In an aspect, there is provided a process for producing water-absorbing polymer particles by polymerizing a monomer solution comprising

a) at least one ethylenically unsaturated monomer which bears acid groups and may have been at least partly neutralized,
b) optionally one or more crosslinkers,
c) at least one initiator,
d) optionally one or more ethylenically unsaturated monomers copolymerizable with the monomers mentioned under a) and
e) optionally one or more water-soluble polymers,

with the monomer solution suspended in a hydrophobic organic solvent during the polymerization, and being agglomerated in the hydrophobic organic solvent during or after the polymerization, wherein the polymerization is conducted in the presence of dissolved oxygen, wherein the total oxygen concentration c_{tot1} immediately prior to the polymerization is at least 2 ppm.

In another aspect, there is provided a water-absorbing polymer particles obtainable by a process as defined above, having a centrifuge retention capacity of 50 to 80 g/g, a vortex of 30 to 60 s, a median particle size of 200 to 350 µm, a breadth of the particle size distribution of less than 0.8 and a bulk density of 0.8 to 1.0 g/cm³.

In another aspect, there is provided a hygiene article comprising

(A) an upper liquid-impermeable layer,
(B) a lower liquid-permeable layer,
(C) a liquid-absorbing storage layer between layer (A) and layer (B), comprising from 0% to 30% by weight of a fibrous material and from 70 to 100% by weight of water-absorbing polymer particles as defined above,
(D) optionally an acquisition and distribution layer between layer (A) and layer (C), comprising from 80% to 100% by weight of a fibrous material and from 0 to 20% by weight of water-absorbing polymer particles as defined above,
(E) optionally a fabric layer directly above and/or beneath layer (C) and
(F) further optional components.

The total oxygen concentration c_{tot1} immediately prior to the polymerization is preferably at least 2 ppm, more preferably from 4 to 12 ppm, most preferably from 5 to 10 ppm.

The oxygen concentration in the hydrophobic organic solvent c_{org1} immediately prior to the polymerization is preferably at least 2 ppm, more preferably from 4 to 12 ppm, most preferably from 5 to 10 ppm.

The oxygen concentration of the monomer solution c_{M1} immediately prior to the polymerization is preferably up to 10 ppm, more preferably from 2 to 9 ppm, most preferably from 3 to 8 ppm.

Claims

1. A process for producing water-absorbing polymer particles by polymerizing a monomer solution comprising

   a) at least one ethylenically unsaturated monomer which bears acid groups and may have been at least partly neutralized,
   b) optionally one or more crosslinkers,
   c) at least one initiator,
   d) optionally one or more ethylenically unsaturated monomers copolymerizable with the monomers mentioned under a) and
   e) optionally one or more water-soluble polymers,

   with the monomer solution suspended in a hydrophobic organic solvent during the polymerization, and being agglomerated in the hydrophobic organic solvent during or after the polymerization, wherein the polymerization is conducted in the presence of dissolved oxygen, wherein the total oxygen concentration c_{tot1} immediately prior to the polymerization is at least 2 ppm.

2. The process according to claim 1, wherein the total oxygen concentration c_{tot1} immediately prior to the polymerization is from 4 to 12 ppm.

3. The process according to claim 1 or 2, wherein the oxygen concentration in the hydrophobic organic solvent c_{org1} immediately prior to the polymerization is at least 2 ppm.

4. The process according to any of claims 1 to 3, wherein the oxygen concentration in the hydrophobic organic solvent c_{org1} immediately prior to the polymerization is from 5 to 10 ppm.

5. The process according to any of claims 1 to 4, wherein the oxygen concentration of the monomer solution c_{M1} immediately prior to the polymerization is up to 10 ppm.

6. The process according to any of claims 1 to 5, wherein the oxygen concentration of the monomer solution c_{M1} immediately prior to the polymerization is from 3 to 8 ppm.

7. The process according to any of claims 1 to 6, wherein the polymer particles obtained after the polymerization are agglomerated in the hydrophobic organic solvent with addition of a second monomer solution.

8. The process according to claim 7, wherein the total oxygen concentration c_{tot2} immediately prior to the agglomeration is less than 4 ppm.