CLAIMS

1. A method for producing a stabilized hypobromous acid composition, the method comprising:

a step of inducing a reaction by adding bromine, under an inert gas atmosphere, to a mixed solution comprising water, an alkali hydroxide and sulfamic acid, wherein

a proportion of bromine added is not more than 25 wt% relative to a total weight of the composition.

2. The method for producing a stabilized hypobromous acid composition according to Claim 1, wherein

the bromine is reacted under conditions in which an oxygen concentration inside a reaction vessel is controlled to not more than 6%.

3. The method for producing a stabilized hypobromous acid composition according to Claim 1 or 2, wherein

a reaction temperature during addition of the bromine is controlled within a range from at least 0°C to not more than 25°C.

4. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 3, wherein

a ratio of an equivalent weight of the sulfamic acid relative to an equivalent weight of the bromine is within a range from 1.01 to 1.1.

5. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 4, wherein

an equivalent weight ratio of the sulfamic acid relative to the alkali hydroxide prior to addition of the bromine is within a range from 0.28 to 0.35.

6. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 5, wherein

a pH of the composition is higher than 13.5.

7. The method for producing a stabilized hypobromous acid composition according to Claim 6, wherein

an alkali hydroxide is added to the composition to adjust the pH to a value higher than 13.5.

8. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 7, wherein

the inert gas is at least one of nitrogen and argon.

9. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 8, wherein

the alkali hydroxide is at least one of sodium hydroxide and potassium hydroxide.

10. The method for producing a stabilized hypobromous acid composition according to Claim 9, wherein

the alkali hydroxide is a combination of sodium hydroxide and potassium hydroxide.

11. A stabilized hypobromous acid composition, produced by a method comprising a step of inducing a reaction by adding bromine, under an inert gas atmosphere, to a mixed solution comprising water, an alkali hydroxide and sulfamic acid, wherein a proportion of bromine added is not more than 25 wt% relative to a total weight of the composition.

12. The stabilized hypobromous acid composition according to Claim 11, wherein

a bromate ion content is less than 5 mg/kg.

13.(Amended) A slime inhibition method for a separation membrane, the method comprising:

incorporating at least one of: a stabilized hypobromous acid composition obtained from the method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 10; the stabilized hypobromous acid composition according to Claim 11 or 12; a stabilized hypobromous acid composition comprising a reaction product of a bromine-based oxidizing agent and a sulfamic acid compound; and a stabilized hypobromous acid composition comprising a reaction product of a sulfamic acid compound with a reaction product of a bromine compound and a chlorine-based oxidizing agent, in a feed water or a wash

water supplied to a membrane separation device containing the separation membrane.

14. The slime inhibition method for a separation membrane according to Claim 13, wherein

the separation membrane is a polyamide-based polymer membrane.

15. The slime inhibition method for a separation membrane according to Claim 13 or 14, wherein

the membrane separation device comprises an RO membrane as the separation membrane, and

a pH of a feed water supplied to the membrane separation device is 5.5 or higher.

16. The slime inhibition method for a separation membrane according to any one of Claims 13 to 15, wherein

a bromate concentration in the stabilized hypobromous acid composition is less than 5 mg/kg.

CLAIMS

1. A method for producing a stabilized hypobromous acid composition, the method comprising:

a step of inducing a reaction by adding bromine, under an inert gas atmosphere, to a mixed solution comprising water, an alkali hydroxide and sulfamic acid, wherein

a proportion of bromine added is not more than 25 wt% relative to a total weight of the composition.

2. The method for producing a stabilized hypobromous acid composition according to Claim 1, wherein

the bromine is reacted under conditions in which an oxygen concentration inside a reaction vessel is controlled to not more than 6%.

3. The method for producing a stabilized hypobromous acid composition according to Claim 1 or 2, wherein

a reaction temperature during addition of the bromine is controlled within a range from at least 0°C to not more than 25°C.

4. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 3, wherein

a ratio of an equivalent weight of the sulfamic acid relative to an equivalent weight of the bromine is within a range from 1.01 to 1.1.

5. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 4, wherein an equivalent weight ratio of the sulfamic acid relative to the alkali hydroxide prior to addition of the bromine is within a range from 0.28 to 0.35.

6. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 5, wherein a pH of the composition is higher than 13.5.

7. The method for producing a stabilized hypobromous acid composition according to Claim 6, wherein an alkali hydroxide is added to the composition to adjust the pH to a value higher than 13.5.

8. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 7, wherein the inert gas is at least one of nitrogen and argon.

9. The method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 8, wherein the alkali hydroxide is at least one of sodium hydroxide and potassium hydroxide.

10. The method for producing a stabilized hypobromous acid composition according to Claim 9, wherein

the alkali hydroxide is a combination of sodium hydroxide and potassium hydroxide.

11. A stabilized hypobromous acid composition, produced by a method comprising a step of inducing a reaction by adding bromine, under an inert gas atmosphere, to a mixed solution comprising water, an alkali hydroxide and sulfamic acid, wherein a proportion of bromine added is not more than 25 wt% relative to a total weight of the composition, wherein

a bromate ion content is less than 5 mg/kg.

12. A slime inhibition method for a separation membrane, the method comprising:

incorporating at least one of: a stabilized hypobromous acid composition obtained from the method for producing a stabilized hypobromous acid composition according to any one of Claims 1 to 10; the stabilized hypobromous acid composition according to Claim 11, in a feed water or a wash water supplied to a membrane separation device containing the separation membrane.

13. The slime inhibition method for a separation membrane according to Claim 12, wherein

the separation membrane is a polyamide-based polymer membrane.

14. The slime inhibition method for a separation membrane according to Claim 12 or 13, wherein

the membrane separation device comprises an RO membrane as the separation membrane, and

a pH of a feed water supplied to the membrane separation device is 5.5 or higher.

15. The slime inhibition method for a separation membrane according to any one of Claims 12 to 14, wherein

a bromate concentration in the stabilized hypobromous acid composition is less than 5 mg/kg.