CLAIMS

1. A water treatment method using a reverse osmosis membrane for treating, with the reverse osmosis membrane, a water to be treated containing ammonia, wherein

an antimicrobial agent comprising a bromine-based oxidizing agent or a chlorine-based oxidizing agent and a sulfamic acid compound is introduced into the water to be treated,

the reverse osmosis membrane is a neutral membrane or a cationically charged membrane, and

an amount of ammonia in the water to be treated containing ammonia is reduced, and the antimicrobial agent is then introduced into an ammonia-reduced water in which the amount of ammonia has been reduced.

2. A water treatment method using a reverse osmosis membrane for treating, with the reverse osmosis membrane, a water to be treated containing ammonia, wherein

an antimicrobial agent comprising bromine and a sulfamic acid compound is introduced into the water to be treated,

the reverse osmosis membrane is a neutral membrane or a cationically charged membrane, and

an amount of ammonia in the water to be treated containing ammonia is reduced, and the antimicrobial agent is then introduced into an ammonia-reduced water in which the amount of ammonia has been reduced.

3. The water treatment method using a reverse osmosis membrane according to Claim 1 or 2, wherein

an ammonium ion concentration in the water to be treated is at least 1 mg/L.

4. The water treatment method using a reverse osmosis membrane according to any one of Claim 1 to 3, wherein an ammonia concentration of the ammonia-reduced water is not more than 5 mg/L.

5. The water treatment method using a reverse osmosis membrane according to any one of Claim 1 to 4, wherein ammonia in the water to be treated containing ammonia is reduced by an ammonia stripping treatment.

6. The water treatment method using a reverse osmosis membrane according to any one of Claim 1 to 4, wherein ammonia in the water to be treated containing ammonia is reduced by an ammonia decomposition treatment using an oxidizing agent.

7. A water treatment apparatus using a reverse osmosis membrane for treating, with the reverse osmosis membrane, a water to be treated containing ammonia, wherein the water treatment apparatus comprises:

an ammonia reduction unit that reduces an amount of ammonia in the water to be treated containing ammonia to obtain an ammonia-reduced water;

a supply of an antimicrobial agent arranged to introduce the antimicrobial agent into the water to be treated containing ammonia and the ammonia-reduced water, wherein

the antimicrobial agent comprises a bromine-based oxidizing agent or a chlorine-based oxidizing agent and a sulfamic acid compound; and

wherein the reverse osmosis membrane is a neutral membrane or a cationically charged membrane.

8. A water treatment apparatus using a reverse osmosis membrane for treating, with the reverse osmosis membrane, a water to be treated containing ammonia, wherein the water treatment apparatus comprises:

an ammonia reduction unit that reduces an amount of ammonia in the water to be treated containing ammonia to obtain an ammonia-reduced water;

a supply of an antimicrobial agent arranged to introduce the antimicrobial agent into the water to be treated containing ammonia and the ammonia-reduced water, wherein

the antimicrobial agent comprises bromine and a sulfamic acid compound; and

wherein the reverse osmosis membrane is a neutral membrane or a cationically charged membrane.

9. The water treatment apparatus using a reverse osmosis membrane according to Claim 7 or 8, wherein an ammonium ion concentration in the water to be treated is at least 1 mg/L.

10. The water treatment apparatus using a reverse osmosis membrane according to any one of Claim 7 to 9, wherein

an ammonia concentration of the ammonia-reduced water is not more than 5 mg/L.

11. The water treatment apparatus using a reverse osmosis membrane according to any one of Claim 7 to 10, comprising an ammonia stripping treatment device as the ammonia reduction unit.

12. The water treatment apparatus using a reverse osmosis membrane according to any one of Claim 7 to 10, comprising an ammonia decomposition treatment unit using an oxidizing agent as the ammonia reduction unit.