phase suspension polymerization of two steps or more is performed on a water-soluble ethylenically unsaturated monomer in a hydrocarbon dispersion medium in presence of at least an azo compound, a peroxide and an internal-crosslinking agent, the polymerization at each step being performed in the presence of an azo compound and a peroxide, the used amount of the internal-crosslinking agent at the time of the polymerization of a first step for 1 mole of the water-soluble ethylenically unsaturated monomer used at the time of the polymerization of the first step is adjusted to fall within a range of 0.015 to 0.150 mmol and the polymerization is performed such that a BET specific surface area of secondary particles formed by agglomeration of primary particles obtained is controlled.

(2) According to the present invention, in the invention of item (1) above, in the method of manufacturing a water-absorbent resin, the used amount (mole) of the internal-crosslinking agent at the time of the polymerization of the second and later steps for 1 mole of the water-soluble ethylenically unsaturated monomer of the second and later steps, is 90% or less of a used amount (mole) of the internal-crosslinking agent used at the time of the polymerization of the first step for 1 mole of the water-soluble ethylenically unsaturated monomer used at the time of the polymerization of the first step.

(3) According to the present invention, in the invention of item (1) or (2) above, in the method of manufacturing a water-absorbent resin, the BET specific surface area of the secondary particles that are formed by agglomeration of the

primary particles and that are classified into 300 to 400 μm is controlled to be less than 0.03 m^2/g.

(4) The present invention provides a water-absorbent resin that is obtained by polymerizing a water-soluble ethylenically unsaturated monomer in presence of an internal-crosslinking agent, where a monomer of 70 to 100 mol% in the water-soluble ethylenically unsaturated monomer is acrylic acid or salt thereof, a water-absorption rate of physiological saline in the water-absorbent resin is 40 to 80 seconds, a mass proportion of particles from 150 to 850 μm in the entire water-absorbent resin is 85 mass% or more, and a mass proportion of particles from 300 to 400 μm is 20 mass% or more and a BET specific surface area of particles classified into 300 to 400 μm is less than 0.03 m^2/g.

(5) According to the present invention, in the invention of item (4) above, in the water-absorbent resin, a median particle diameter of the water-absorbent resin is 200 to 600 μm.

(6) The present invention provides a water-absorbing agent that is obtained by mixing the water-absorbent resin according to item (4) or (5) above with an inorganic fine powder.

(7) The present invention provides an absorbent article that is formed by using an absorbent material containing the water-absorbent resin according to item (4) or (5) above.

(8) The present invention provides an absorbent article that is formed by using an absorbent material containing the water-absorbing agent according to item (6) above.

Effects of the Invention

By the method of manufacturing a water-absorbent resin

CLAIMS

1. A method of manufacturing a water-absorbent resin, wherein when reverse phase suspension polymerization of two steps or more is performed on a water-soluble ethylenically unsaturated monomer in a hydrocarbon dispersion medium in presence of at least an azo compound, a peroxide and an internal-crosslinking agent,

the polymerization at each step being performed in the presence of an azo compound and a peroxide,

a used amount of the internal-crosslinking agent at the time of the polymerization of a first step for 1 mole of the water-soluble ethylenically unsaturated monomer used at the time of the polymerization of the first step is adjusted to fall within a range of 0.015 to 0.150 mmol and the polymerization is performed such that a BET specific surface area of secondary particles formed by agglomeration of primary particles obtained is controlled.

2. The method of manufacturing a water-absorbent resin according to claim 1, wherein a used amount (mole) of the internal-crosslinking agent at the time of the polymerization of the second and later steps for 1 mole of the water-soluble ethylenically unsaturated monomer of the second and later steps, is 90% or less of a used amount (mole) of the internal-crosslinking agent used at the time of the polymerization of the first step for 1 mole of the water-soluble ethylenically unsaturated monomer used at the time of the polymerization of the first step.

3. The method of manufacturing a water-absorbent resin according to claim 1, wherein the BET specific surface area of the secondary particles that are formed by agglomeration of the primary particles and that are classified into 300 to 400 μm is controlled to be less than 0.03 m^2/g.

4. A water-absorbent resin that is obtained by polymerizing a water-soluble ethylenically unsaturated monomer in presence of an internal-crosslinking agent, wherein

a monomer of 70 to 100 mol% in the water-soluble ethylenically unsaturated monomer is acrylic acid or salt thereof,

a water-absorption rate of physiological saline in the water-absorbent resin is 40 to 80 seconds,

a mass proportion of particles from 150 to 850 μm in the entire water-absorbent resin is 85 mass% or more, and a mass proportion of particles from 300 to 400 μm is 20 mass% or more and

a BET specific surface area of particles classified into 300 to 400 μm is less than 0.03 m^2/g.

5. The water-absorbent resin according to claim 4, wherein a median particle diameter of the water-absorbent resin is 200 to 600 μm.

6. A water-absorbing agent that is obtained by mixing the water-absorbent resin according to claim 4 with an inorganic fine powder.

7. An absorbent article that is formed by using an absorbent material containing the water-absorbent resin according to claim 4.

8. An absorbent article that is formed by using an absorbent material containing the water-absorbing agent according to claim 6.