[CLAIMS]

[Claim 1]

A pure water production method of deionizing water to be treated using a reverse osmosis membrane separation device after performing a decarboxylation treatment of the water to be treated under acidic conditions, the pure water production method comprising:

measuring pH of inflow water flowing into the reverse osmosis membrane separation device and water quality of permeated water of the reverse osmosis membrane separation device; and

adjusting the pH of the inflow water such that the water quality of the permeated water is within a predetermined range on the basis of the measured pH and water quality,

wherein the pH of the inflow water is changed by a predetermined width, and

an operation condition adjusting step of comparing an average value of water quality of the permeated water of a predetermined time after the pH change (hereinafter referred to as an average value before water quality change) and an average value of water quality of the permeated water of a predetermined period after a predetermined time elapses after the pH change (hereinafter referred to as an average value after water quality change) and adjusting the pH of the inflow water,

wherein the predetermined width of the pH is a value selected from 0.01 to 0.1, and

the predetermined time is a value selected from 5 min to 10 min, and the predetermined period is a value selected from 1 min to 5 min.

[Claim 2]

The pure water production method according to claim 1, wherein the water quality is a specific resistance, a conductivity or a Na concentration.

[Claim 3]

The pure water production method according to claim 1 or 2, wherein the operation condition adjusting step is performed periodically.

[Claim 4]

The pure water production method according to claim 3, wherein the water quality is a specific resistance,

when the average value after the water quality change is lower than the average value before the water quality change, a direction of next pH change is reversed from a current change direction, and

when the average value after the water quality change is the average value before the water quality change or more, the direction of the next pH change is the same as the current change direction.

[Claim 5]

The pure water production method according to claim 3, wherein the water quality is a conductivity or a Na concentration,

when the average value after the water quality change is higher than the average value before the water quality change, a direction of next pH change is reversed from a current change direction, and

when the average value after the water quality change is the average value before the water quality change or less, the direction of the next pH change is the same as the current change direction.

[Claim 6]

The pure water production method according to claim 1 or 2, wherein, when the average value before the water quality change is outside a predetermined range, the operation condition adjusting step is performed.

[Claim 7]

The pure water production method according to claim 6, wherein, when the average value after the water quality change is within the predetermined range, the pH of the inflow water is maintained as it is.

[Claim 8]

The pure water production method according to claim 6, wherein the water quality is a specific resistance,

when the average value after the water quality change is lower than the average value before the water quality change, a direction of next pH change is reversed from a current change direction, and

when the average value of the water quality change is outside the predetermined range and equal to or greater than the average value before the water quality change, the direction of the next pH change is the same as the current change direction.

[Claim 9]

The pure water production method according to claim 6, wherein the water quality is a conductivity or a Na concentration, and

when the average value after the water quality change is higher than the average value before the water quality change, a direction of next pH change is reversed from a current change direction, and

when the average value after the water quality change is outside the predetermined range and equal to or smaller than the average value before the water quality change, the direction of the next pH change is the same as the current change direction.

[Claim 10]

The pure water production method according to any one of claims 1 to 9,

wherein the decarboxylation treatment is performed such that an inorganic carbonic acid concentration of the decarboxylated water is less than 15 mg/L.

[Claim 11]

The pure water production method according to any one of claims 1 to 10, wherein a scale inhibitor is added to water to be treated before the decarboxylation treatment.