CLAIMS

1. A method for the production of a water-absorbing resin which comprises:

a polymerization step for polymerizing an aqueous solution of acrylic acid (or salt thereof) to obtain a hydrogel cross-linked polymer;

a drying step for drying said hydrogel cross-linked polymer to obtain a water-absorbing resin powder;

a classification step for classifying said water-absorbing resin powder; and

a surface cross-linking step for surface cross-linking said water-absorbing resin powder before or after the classification step;

wherein electricity is eliminated in the classification step~~.~~

~~2. The method according to claim 1, wherein the electricity is eliminated~~ by ~~at least one means selected from the group consisting of ionized air flow, antistatic brush and~~ grounding~~,~~.

~~3. The method according to claim 1 or 2, wherein the electricity is eliminated by grounding~~ wherein earth resistance is equal to or lower than 100 Ω.

2~~4~~. The method according to ~~any one of~~ claim~~s~~ 1 ~~to 3~~, wherein the classification step is performed under reduced pressure.

3~~5~~. The method according to ~~any one of~~ claim~~s~~ 1 ~~to 4~~ or 2, wherein air flow is passed through the classification step, and dew point of the air flow is equal to or lower than 15°C.

4~~6~~. The method according to any one of claims 1 to ~~5~~ 3, wherein sieve classification is used in the classification step, and a temperature of a sieve to be used in the classification step is 40 to 80°C.

5~~7~~. The method according to any one of claims 1 to ~~6~~ 4, wherein sieves having at least three kinds of sieve mesh sizes are used in the classification step.

6~~8~~. The method according to any one of claims 1 to ~~7~~ 5, wherein normal saline flow conductivity (SFC) of the water-absorbing resin subjected to the surface cross-linking step is equal to or higher than ~~10~~ 50 ($\times 10^{-7} \cdot cm^3 \cdot s \cdot g^{-1}$).

7. The method according to any one of claims 1 to 6, wherein absorption against pressure (AAP) of the water-absorbing resin subjected to the surface cross-linking step is equal to or higher than 20 (g/g).

8~~9~~. The method according to any one of claims 1 to ~~8~~ 7, wherein sieve classification is used in the classification step, and a surface roughness (Rz) of an inner surface of a sieve to be used in the classification step is equal to or smaller than 800 nm.

9~~10~~. The method according to any one of claims 1 to ~~9~~ 8, wherein the water-absorbing resin is continuously produced in an amount of equal to or higher than 1 ton per 1 hour.

10~~11~~. The method according to any one of claims 1 to ~~10~~ 9, wherein the water-absorbing resin is produced in the shape of an irregular particle by continuous kneader polymerization

or continuous belt polymerization.

11~~12~~. The method according to any one of claims 1 to~~11~~ 10, wherein the water content of the water-absorbing resin is equal to or lower than 5% by weight.

12~~13~~. The method according to any one of claims 1 to~~12~~ 11, further comprising an iron removal step after the classification step.

13~~14~~. The method according to any one of claims 1 to~~13~~ 12, wherein the classification step is performed before and after the surface cross-linking step.

14~~15~~. The method according to any one of claims 1 to~~14~~ 13, further comprising a step for recycling fine powder of the water-absorbing resin after the classification step.

15~~16~~. The method according to any one of claims 1 to~~15~~ 14, wherein the water-absorbing resin before and after the classification step is pneumatically transported by air having a dew point of equal to or lower than 20°C.

16~~17~~. The method according to any one of claims 1 to~~16~~ 15, wherein the electricity is eliminated for at least one of a classification apparatus, the water-absorbing resin and a sieve used in the sieve classification.

17~~18~~. The method according to any one of claims 1 to~~17~~ 16, wherein steps from the polymerization step prior to the classification step is arrayed in one line, and the classification step is divided into two or more lines.

18~~19~~. The method according to any one of claims 1 to ~~18~~ 17, wherein the surface cross-linking step is divided into two or more lines per one line of the polymerization step.

19~~20~~. The method according to any one of claims 1 to ~~19~~ 18, wherein all of the classification step and the surface cross-linking step are divided in two or more lines per one line of the polymerization step.

20~~21~~. The method according to any one of claims 1 to ~~20~~ 19, wherein a covalent surface cross-linking agent and an ion binding surface cross-linking agent are used in combination in the surface cross-linking step.

~~22. A method for enhancing liquid permeability of a water-absorbing resin which comprises:~~

~~a polymerization step for polymerizing an aqueous solution of acrylic acid (or salt thereof) to obtain a hydrogel cross-linked polymer;~~

~~a drying step for drying said hydrogel cross linked polymer to obtain a water-absorbing resin powder;~~

~~a classification step for classifying said water absorbing resin powder; and~~

~~a surface cross-linking step for surface cross-linking said water absorbing resin powder before or after the classification step;~~

~~wherein electricity is eliminated in the classification step.~~

~~23. The method according to claim 22, wherein normal saline flow conductivity (SFC) of the water absorbing resin subjected to the surface cross linking step is equal to or higher than 10 ($\times 10^{-7} \cdot cm^3 \cdot s \cdot g^{-1}$).~~