the water-absorbent resin.

Means for Solving the Problems

The present inventors have performed thorough studies to solve the problems described above. Consequently, they have found that a water-absorbent resin whose absorption capacity elasticity index indicated by the product of the storage elastic modulus and the centrifuge retention rate of the water-absorbent resin is equal to or more than a predetermined value is used as an absorbent article, and thus better absorption performance under a load is achieved. Specifically, the present disclosure provides the followings.

In one aspect, there is provided a method for manufacturing a water-absorbent resin by polymerizing a water-soluble ethylenically unsaturated monomer in the presence of an azo based compound and a peroxide and in the presence of an internal-crosslinking agent, using only the azo based compound and the peroxide as a polymerizing initiator, and performing post-crosslinking with a post-crosslinking agent, wherein a centrifuge retention rate is 40 g/g or more, wherein the azo based compound is present in a proportion of 40 mass% or more and 80 mass% or less in the total used amount of the azo based compound and the peroxide, wherein a water-absorption capacity of physiological saline under a load of 4.14 kPa is 16 mL/g or more, a mass proportion of particles from 150 to 850 μm relative to the whole proportion is 85 mass% or more, moreover a mass proportion of particles from 300 to 400 μm relative to the whole proportion is 20 mass% or more, an absorption capacity elasticity index represented by formula (I) is 68000 or more, and absorption capacity elasticity index = storage elastic modulus [Pa] × centrifugal retention rate [g/g] ...(I).

In another aspect, there is provided a manufacturing method for manufacturing an absorbent article which is formed with an absorbent material containing the water-absorbent resin as described herein.

(1) The present disclosure provides a water-absorbent resin which is obtained by polymerizing a water-soluble ethylenically unsaturated monomer in the presence of an azo based compound and a peroxide and in the presence of an internal-crosslinking agent and performing post-crosslinking with a post-crosslinking agent, wherein the azo based compound is present in a proportion of 40 mass% or more and 80 mass% or less in the total used amount of the azo based compound and the peroxide, where a water-absorption capacity of physiological saline under a load of 4.14 kPa is 16 mL/g or more, a mass proportion of particles from 150 to 850 μm relative to the whole proportion is 85 mass% or more, moreover a mass proportion of particles from 300 to 400 μm relative to the whole proportion is 20 mass% or more, an absorption capacity elasticity index represented by formula (I) is 68000 or more=, and

absorption capacity elasticity index = storage elastic modulus [Pa] × centrifugal retention rate [g/g] ...(I)

(2) The present disclosure provides, in the disclosure according to above (1), the water- absorbent resin, where tanδ

measured by sizing the 300 to 400 μm particles of the water-absorbent resin is 2.00×10^{-2} or less.

(3) The present disclosure provides an absorbent article which is formed with an absorbent material containing the water-absorbent resin according to above (1) or (2).

Effects of the disclosure

The water-absorbent resin of the present disclosure has better absorption performance under a load and can form a gel which has appropriate elasticity at the time of absorption of a liquid. Hence, an absorbent article using an absorbent material containing the water-absorbent resin can effectively reduce the re-wet of a to-be-absorbed liquid over time even in a state where a load is applied by deformation, pressure or the like, and can achieve better absorption performance under a load.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a pattern diagram showing the schematic arrangement of an apparatus for measuring, in a water-absorbent resin, a water-absorption capacity of physiological saline under a load of 4.14 kPa.

PREFERRED MODE FOR CARRYING OUT THE INVENTION

The present invention will be described in detail below.

<<1. Water-absorbent resin>>

A water-absorbent resin according to the present invention has the following properties.

CLAIMS

1. A method for manufacturing a water-absorbent resin by polymerizing a water-soluble ethylenically unsaturated monomer in the presence of an azo based compound and a peroxide and in the presence of an internal-crosslinking agent, using only the azo based compound and the peroxide as a polymerizing initiator, and performing post-crosslinking with a post-crosslinking agent,

wherein a centrifuge retention rate is 40 g/g or more,

wherein the azo based compound is present in a proportion of 40 mass% or more and 80 mass% or less in the total used amount of the azo based compound and the peroxide,

wherein a water-absorption capacity of physiological saline under a load of 4.14 kPa is 16 mL/g or more,

a mass proportion of particles from 150 to 850 μm relative to the whole proportion is 85 mass% or more, moreover a mass proportion of particles from 300 to 400 μm relative to the whole proportion is 20 mass% or more,

an absorption capacity elasticity index represented by formula (I) is 68000 or more, and

absorption capacity elasticity index = storage elastic modulus [Pa] × centrifugal retention rate [g/g] ...(I)

2. The method for manufacturing the water-absorbent resin according to claim 1, wherein tanδ measured by sizing the 300 to 400 μm particles of the water-absorbent resin is 2.00×10^{-2} or less.

3. A manufacturing method for manufacturing an absorbent article which is formed with an absorbent material containing the water-absorbent resin as defined in claim 1 or 2.