CLAIMS

[Claim 1]

A silica fouling inhibition method for a reverse osmosis membrane system, wherein

an acrylic acid-based polymer and/or a maleic acid-based polymer; and

a combined chlorine-based oxidizing agent and/or a combined bromine-based oxidizing agent are allowed to be present in water to be treated,

wherein the acrylic acid-based polymer and/or the maleic acid-based polymer are added to water to be treated so that a concentration in the water to be treated becomes 0.1 to 5 mg/L, and a chlorosulfamic acid compound is added to the water to be treated so that a concentration in the water to be treated becomes 0.1 to 10 mg/L as Cl_2.

[Claim 2]

The silica fouling inhibition method for the reverse osmosis membrane system according to claim 1, wherein the acrylic acid-based polymer and/or the maleic acid-based polymer is at least one type of polymer selected from a group consisting of: a copolymer of polyacrylic acid, polymaleic acid, acrylic acid, and acrylamide methylpropanesulfonic acid; a terpolymer of acrylic acid, acrylamide methylpropanesulfonic acid, and N-substituted acrylamide; a copolymer of acrylic acid and sodium allyloxyhydroxypropane sulfonate; a copolymer of maleic anhydride, vinyl acetate, and acrylic acid alkyl ester; and a copolymer of maleic anhydride and isobutylene.

[Claim 3]

The silica fouling inhibition method for the reverse osmosis membrane system according to claim 1, wherein the acrylic acid-based polymer is a copolymer of acrylic acid and acrylamide methylpropanesulfonic acid, or a terpolymer of acrylic acid, acrylamide methylpropanesulfonic acid, and N-substituted acrylamide.

[Claim 4]

The silica fouling inhibition method for the reverse osmosis membrane system according to any one of claims 1 to 3, wherein the acrylic acid-based polymer is a copolymer obtained by

copolymerizing acrylic acid (AA) and acrylamide methylpropanesulfonic acid (AMPS) in a ratio of AA:AMPS=50 to 99:1 to 50 (molar ratio).

[Claim 5]

The silica fouling inhibition method for the reverse osmosis membrane system according to any one of claims 1 to 4, wherein a weight average molecular weight of the acrylic acid-based polymer is 1000 to 50000.

[Claim 6]

The silica fouling inhibition method for the reverse osmosis membrane system according to any one of claims 1 to 5, wherein the combined chlorine-based oxidizing agent is a chlorosulfamic acid compound.

[Claim 7]

The silica fouling inhibition method for the reverse osmosis membrane system according to claim 1, wherein the acrylic acid-based polymer and/or the maleic acid-based polymer are added to water to be treated so that a concentration in the water to be treated becomes 0.1 to 3 mg/L, and a chlorosulfamic acid compound is added to the water to be treated so that a concentration in the water to be treated becomes 0.1 to 5 mg/L as Cl_2.

[Claim 8]

A silica fouling inhibitor for a reverse osmosis membrane system, comprising:

a copolymer of acrylic acid and acrylamide methylpropanesulfonic acid and/or a terpolymer of acrylic acid, acrylamide methylpropanesulfonic acid, and N-substituted acrylamide; and

a combined chlorine-based oxidizing agent and/or a combined bromine-based oxidizing agent.

[Claim 9]

The silica fouling inhibitor for the reverse osmosis membrane system according to claim 8, wherein the combined chlorine-based oxidizing agent is a chlorosulfamic acid compound.