CLAIMS

1. A solid polymer separator that separates a solid polymer dispersed in a liquid from the liquid, the solid polymer separator comprising:

a tubular screen in which a number of slits are formed;

a drive mechanism that rotates the screen;

a guide plate that is provided along an inner circumferential surface of the screen;

a first liquid spray mechanism that is provided over an outer circumferential surface of the screen, and sprays a liquid to the outer circumferential surface of the screen; and

a casing that encloses at least the screen, and has an outlet that is provided on a lower side.

2. The solid polymer separator according to claim 1, further comprising:

a second liquid spray mechanism that is provided on an outlet side of the tubular screen, and sprays a liquid to the inner circumferential surface of the screen in an upward direction.

3. The solid polymer separator according to claim 1 or 2, further comprising:

a third liquid spray mechanism that is provided in an upper area of the casing, and sprays a liquid to an inner side of the casing.

4. The solid polymer separator according to any one of claims 1 to 3, further comprising:

a fourth liquid spray mechanism that is provided in a lower area of the casing, and sprays a liquid to an inner side of the casing.

5. The solid polymer separator according to any one of claims 1 to 4, further comprising:

an extension tube that is connected to an outlet side of the tubular screen; and

a fifth liquid spray mechanism that is provided on the outlet side of the tubular screen, and sprays a liquid to an inner circumferential surface of the extension tube in a downward direction.

6. The solid polymer separator according to any one of claims 1 to 5,

wherein the drive mechanism can adjust a rotational speed of the screen.

7. The solid polymer separator according to any one of claims 1 to 6, further comprising:

a drain plate that is provided between the screen and the casing, and prevents entrance of a foreign object into a system including the screen from outside the system.

8. The solid polymer separator according to any one of claims 1 to 7,

wherein the solid polymer is a polymer selected from a group consisting of a butadiene rubber, an isoprene rubber, a styrene-butadiene rubber, a styrene-isoprene rubber, an ethylene-α-olefin copolymer rubber, an ethylene-α-olefin-nonconjugated diene copolymer rubber, a butyl rubber, a styrene-butadiene-styrene block copolymer, a hydrogenated styrene-butadiene-styrene block copolymer, a butadiene resin, and an acrylic resin.

9. A method for separating a solid polymer comprising separating a solid polymer dispersed in a liquid from the liquid using the solid polymer separator according to any one of claims 1 to 8.

10. A method for producing a rubber material comprising:

a polymerization step that polymerizes a monomer mixed with a solvent to obtain a polymer;

a solvent removal step that removes the solvent from the polymer by applying steam;

a separation step that separates the polymer from which the solvent has been removed, from boiling water produced due to liquefaction of the steam using the solid polymer separator according to any one of claims 1 to 8;

a dehydration/drying step that removes water from the polymer that has been separated from the boiling water; and

a molding step that molds the polymer from which water has been removed into a given shape.

CLAIMS

1. A solid polymer separator that separates a solid polymer dispersed in a liquid from the liquid,

wherein the solid polymer is a polymer selected from a group consisting of a butadiene rubber, an isoprene rubber, a styrene-butadiene rubber, a styrene-isoprene rubber, an ethylene-α-olefin copolymer rubber, an ethylene-α-olefin-nonconjugated diene copolymer rubber, a butyl rubber, a styrene-butadiene-styrene block copolymer, a hydrogenated styrene-butadiene-styrene block copolymer, a butadiene resin (except the butadiene rubber) , and an acrylic resin, and

the solid polymer separator comprising:

a tubular screen in which a number of slits are formed;

a drive mechanism that rotates the screen;

a guide plate that is provided along an inner circumferential surface of the screen;

a first liquid spray mechanism that is provided over an outer circumferential surface of the screen, and sprays a liquid to the outer circumferential surface of the screen;

a casing that encloses at least the screen, and has an outlet that is provided on a lower side; and

a third liquid spray mechanism that is provided in an upper area of the casing, and sprays a liquid to an inner side of the casing.

2. The solid polymer separator according to claim 1, further comprising:

a second liquid spray mechanism that is provided on an outlet side of the tubular screen, and sprays a liquid to the inner circumferential surface of the screen in an upward direction.

3. The solid polymer separator according to claim 1 or 2, further comprising:

a fourth liquid spray mechanism that is provided in a lower area of the casing, and sprays a liquid to an inner side of the casing.

4. The solid polymer separator according to any one of claims 1 to 3, further comprising:

an extension tube that is connected to an outlet side of the tubular screen; and

a fifth liquid spray mechanism that is provided on the outlet side of the tubular screen, and sprays a liquid to an inner circumferential surface of the extension tube in a downward direction.

5. The solid polymer separator according to any one of claims 1 to 4,

wherein the drive mechanism can adjust a rotational speed of the screen.

6. The solid polymer separator according to any one of claims 1 to 5, further comprising:

a drain plate that is provided between the screen and the casing, and prevents entrance of a foreign object into a system including the screen from outside the system.

7. The solid polymer separator according to any one of claims 1 to 6, wherein the bottom of the casing is tilted and tapered, and the outlet is provided at the end of the bottom of the casing.

8. A method for separating a solid polymer comprising separating a solid polymer dispersed in a liquid from the liquid using the solid polymer separator according to any one of claims 1 to 7.

9. A method for producing a rubber material comprising:
a polymerization step that polymerizes a monomer mixed with a solvent to obtain a polymer;
a solvent removal step that removes the solvent from the polymer by applying steam;
a separation step that separates the polymer from which the solvent has been removed, from boiling water produced due to liquefaction of the steam using the solid polymer separator according to any one of claims 1 to 7;
a dehydration/drying step that removes water from the polymer that has been separated from the boiling water; and
a molding step that molds the polymer from which water has been removed into a given shape.