Claims

1. A water treatment method comprising:

supplying blowing water of a cooling tower to a membrane separation apparatus,

supplying membrane permeated water from the membrane separation apparatus to the cooling tower, and supplying a part or the whole of water discharged from the membrane separation apparatus to the cooling tower,

wherein the membrane separation apparatus includes a pretreatment membrane device and a reverse osmosis membrane device, and the pretreatment membrane device has at least a microfiltration membrane or an ultrafiltration membrane,

wherein the water discharged from the membrane separation apparatus is at least one of backwash waste water from the pretreatment membrane device, circulating water, concentrated water, and chemical washing waste water from the pretreatment membrane device,

wherein the circulating water is discharged water discharged when a injection step or a circulation step for filling a housing with water, is performed at the beginning of operation of the pretreatment membrane device or during an air removal step after the backwashing, and

wherein the water discharged from the membrane separation apparatus is directly supplied into the cooling tower from the membrane separation apparatus.

2. The water treatment method according to claim 1, wherein the cooling tower includes a filtration device for circulating and filtering at least a part of cooling water.

3. The water treatment method according to claim 1, wherein a water supply pipe for feeding water from the cooling tower to a filtering device for circulating and filtering at least a part of the cooling water is connected to the cooling tower; and

wherein the water discharged from the membrane separation apparatus is supplied to the vicinity of the water supply pipe-connecting portion in the cooling tower.

4. A water treatment apparatus comprising:

a membrane separation apparatus,

means for supplying blowing water of a cooling tower to the membrane separation apparatus,

means for supplying membrane permeated water from the membrane separation apparatus to the cooling tower, and

means for supplying a part or the whole of water discharged from the membrane separation apparatus to the cooling tower,

wherein the membrane separation apparatus includes a pretreatment membrane device and a reverse osmosis membrane device, and the pretreatment membrane device has at least a microfiltration membrane or an ultrafiltration membrane,

wherein the water discharged from the membrane separation apparatus is at least one of backwash waste water from the

pretreatment membrane device, circulating water, concentrated water, and chemical washing waste water from the pretreatment membrane device,

wherein the circulating water is discharged water discharged when a injection step or a circulation step for filling a housing with water, is performed at the beginning of operation of the pretreatment membrane device or during an air removal step after the backwashing, and

wherein the water discharged from the membrane separation apparatus is directly supplied into the cooling tower from the membrane separation apparatus.

5. The water treatment apparatus according to claim 4, wherein the cooling tower includes a filtration device for circulating and filtering at least a part of cooling water.

6. The cooling tower according to claim 4, wherein a water supply pipe is connected to the cooling tower, the supply pipe being for feeding water from the cooling tower to a filtration device for circulating and filtering at least a part of the cooling water; and wherein the water discharged from the membrane separation apparatus is supplied to the vicinity of the water supply pipe-connection portion in the cooling tower.