[0006]

In the art described in Patent Document 1, a method to add tartaric acid, citric acid, and an alkaline agent into water to be supplied to a boiler is disclosed. However, the laboratory evaluation of Test Example 1 described therein simulates only the continuous flow condition; and thus, it is unclear that the corrosion suppression effect of this method on the economizer under the actual operation condition of the boiler in which the operation of flow and stop is repeated by on/off switching of a water supplying pump.

On the other hand, in the art described in Patent Document 2, the evaluations were made only in the boiler vessel; and no investigation was carried out as to the effect on the economizer, which is a non-concentrated part where temperature condition, water quality condition such as pH, and the like are quite different from those of the boiler vessel.

[0007]

The present disclosure was made under the situation as mentioned above, and has an object to provide a method for treating water of a boiler having an economizer, wherein a corrosion suppression effect is expressed in non-concentrated parts such as a water supplying tube and an economizer, and also scaling in a concentrated part such as a boiler vessel can be prevented.

MEANS FOR SOLVING THE PROBLEMS

[0008]

Extensive investigation was carried out to achieve the object mentioned above; and as a result, it was found that this object could be achieved by adding an alkaline ingredient and a silica ingredient to a supply water charged into an economizer in such a way that P-alkalinity (mg-$CaCO_3$/L) and silica concentration (mg-SiO_2/L) of the said supply water may become specific values respectively. The present disclosure was completed based on this finding.

[0009]

That is, the present disclosure provides the followings.

In one aspect, the present invention refers to a method for treating water of a boiler having an economizer made of a carbon steel in a part or an entire part thereof comprising,adding an alkaline ingredient and a silica ingredient to a supply water charged into the economizer in such a way that P-alkalinity of the supply water may become in the range of 20 to 100 mg-CaCO3/L and silica concentration of the same may become in the range of 10 to 100 mg-SiO2/L, wherein the alkaline ingredient and the silica ingredient are added in such a way that

ratio of P-alkalinity/silica concentration in boiler water may become 1.0 or more.

(1) A method for treating water of a boiler having an economizer made of a carbon steel in a part or an entire part thereof comprising,

adding an alkaline ingredient and a silica ingredient to a supply water charged into the economizer in such a way that P-alkalinity of the supply water may become in the range of 20 to 100 mg-$CaCO_3$/L and silica concentration of the same may become in the range of 10

CLAIMS

1. A method for treating water of a boiler having an economizer made of a carbon steel in a part or an entire part thereof comprising,

adding an alkaline ingredient and a silica ingredient to a supply water charged into the economizer in such a way that P-alkalinity of the supply water may become in the range of 20 to 100 mg-$CaCO_3$/L and silica concentration of the same may become in the range of 10 to 100 mg-SiO_2/L, wherein the alkaline ingredient and the silica ingredient are added in such a way that ratio of P-alkalinity/silica concentration in boiler water may become 1.0 or more.

~~2. The method for treating water of a boiler having an economizer according to claim 1, wherein the alkaline ingredient and the silica ingredient are added in such a way that ratio of P-alkalinity/silica concentration in boiler water may become 1.0 or more.~~

~~3.~~2. The method for treating water of a boiler having an economizer according to claim 1 ~~or 2~~, wherein the alkaline ingredient is an alkaline hydroxide.

~~4.~~3. The method for treating water of a boiler having an economizer according to any of claims 1 to ~~3~~2, wherein the silica ingredient is a silicate salt.

~~5.~~4. The method for treating water of a boiler having an economizer according to any of claims 1 to ~~4~~3, wherein an anti-scaling agent is further added to the supply water.

~~6.~~5. The method for treating water of a boiler having an economizer according to claim ~~5~~4, wherein the anti-scaling agent is an acrylate polymer.

~~7.~~6. The method for treating water of a boiler having an economizer according to claim ~~6~~5, wherein the acrylate polymer is a polyacrylate salt having number-average molecular weight of 20,000 to 70,000.

~~8.~~7. The method for treating water of a boiler having an economizer according to any of claims 1 to ~~7~~6, wherein a water supplying pump is comprised a water supplying line, and the water supplying pump is performable an ON/OFF operation in accordance with a water level in the boiler whereby supplying the supply water intermittently.

~~9.~~8. The method for treating water of a boiler having an economizer according to any of claims 1 to ~~8~~7, wherein the boiler to be used herein is a space-saving once-through boiler.

~~10.~~9. The method for treating water of a boiler having an economizer according to any of claims 1 to ~~9~~8, wherein the alkaline ingredient and the silica ingredient are added to a water supplying system with which water is supplied to the economizer.