Claims:

1. Continuous or semi-continuous freeze coagulation process for an aqueous polymer dispersion, comprising a freezing step and a solid-liquid separation step, wherein the process comprises a further step of:
   - admixing water and/or water vapor between the freezing step and the solid-liquid separation step,

   wherein the solid-liquid separation step is defined by a separation factor P as per the formula

$$P = \frac{m_{H2O,mech}}{m_{H2O,tot}}$$

   where $m_{H2O,mech}$ represents the mechanically removed amount of water, i.e. the amount of aqueous phase removed, and $m_{H2O,tot}$ represents the total amount of water resulting from summing of the water i.e. the aqueous phase from the originally used aqueous polymer dispersion and the added water and/or water vapor, and wherein P is ≥ 0.55, preferably ≥ 0.8, more preferably ≥ 0.93, and even more preferably ≥ 0.95.

2. Process according to Claim 1, wherein the freezing step is effected at a freezing rate G

$$G = \frac{h_{ice}}{t_{freeze}}$$

   where h_{ice} represents the thickness of the ice layer formed within the time t_{freeze}, and where G is in the range of 1–100 cm/h, preferably in the range of 2-70 cm/h, more preferably in the range of 4–65 cm/h, yet more preferably in the range of 5-60 cm/h and yet still more preferably in the range of 6-55 cm/h, yet still even more preferably in the range of 7-35 cm/h, yet even further preferably in the range of 8-25 cm/h and most preferably in the range of 9-15 cm/h.

3. Process according to either of Claims 1 and 2, wherein the freezing step is effected on a cooled, rotating roll, preferably on a roll-type icemaking machine, wherein the roll preferably dips into the aqueous polymer dispersion to be frozen.

4. Process according to at least one preceding claim, wherein 90%, preferably 95% and more preferably 100% by weight of the total weight of the aqueous polymer dispersion is in a frozen state after the freezing step.

5. Process according to at least one preceding claim, wherein the aqueous polymer dispersion is an aqueous polymer dispersion based on (meth)acrylate, preferably on PMMA, wherein the aqueous polymer dispersion preferably contains one or more impact modifiers, preferably 2- or 3-phase impact modifiers.

6. Process according to at least one preceding claim, wherein the aqueous polymer dispersion post water and/or water vapor admixture has a weight-specific solid fraction in the range of 99.5%–10%, preferably in the range of 75% – 25%, more preferably in the range of 70% – 30%, and most preferably in the range of 65% – 35%, of the weight-specific solid fraction of the aqueous polymer dispersion pre water and/or water vapor admixture.

7. Process according to at least one preceding claim, wherein
the process comprises a thawing step and optionally a sintering step.

8. Process according to at least one preceding claim, wherein
the process comprises a sintering step, wherein the sintering step is effected at a sintering temperature T in the range of $T \geq T^G - 50$ K, preferably in the range of $T \geq T^G - 30$ K, more preferably in the range of $T^G - 15\ K \leq T \leq T^G + 5\ K$.

9. Process according to at least one preceding claim, wherein the solid-liquid separation step is followed by a compounding step, preferably in a 2-screw compounder, under optional admixture of further additives, wherein the further additives are preferably selected from the group consisting of (co)polymers based on (meth)acrylate, in particular PMMA molding compositions in pellet form; UV stabilizer packages; lubricants; dyes, preferably dyes for transparent coloration; processing aids; antioxidants and stabilizers.

10. Process according to Claim 9, wherein a drying step and/or a compacting step are carried out between the solid-liquid separation step and the compounding step.

11. Process according to at least one preceding claim, wherein the process delivers a product in form of a powder.

12. Process for producing a semi-finished product, a molding composition or a molded article, wherein a process according to at least one of the preceding claims is utilized.

13. Process according to Claim 12, wherein the semi-finished product, the molding composition or the molded article are transparent.

14. The use of a step of
- admixing water and/or water vapor,
in a continuous or semi-continuous freeze coagulation process for an aqueous polymer dispersion comprising a freezing step and a solid-liquid separation step, wherein the step of admixing water and/or water vapor is effected between the freezing step and the solid-liquid separation step, in a process according to at least one of Claims 1 to 11, to improve the optical quality of the process product, in particular to improve the haze values.