When MDEA described in Patent Document 1 is used as an anti-corrosive agent, in a little amount of the agent, the pH is easily elevated in a high-temperature corrosive environment. In addition, volatility thereof is low, so that carrying over to vapor is reduced and that influence to reaction system is small. Furthermore, when a deoxidizer is used in combination, deoxidizing ability is allowed to be enhanced. In this way, with a small amount of addition, a high anti-corrosion effect is described to be expected.

PRIER ART DOCUMENTS

PATENT DOCUMENTS

[0004] Patent Document 1: Japanese Patent Laid-Open Publication No. 2003-231980

SUMMARY ~~OF THE INVENTION~~

PROBLEMS TO BE SOLVED ~~BY THE INVENTION~~

[0005] However, a preferred amount of addition to feed water of the anti-corrosive agent of MDEA described in Patent Document 1 is from 50 mg/L to 200 mg/L (paragraph [0012]). Accordingly, an anti-corrosive agent that is effective even in still smaller amount of addition has been expected.

The present disclosure~~invention~~ has been performed as a result of extensive studies in order to solve the aforementioned problems. An object of the present disclosure~~invention~~ is to provide an agent that is capable of keeping the pH of boiler water more effectively and preventing not only the inside of a boiler can but also entire boiler system including condensate and feed water from being corroded in the aforementioned boilers, while much more phosphate is not added and the Na/PO_4 mole ratio is not increased higher than 3.0.

MEANS FOR SOLVING THE PROBLEMS

[0005a] In one aspect, the present invention refers to an anti-corrosive agent for boilers, comprising diethanolamine, wherein at least one kind of compound selected from ammonia and a neutralizing amine is additionally added.

[0005b] In another aspect, the present invention refers to the anti-corrosive agent as defined herein, comprising also a deoxidizer.

[0005c] In yet another aspect, the present invention refers to the anti-corrosive agent as defined herein, wherein the deoxidizer is at least one kind of compounds selected from a group consisting of hydrazine, carbohydrazide, 1-aminopyrrolidine, 1-amino-4-methylpiperazine, N, N-diethylhydroxylamine, erythrobic acid and a salt thereof, and ascorbic acid and a salt thereof.

[0005d] In a further aspect, the present invention refers to the anti-corrosive agent as defined herein, wherein the neutralizing amine is at least one kind of compound selected from the group consisting of monoethanolamine, cyclohexylamine, morpholine, diethylethanolamine, monoisopropanolamine, 3-methoxypropylamine and 2-amino-2-methyl-1-propanol.

[0006] Namely, the present disclosure describes the~~invention provides~~ following items of (1) to (4).

(1) An anti-corrosive agent for boilers, which includes therein diethanolamine.

(2) An anti-corrosive agent for boilers, which includes therein diethanolamine and a deoxidizer.

(3) An anti-corrosive agent as described in (2), wherein the deoxidizer is at least one kind of compounds selected from a group consisting of hydrazine, carbohydrazide, 1-aminopyrrolidine, 1-amino-4-methylpiperazine, N, N-diethylhydroxylamine, erythrobic acid and a salt thereof, and ascorbic acid and a salt thereof.