Claims

What is claimed is:

1. A cleaning composition comprising:

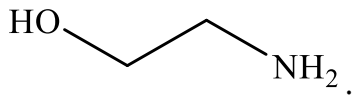
(i) one or more alkanolamines,

(ii) one or more ether alcohol solvents or aromatic containing alcohol, and

(iii) two or more corrosion inhibitors comprising (i) a first corrosion inhibitor comprising a metal salt and (ii) a second corrosion inhibitor comprising at least one of sebacic acid, catechol, resorcinol, glycerol, sorbitol and 8-hydroquinoline,

wherein the composition is (i) substantially free of water, (ii) free of strong bases and (iii) free of dimethyl sulfoxide (DMSO), imidazoles, anhydrides, pyrrolidones and acetamides.

2. The composition of claim 1, wherein the composition comprises between 5 wt% and 50 wt% of a 1,2-alkanolamine.

3. The composition of claim 1, wherein the one or more alkanolamines comprises 

.

4. The composition of claim 1, wherein the one or more alkanolamines comprises one or more of ethanolamine, N-methylethanolamine, N-ethylethanolamine, N-propylethanolamine, N-butylethanolamine, diethanolamine, triethanolamine, N-methyldiethanolamine, N-ethyldiethanolamine, isopropanolamine, diisopropanolamine, triisopropanolamine, N-methylisopropanolamine, N-ethylisopropanolamine, N-propylisopropanolamine, 2-aminopropane-1-ol, N-methyl-2-aminopropane-1-ol, N-ethyl-2-aminopropane-1-ol, 1-aminopropane-3-ol, N-methyl-1-aminopropane-3-ol, N-ethyl-1-aminopropane-3-ol, 1-aminobutane-2-ol, N-methyl-1-aminobutane-2-ol, N-ethyl-1-aminobutane-2-ol, 2-aminobutane-1-ol, N-methyl-2-aminobutane-1-ol, N-ethyl-2-aminobutane-1-ol, 3-aminobutane-1-ol, N-methyl-3-aminobutane-1-ol, N-ethyl-3-aminobutane-1-ol, 1-aminobutane-4-ol, N-methyl-1-aminobutane-4-ol, N-ethyl-1-aminobutane-4-ol, 1-amino-2-methylpropane-2-ol, 2-amino-2-methylpropane-1-ol, 1-aminopentane-4-ol, 2-amino-4-methylpentane-1-ol, 2-aminohexane-1-ol, 3-aminoheptane-4-ol, 1-aminooctane-2-ol, 5-aminooctane-4-ol, 1-aminopropane-2,3-diol, 2-aminopropane-1,3-diol, tris(oxymethyl)aminomethane, 1,2-diaminopropane-3-ol, 1,3-diaminopropane-2-ol, and 2-(2-aminoethoxy)ethanol.

5. The composition of claim 1, wherein the one or more ether alcohol solvents or aromatic

containing alcohol comprises one or more of diethylene glycol butyl ether (DB), diethylene glycol methyl ether, diethylene glycol ethyl ether, diethylene glycol propyl ether, propylene glycol methyl ether, dipropylene glycol methyl ether, propylene glycol propyl ether, dipropylene glycol propyl ether, propylene glycol phenyl ether, propylene glycol n-butyl ether, dipropylene glycol n-butyl ether, ethylene glycol propyl ether, ethylene glycol butyl ether, ethylene glycol phenyl ether, tripropylene glycol methyl ether, dipropylene glycol dimethyl ether, diethylene glycol methyl ethyl ether, diethylene glycol dimethyl ether, diethylene glycol diethyl ether, diethylene glycol (DEG), or dipropylene glycol, 3-methoxy-3-methyl-1-butanol (MMB), furfurylalcohol, tetrahydrofurfuryl alcohol, benzyl alcohol, benzyl ethanol and benzyl propanol.

6. The composition of claim 1, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises one or more glycol ether.

7. The composition of claim 1, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises one or more alcohol having an ether group.

8. The composition of claim 1, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises one or more alkanol substituted benzene.

9. The composition of claim 1, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises 55 wt % to 90 wt % of the composition.

10. The composition of claim 1, wherein the one or more corrosion inhibitors comprises 0.005 wt% to 10 wt% of the composition.

11. The composition of claim 1, wherein the one or more corrosion inhibitors comprises an aromatic hydroxyl compound, an aromatic polyhydroxyl compound, an alkylcatechols, a phenol, an aromatic triazole, an alkylbenzotriazole, an aminobenzotriazole, a thiazole, a sugar alcohol, a carboxylic acid and a metal salt.

12. The composition of claim 1, wherein the one or more corrosion inhibitors comprises a metal salt.

13. The composition of claim 1, wherein the metal salt is one or more of copper (II) nitrate, copper (II) bromide, copper (II) chlorate, copper (II) chloride, copper (II) fluorosilicate, copper (II) formate, copper (II) selenite, copper (II) sulfate, and copper (II) nitrate hemi(pentahydrate).

14. The composition of claim 1, wherein the second corrosion inhibitor comprises 0.5 wt% to 1.5 wt% of one or a combination of catechol, resorcinol and sebacic acid.

15. The composition of claim 1, wherein the second corrosion inhibitor comprises 0.5 wt% to 1.5 wt% of resorcinol.

16. The composition of claim 1, wherein the two or more corrosion inhibitors comprises a copper nitrate salt and resorcinol.

17. The composition of claim 1, wherein the first corrosion inhibitor comprises a copper nitrate salt.

18. The composition of claim 1, further comprising 10% to 50% of a secondary solvent that is one or more of a linear aliphatic alcohol, a branched chain aliphatic alcohol and an aromatic alcohol.

19. The composition of claim 1, further comprising 10% to 50% of a secondary solvent that is one or more of methanol, ethanol, propanol, isopropyl alcohol, butanol, tert-butyl alcohol, tert-amyl alcohol, 3-methyl-3-pentanol, 1-octanol, 1-decanol, 1-undecanol, 1-dodecanol, 1-tridecanol, 1-tetradecanol, 1-pentadecanol, 1-hexadecanol, 9-hexadecen-1-ol, 1-heptadecanol, 1-octadecanol, 1-nonadecanol, 1-eicosanol, 1-heneicosanol, 1-docosanol, 13-docosen-1-ol, 1-tetracosanol, 1-hexacosanol, 1-heptacosanol, 1-octacosanol, 1-triacontanol, 1-dotriacontanol, 1-tetratriacontanol, cetearyl alcohol, propylene glycol, ethylene glycol and glycerol.

20. The composition of claim 1, wherein the composition is substantially free of nitrogen containing solvents.