example, a method in which phosphate-based and zinc-based corrosion inhibitors are used in a foundation treatment (initial treatment) at the time of initiating a circulation cooling water system.

Citation List

Patent Literature

[0005]

PTL1: JP 2011-202243A

Summary

Technical Problem

[0006]

However, in recent years, due to the intensifying interest in environmental preservation or the tightening of wastewater regulations, there has been a demand for a reduction in the content of phosphorus or the like in wastewater. In plants and the like where no wastewater treatment facilities are installed, it has been difficult to cope with such a demand, and there have been cases where the use of phosphate-based and zinc-based corrosion inhibitors is forced to be stopped.

[0007]

Furthermore, in circulation cooling water systems containing a large amount of SS, there have been cases where a corrosion-resistant coating is not sufficiently formed on a surface of a metal member and a favorable corrosion-preventing effect cannot be obtained with an initial treatment by a conventional corrosion-preventing method.

[0008]

The present invention has been made to solve the above-described problem, and an objective of the present invention is to provide an initial treatment agent for circulation cooling water and an initial treatment method for a circulation cooling water system by which an excellent corrosion-preventing effect can be obtained in initial treatments of circulation cooling water systems with no use of a phosphate-based corrosion inhibitor.

Solution to Problem

[0009]

The present disclosure is based on the fact that an excellent corrosion-preventing effect can be obtained in an initial treatment of a circulation cooling water system by using a tartaric acid compound and using a slime control agent in combination.

[0010]

That is, the present disclosure provides the following [1] to [8].

[1] An initial treatment agent for circulation cooling water, containing one or more tartaric acid compounds selected from the group consisting of tartaric acid and tartrates and a slime control agent containing at least one selected from the group consisting of halogen-based oxidants, stabilized halogen-based oxidants, and carbohydrazide.

[2] An initial treatment method for a circulation cooling water system, having a step (1) of adding one or more tartaric acid compounds selected from the group consisting of tartaric acid and tartrates and a slime control agent containing at least one selected from the group consisting of halogen-based oxidants, stabilized halogen-based oxidants, and carbohydrazide into a circulation cooling water system.

[3] The initial treatment method for a circulation cooling water system according to [2] described above, in which a concentration of the tartaric acid compound added in the circulation cooling water system is 30 to 100 mg/L in terms of tartaric acid.

[4] The initial treatment method for a circulation cooling water system according to [2] or [3] described above, in which, in the step (1), a pH of the circulation cooling water system is adjusted to 6.0 to 9.0.

[5] The initial treatment method for a circulation cooling water system according to any one of [2] to [4] described above, in which, in the step (1), the circulation cooling water system is circulate for 20 to 30 hours in a state where no thermal load is applied.

[6] The initial treatment method for a circulation cooling water system according to any one of [2] to [5] described above, further having, after the step (1), a step (2) of adding one or more zinc compounds selected from the group consisting of zinc and zinc salts into the circulation cooling water system.

[7] The initial treatment method for a circulation cooling water system according to [6] described above, in which a concentration of the zinc compound added in the circulation cooling water system is 3 to 20 mg/L in terms of zinc.

[8] The initial treatment method for a circulation cooling water system according to [6] or [7] described above, in which, in the step (2), the circulation cooling water system is circulated for 20 to 30 hours in a state where no thermal load is applied.

Advantageous Effects

[0011]

According to the initial treatment agent for circulation cooling water of the present invention, an excellent corrosion-preventing effect can be obtained in initial treatments with no use of a phosphate-based corrosion inhibitor even in circulation cooling water systems containing a large amount of SS.

In addition, according to the initial treatment method for a circulation cooling water system of the present invention, it is possible to form a favorable initial corrosion-resistant coating on a surface of a metal member in circulation cooling water systems and to contribute to maintaining a cooling capability of the circulation cooling water system while coping with environmental preservation.

Brief Description of Drawings

[0012]

[Fig. 1] Fig. 1 is a graph showing changes in tartaric acid concentration over time in a test 1 in Example.

[Fig. 2] Fig. 2 is a graph showing comparison of corrosion weight losses with a slime control agent added or not added at individual turbidity in a test 2 in Example.

Description of Embodiment

[0013]

Hereinafter, an initial treatment agent for circulation cooling water and an initial treatment method for a circulation cooling water system of the present invention will be described in detail.

[0014]

Initial treatment agent for circulation cooling water

The initial treatment agent for circulation cooling water of the present invention contains one or more tartaric acid compounds selected from the group consisting of tartaric acid and tartrates and a slime control agent.

The combined use of a tartaric acid compound and a slime control agent as an initial treatment agent as described above makes it possible to form a favorable initial corrosion-resistant coating on a surface of a metal member in a circulation cooling water system with no use of a phosphate-based corrosion

CLAIMS

[Claim 1]

An initial treatment agent for circulation cooling water, comprising:

one or more tartaric acid compounds selected from the group consisting of tartaric acid and tartrates; and

a slime control agent containing at least one selected from the group consisting of halogen-based oxidants, stabilized halogen-based oxidants, and carbohydrazide.

[Claim 2]

An initial treatment method for a circulation cooling water system, comprising:

a step (1) of adding one or more tartaric acid compounds selected from the group consisting of tartaric acid and tartrates and a slime control agent containing at least one selected from the group consisting of halogen-based oxidants, stabilized halogen-based oxidants, and carbohydrazide into a circulation cooling water system.

[Claim 3]

The initial treatment method for a circulation cooling water system according to claim 2,

wherein a concentration of the tartaric acid compound added in the circulation cooling water system is 30 to 100 mg/L in terms of tartaric acid.

[Claim 4]

The initial treatment method for a circulation cooling water system according to claim 2 or 3,

wherein, in the step (1), a pH of the circulation cooling water system is adjusted to 6.0 to 9.0.

[Claim 5]

The initial treatment method for a circulation cooling water system according to any one of claims 2 to 4,

wherein, in the step (1), the circulation cooling water system is circulated for 20 to 30 hours in a state where no thermal load is applied.

[Claim 6]

The initial treatment method for a circulation cooling water system according to any one of claims 2 to 5, further comprising, after the step (1):

a step (2) of adding one or more zinc compounds selected from the group consisting of zinc and zinc salts into the circulation cooling water system.

[Claim 7]

The initial treatment method for a circulation cooling water system according to claim 6,

wherein a concentration of the zinc compound added in the circulation cooling water system is 3 to 20 mg/L in terms of zinc.

[Claim 8]

The initial treatment method for a circulation cooling water system according to claim 6 or 7,

wherein, in the step (2), the circulation cooling water system is circulated for 20 to 30 hours in a state where no thermal load is applied.