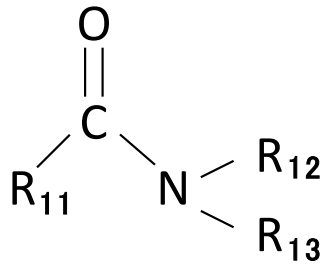
CLAIMS

[Claim 1]

An agent for cleaning a polyamide reverse osmosis membrane for water treatment, the agent comprising an aliphatic amide and/or an aromatic amide which is a compound represented by Formula (I) below, and has a molecular weight of 300 or less (except D-amino acid) as an agent which produces cleaning effects to the surface of the membrane.

[Chem. 1]



··· Formula (I)

wherein, in Formula (I), R_{11} represents a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, an N-containing heterocyclic group, or an aromatic group, where the alkyl group, the N-containing heterocyclic group, and the aromatic group may include a substituent; R_{12} represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, where the alkyl group may include a substituent; and R_{13} represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms.

[Claim 2]

The agent for cleaning a polyamide reverse osmosis

membrane for water treatment according to Claim 1, wherein the aliphatic amide and/or the aromatic amide is soluble in water.

[Claim 3]

The agent for cleaning a polyamide reverse osmosis membrane for water treatment according to Claim 1 or 2, wherein the aliphatic amide is one or more selected from L-asparagine, L-glutamine, formamide, acetamide, N,N-dimethylformamide, and N,N-dimethylacetamide, and wherein the aromatic amide is one or more selected from nicotinamide, benzamide, aminobenzamide, phthalamide, and hippuric acid.

[Claim 4]

The agent for cleaning a polyamide reverse osmosis membrane for water treatment according to any one of Claims 1 to 3, the agent being used under an alkaline condition.

[Claim 5]

The agent for cleaning a polyamide reverse osmosis membrane for water treatment according to any one of Claims 1 to 4, the agent further comprising a compound including an N-containing saturated heterocyclic ring.

[Claim 6]

The agent for cleaning a polyamide reverse osmosis membrane for water treatment according to any one of Claims 1 to 5, the agent further comprising an anionic surfactant.

[Claim 7]

The agent for cleaning a polyamide reverse osmosis membrane for water treatment according to any one of Claims 1 to 6, the agent further comprising following one or more chelating agent selected from ethylenediaminetetraacetic acid, glycol ether diamine tetraacetic acid, polyphosphoric acid, phosphonobutanetricarboxylic acid, phosphonic acid, polymaleic acid, citric acid, oxalic acid, gluconic acid, and the salts of the above acids, as a dispersant.

[Claim 8]

A liquid for cleaning a polyamide reverse osmosis membrane for water treatment, the liquid comprising the agent for cleaning a polyamide reverse osmosis membrane for water treatment according to any one of Claims 1 to 7.

[Claim 9]

The liquid for cleaning a polyamide reverse osmosis membrane for water treatment according to Claim 8, the liquid being an alkaline liquid having a pH of 8 or more.

[Claim 10]

A method for cleaning a polyamide reverse osmosis membrane for water treatment, the method comprising using the agent for cleaning a polyamide reverse osmosis membrane for water treatment according to any one of Claims 1 to 7 or the liquid for cleaning a polyamide reverse osmosis membrane for water treatment according to Claim 8 or 9.

[Claim 11]

The method for cleaning a polyamide reverse osmosis membrane for water treatment according to Claim 10, wherein the reverse osmosis membrane is an aromatic polyamide reverse osmosis membrane.

[Claim 12]

The method for cleaning a polyamide reverse osmosis membrane for water treatment according to Claim 10 or 11, wherein the polyamide reverse osmosis membrane for water treatment is a polyamide reverse osmosis membrane for water treatment that has been used for desalination of seawater or treatment of wastewater.