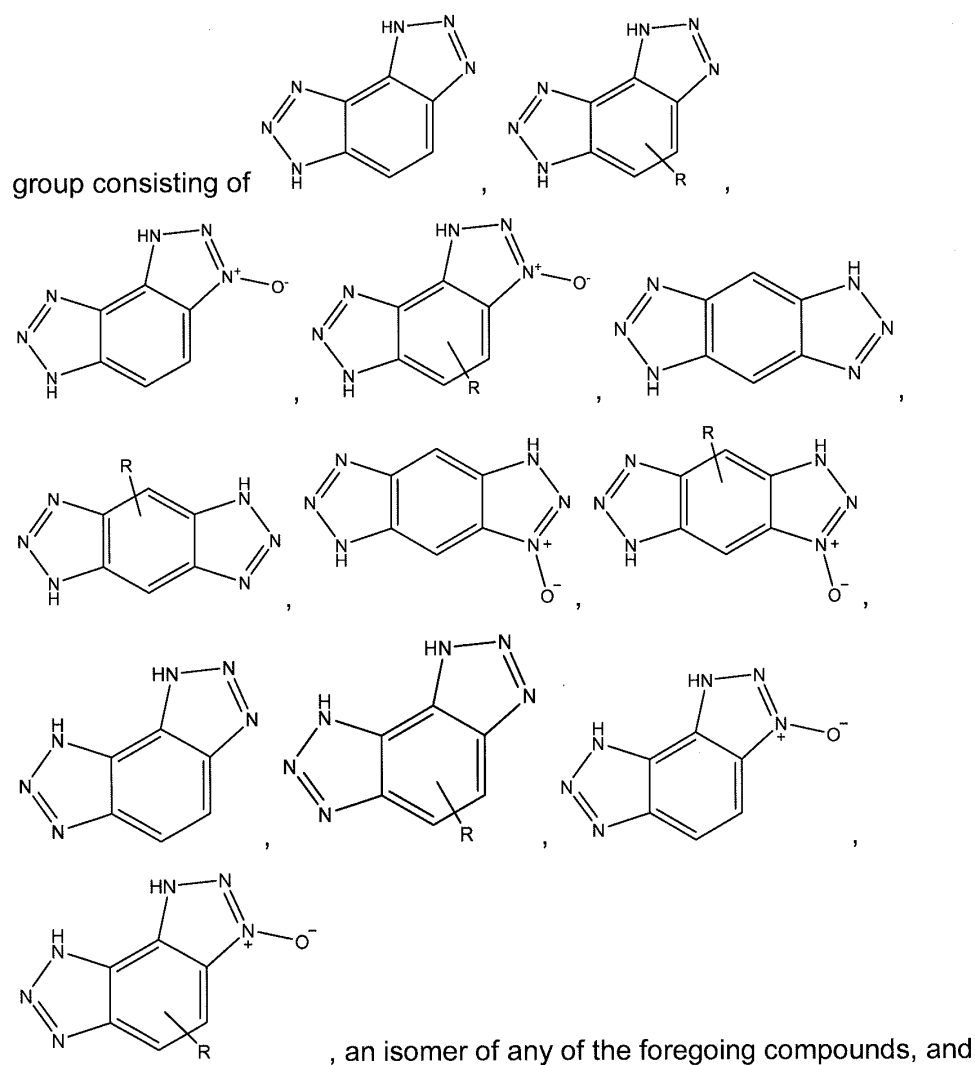


CLAIMS

What is claimed is:

- 5 1. A method of inhibiting corrosion of a metal surface in contact with an aqueous system, comprising:
- adding a corrosion inhibitor composition to the aqueous system, the corrosion inhibitor composition comprising a compound selected from the



any combination thereof, wherein R = a linear or branched C₁ – C₁₀ alkyl group.

2. The method of claim 1, wherein the metal surface comprises a member
5 selected from the group consisting of iron, copper, an iron alloy, a copper alloy, admiralty brass, about 90% copper and about 10% nickel, about 80% copper and about 20% nickel, about 70% copper and about 30% nickel, aluminium brass, manganese brass, leaded naval bronze, phosphor bronze, and any combination thereof.

10 3. The method of claim 1 or 2, wherein the metal surface comprises copper.

15 4. The method of any one of claims 1 to 3, wherein the corrosion inhibitor composition comprises 1H,6H-Triazolo[4,5-e]-benzotriazole-3-oxide, 1H,6H-Triazolo[4,5-e]-benzotriazole, and any combination thereof.

20 5. The method of any one of claims 1 to 3, wherein the corrosion inhibitor composition comprises 1,5-dihydrobenzo[1,2-d:4,5-d']bis([1,2,3]triazole, an oxide thereof, and any combination thereof.

25 6. The method of any one of claims 1 to 3, wherein the corrosion inhibitor composition comprises 1,8-dihydrobenzo[1,2-d:3,4-d']bis([1,2,3]triazole, an oxide thereof, and any combination thereof.

7. The method of any one of claims 1 to 6, wherein the corrosion inhibitor composition is added to the aqueous system at a dosage rate of from about 0.01 ppm to about 500 ppm.

30 8. The method of claim any one of claims 1 to 7, wherein the aqueous system comprises an oxidizing halogen compound.

9. The method of claim 8, wherein the oxidizing halogen compound is selected from the group consisting of hypochlorite bleach, chlorine, bromine, hypochlorite, hypobromite, chlorine dioxide, iodine/hypoiodous acid, hypobromous acid, a halogenated hydantoin, and any combination thereof.
10. The method of any one of claims 1 to 9, wherein the aqueous system comprises a non-halogen-containing oxidizing biocide.
11. The method of claim 10, wherein the non-halogen-containing oxidizing biocide is selected from the group consisting of a peroxide, a persulfate, a permanganate, a peracetic acid, and any combination thereof.
12. The method of any one of claims 1 to 11, wherein the corrosion inhibitor composition comprises a water-miscible co-solvent.
13. The method of claim 12, wherein the water-miscible co-solvent is selected from the group consisting of acetone, methanol, ethanol, propanol, formic acid, formamide, propylene glycol, ethylene glycol, and any combination thereof.
14. The method of any one of claims 1 to 13, wherein the corrosion inhibitor composition comprises an additive.
15. The method of claim 14, wherein the additive is selected from the group consisting of an additional corrosion inhibitor, a treatment polymer, an anti-microbial agent, an anti-scaling agent, a colorant, a filler, a buffer, a surfactant, a viscosity modifier, a chelating agent, a dispersant, a deodorant, a masking agent, an oxygen scavenger, an indicator dye, and any combination thereof.

16. The method of any one of claims 1 to 15, wherein the aqueous system is a cooling system, a boiler system, a heating system, a membrane system, a paper making system, a food and beverage system, an oil and gas system, or any system that comprises water.

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17. The method of any one of claims 1 to 16, wherein the corrosion inhibitor comprises bis-benzotriazole and/or an oxide of bis-benzotriazole.

18. A corrosion inhibiting formulation, comprising:

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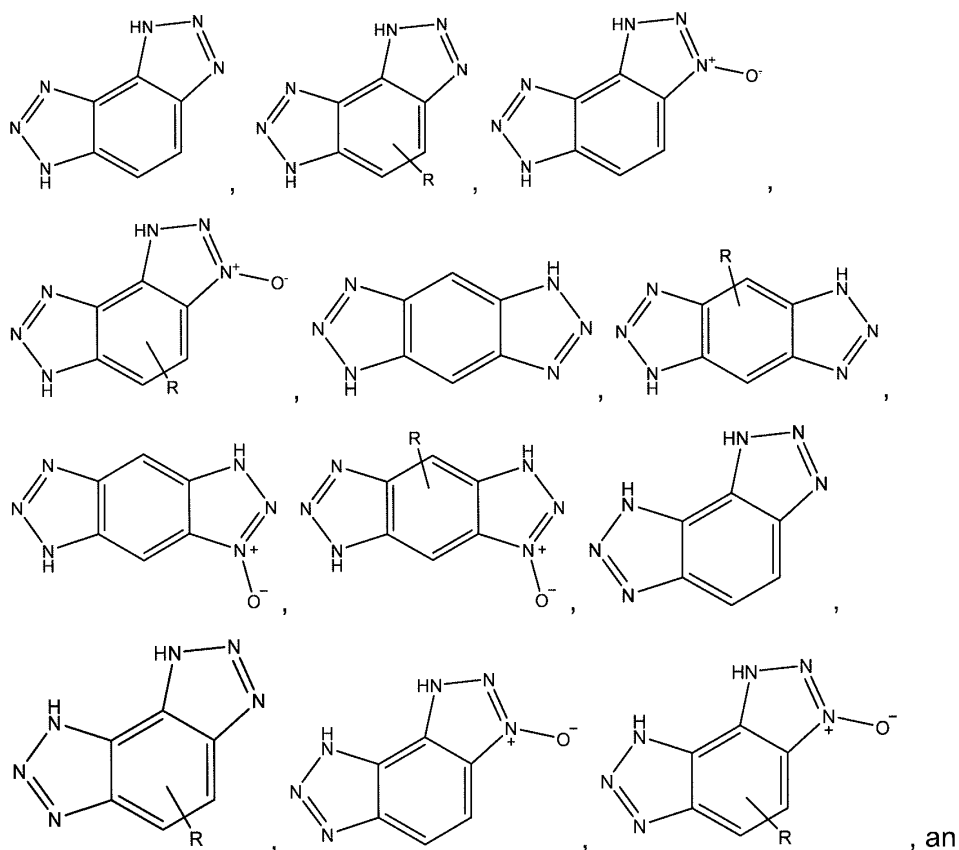
water;

a base;

a pH from about 9 to about 14; and

a compound selected from the group consisting of

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isomer of any of the foregoing compounds, and any combination thereof,
wherein R = a linear or branched C₁ – C₁₀ alkyl group.

5 19. The formulation of claim 18, wherein the base comprises sodium
hydroxide.

20. The formulation of claim 18 or 19, wherein the formulation comprises
about 70% by weight water and about 30% by weight of the compound.

10 21. Use of the formulation of any one of claims 18 to 20 in a method of
inhibiting corrosion of a metal surface in contact with an aqueous system.

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