutes of immersion of said free-flowing powder composition in water at 20°C at least 80% in weight of said accelerator is solubilized, provided that said free-flowing powder composition is immersed in an amount of water sufficient so that the saturation concentration of said accelerator cannot be reached, said method comprising a step of contacting, preferably in a solid state, the solid substrate with a solid hygroscopic or deliquescent accelerator in such a manner that the particle sizes of said substrate and said hygroscopic or deliquescent accelerator are constant during the contacting step.

[Claim 2] The method according to claim 1, wherein the substrate is selected from the group comprising or consisting of calcined clay, exfoliated vermiculite, zeolites, expanded perlite, precipitated silica, ground calcium carbonate, precipitated calcium carbonate, diatomaceous earth, calcined diatomaceous earth, crushed cementitious foam, preferably, the substrate is diatomaceous earth.

[Claim 3] The method according to any one of claims 1 and 2, wherein the substrate is a powder consisting of porous particles having a d50 diameter of at least 10 µm, preferably at least 15 µm and more preferably comprised between 20 µm and 100 µm.

[Claim 4] The method according to any one of claims 1 to 3, wherein the accelerator is selected from the group comprising or consisting of sodium chloride, potassium chloride, magnesium chloride, calcium chloride, lithium hydroxide, lithium sulfate, lithium carbonate, sodium hydroxide, potassium hydroxide, sodium carbonate, potassium carbonate, sodium bi-carbonate, alkali metal nitrates, alkali metal nitrites, alkali metal thiocyanates, alkali metal salts or earth alkali metal salts of any of citric acid, formic acid, malonic acid, acetic acid, propionic acid, malic acid, or succinic acid, especially sodium or potassium or calcium salts thereof, alkali metal silicates, alkanolamines, especially dimethylaminoethanol, diethylaminoethanol, N-methyldiethanolamine (MDEA), triethanolamine (TEA), triisopropanolamine (TIPA), Diethanol-isopropanolamine (DEIPA), Ethanol-diisopropanolamine (EDIPA), N,N,N`,N`-Tetrahydroxyethyl-ethylenediamine (THEED), and mixtures thereof.

[Claim 5] The method according to any one of claims 1 to 4 wherein the accelerator is selected from the group comprising or consisting of calcium chloride, triethanolamine and triisopropanolamine and mixtures thereof, advantageously, the accelerator is calcium chloride, a mixture of calcium chloride and triethanolamine or a mixture of calcium chloride and triisopropanolamine, even more advantageously calcium chloride.

[Claim 6] The method according to any one of claims 1 to 5 wherein the weight ratio S/A, substrate (S) to accelerator (A), is comprised between 0.01 and 5.

[Claim 7] The method according to any one of claims 1 to 6 wherein the accelerator is calcium chloride and the weight ratio S/Acl, substrate (S) to Calcium Chloride accelerator (Acl) is comprised between 0.2 and 5.

[Claim 8] The method according to any one of claims 1 to 5, wherein the accelerator is an alkanolamine and the weight ratio S/Aam substrate (S) to alkanolamine accelerator (Aam) is comprised between 0.01 and 3.

[Claim 9] Use of the free-flowing powder composition prepared in a method according to any one of claims 1 to 8, as an additive for mortar or concrete composition so as to provide an accelerating effect, an anti-ageing effect and/or an anti-dusting effect.

[Claim 10] Dry mortar or concrete composition, in particular a cementitious tile adhesive, a grouting material, a self-levelling underlayment, a self-levelling overlayment, a render, a repair mortar, a masonry thin join mortar or concrete, a screed, a wall leveller for interior or exterior use, a non-shrink grout, a thin joint mortar, a waterproofing mortar, or an anchoring mortar comprising a hydraulic binder, the free-flowing powder composition prepared in a method according to any one of claims 1 to 8 and a granulate having a d50 comprised between 50µm and 3mm.

[Claim 11] Dry mortar or concrete composition according to claim 10, wherein the content of hydraulic binder is comprised between 10% by weight and 60% by weight, the content of the free-flowing powder composition is comprised between 0.1% by weight and 15% by weight and the content of granulate is comprised between 30% by weight and 90% by weight.

[Claim 12] Wet mortar or concrete composition obtained by mixing the dry mortar or concrete composition according to any one of claims 10 to 11 with water in a water/powder ratio between 0.1 and 0.6, preferably between 0.15 and 0.5, more preferably between 0.15 and 0.35.

[Claim 13] Hardened body, obtained by hardening the wet mortar or concrete composition of claim 12.