[CLAIMS]

[Claim 1]

A wastewater treatment method for treating wastewater containing at least chloride ions, alkali metal ions, carbonate ions, and calcium ions, the wastewater treatment method comprising:

a soft water treatment of crystallizing calcium carbonate from wastewater to remove the calcium carbonate therefrom;

an electrodialysis of separating some of the wastewater from which the calcium carbonate has been removed into electrodialysis concentrated water and electrodialysis diluted water by electrodialysis treatment;

an electrolysis of electrolyzing some or all of the electrodialysis concentrated water to obtain an acidic aqueous solution and an alkaline aqueous solution; and

a reverse osmosis membrane treatment of separating some of the wastewater from which the calcium carbonate has been removed into reverse osmosis membrane treated water and reverse osmosis membrane concentrated water using a reverse osmosis membrane,

wherein a pH of the wastewater to be used in the soft water treatment is adjusted to 10 or more by circulating at least some of the alkaline aqueous solution,

at least some of the acidic aqueous solution is circulated to be used in the electrodialysis, and

a pH of the wastewater to be used in the reverse osmosis membrane treatment is adjusted to be in a range of 8.5 to 9.5.

[Claim 2]

The wastewater treatment method according to claim 1,

wherein at least some of the acidic aqueous solution is circulated to be used in the electrolysis.

[Claim 3]

The wastewater treatment method according to claim 1 or 2, the wastewater treatment method further comprising a sodium hypochlorite production of electrolyzing some or all of the electrodialysis concentrated water to produce a sodium hypochlorite aqueous solution.

[Claim 4]

The wastewater treatment method according to any one of claims 1 to 3,

wherein the electrolysis is performed by a hydrogen oxidation reaction.

[Claim 5]

The wastewater treatment method according to any one of claim 1 to 4,

wherein the wastewater, whose pH is 10 or more, to be used in the electrodialysis is neutralized when at least some of the acidic aqueous solution is circulated to be used in the electrodialysis.

[Claim 6]

A wastewater treatment apparatus that treats wastewater containing at least chloride ions, alkali metal ions, carbonate ions, and calcium ions, the wastewater treatment apparatus comprising:

a crystallization device that crystallizes calcium carbonate from the wastewater to remove the calcium carbonate therefrom;

an electrodialysis device that separates some of the wastewater from which the calcium carbonate has been removed into electrodialysis concentrated water and electrodialysis diluted water by electrodialysis treatment;

an electrolysis device that electrolyzes some or all of the electrodialysis concentrated water to produce an acidic aqueous solution and an alkaline aqueous solution;

a reverse osmosis membrane treatment device that separates some of the wastewater from which the calcium carbonate has been removed into reverse osmosis membrane treated water and reverse osmosis membrane concentrated water using a reverse osmosis membrane;

a first circulator that circulates at least some of the alkaline aqueous solution to the crystallization device;

an electrodialysis acidic water circulation pipe that circulates circulates at least some of the acidic aqueous solution to circulate in the electrodialysis device; and

a pH adjusting acidic water circulation pipe that circulates at least some of the acidic aqueous solution to circulate in the reverse osmosis membrane treatment device.

[Claim 7]

The wastewater treatment apparatus according to claim 6, the wastewater treatment apparatus further comprising a second circulator that circulates at least some of the acidic

aqueous solution to the electrolysis device.

[Claim 8]

The wastewater treatment apparatus according to claim 6 or 7, the wastewater treatment apparatus further comprising a sodium hypochlorite production device that electrolyzes some or all of the electrodialysis concentrated water to produce a sodium hypochlorite aqueous solution.

[Claim 9]

The wastewater treatment apparatus according to any one of claims 6 to 8,

wherein the electrolysis device has an anode which is a hydrogen gas diffusion electrode.