CLAIMS

1. A water treatment system using two or more stages of reverse osmosis membranes, the water treatment system comprising at least

a first stage reverse osmosis membrane device,

a second stage reverse osmosis membrane device for treating a permeate of the first stage reverse osmosis membrane device,

a circulation mechanism for circulating a concentrate of the second stage reverse osmosis membrane device to a supply water of the first stage reverse osmosis membrane device, and

an antimicrobial agent addition mechanism for adding an antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90% to a supply water of the second stage reverse osmosis membrane device,

wherein the antimicrobial agent is not added to the supply water of the first stage reverse osmosis membrane device other than the antimicrobial agent contained in the concentrate.

2. The water treatment system according to Claim 1, wherein

the antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90% is at least one of a hypobromous acid stabilized composition, chlorosulfamic acid and a halocyanoacetamide compound.

3. The water treatment system according to Claim 1 or 2, wherein

a degassing membrane for degassing the supply water of the second stage reverse osmosis membrane is provided at a stage subsequent to addition of the antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90%.

4. The water treatment system according to any one of Claims 1 to 3, wherein

the antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90% is an anionic antimicrobial agent, and

the second stage reverse osmosis membrane device comprises an anionically-charged membrane having a zeta potential at pH 7.0 of less than -15 (mV).

5. The water treatment system according to Claim 4, wherein

the first stage reverse osmosis membrane device comprises a neutral membrane having a zeta potential at pH 7.0 of from -15 to 5 (mV).

6. A water treatment method for performing two or more stages of reverse osmosis membrane treatment using at least a first stage reverse osmosis membrane, and a second stage reverse osmosis membrane for treating a permeate of the first stage reverse osmosis membrane, the method comprising

using a concentrate of the second stage reverse osmosis membrane by circulating the concentrate to a supply water of the first stage reverse osmosis membrane, and

adding an antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90% to a supply water of the second stage reverse osmosis membrane,

wherein the antimicrobial agent is not added to the supply water of the first stage reverse osmosis membrane device other than the antimicrobial agent contained in the concentrate.

7. The water treatment method according to Claim 6, wherein

the antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90% is at least one of a hypobromous acid stabilized composition, chlorosulfamic acid and a halocyanoacetamide compound.

8. The water treatment method according to Claim 6 or 7, wherein

the supply water of the second stage reverse osmosis membrane is degassed using a degassing membrane at a stage subsequent to addition of the antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90%.

9. The water treatment method according to any one of Claims 6 to 8, wherein

the antimicrobial agent having a rejection rate by an anionically-charged reverse osmosis membrane of at least 90% is an anionic antimicrobial agent, and

the second stage reverse osmosis membrane is an anionically-charged membrane having a zeta potential at pH 7.0 of less than -15 (mV).

10. The water treatment method according to Claim 9, wherein

the first stage reverse osmosis membrane is a neutral membrane having a zeta potential at pH 7.0 of from -15 to 5 (mV).