CLAIMS

1. A membrane filtration method comprising: adding a coagulant to a treated water, said treated water having been prepared by adding a flocculant to a water to be treated and performing a flocculation and settling treatment or a flocculation and dissolved air flotation treatment; and performing at least one membrane filtration treatment among an ultrafiltration membrane treatment and a microfiltration membrane treatment,

wherein the flocculant comprises at least one of polyacrylamide-based flocculants, polysulfonic acid-based flocculants, polyacrylic acid-based flocculants, polyacrylate ester-based flocculants, polyamine-based flocculants and polymethacrylic acid-based flocculants, and

wherein at a time of the membrane filtration treatment, at least one of application of a shearing force to the treated water by stirring the treated water with a stirrer within a range from 200 rpm to 1,000 rpm and addition of an oxidant to the treated water is performed, so that an average molecular weight of the flocculant in the treated water is not more than a molecular weight cutoff of a membrane used in the membrane filtration treatment.

2. The membrane filtration method according to Claim 1, wherein an amount added of the coagulant is within a range from 0.5 times to 75 times a concentration (mg/L) of the flocculant in the water to be treated.

3. The membrane filtration method according to any one of Claims 1 to 2, wherein an amount added of the coagulant is controlled in accordance with a concentration of polymeric organic matter detected by LC-OCD in the treated water that has undergone the flocculation and settling treatment or flocculation and dissolved air flotation treatment.

4. The membrane filtration method according to any one of Claims 1 to 3, wherein at least one post-treatment among an activated carbon treatment and a reverse osmosis membrane treatment is performed on a treated water that has undergone the membrane filtration treatment.

5. The membrane filtration method according to any one of Claims 1 to 4, wherein at a time of the membrane filtration treatment, a pH of the treated water is controlled so that a Langelier saturation index (LSI) of the treated water is less than 0.

6. A membrane filtration system comprising:

a coagulant addition unit for adding a coagulant to a treated water, said treated water having been prepared by adding a flocculant to a water to be treated and performing a flocculation and settling treatment or a flocculation and dissolved air flotation treatment, and

a membrane filtration treatment unit which has at least one of an ultrafiltration membrane and a microfiltration membrane, and performs a membrane filtration treatment of the treated water to which the coagulant has been added, and

at least one of a shearing force application unit for applying a shearing force to the treated water by stirring the treated water within a range from 200 rpm to 1,000 rpm and an oxidant addition unit for adding an oxidant to the treated water at a time of the membrane filtration treatment,

wherein the flocculant comprises at least one of polyacrylamide-based flocculants, polysulfonic acid-based flocculants, polyacrylic acid-based flocculants, polyacrylate ester-based flocculants, polyamine-based flocculants and polymethacrylic acid-based flocculants, and

wherein at least one of application of the shearing force and addition of the oxidant ensures that an average molecular weight of the flocculant in the treated water is not more than a molecular weight cutoff of a membrane used in the membrane filtration treatment.

7. The membrane filtration system according to Claim 6, wherein an amount added of the coagulant is within a range from 0.5 times to 75 times a concentration (mg/L) of the flocculant in the water to be treated.

8. The membrane filtration system according to any one of Claims 6 and 7,

having a post-treatment unit for performing a post-treatment on a treated water that has undergone the membrane filtration treatment, wherein

the post-treatment unit is at least one of an activated carbon treatment unit and a reverse osmosis membrane treatment unit.

9. The membrane filtration system according to any one of Claims 6 to 8, further comprising a pH control unit for controlling a pH of the treated water so that, at a time of the membrane filtration treatment, a Langelier saturation index (LSI) of the treated water is less than 0.