Claims

What is claimed is:

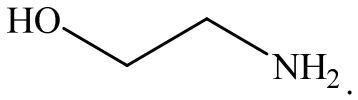
1. A cleaning composition comprising:

(i) one or more alkanolamines,

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

(iii) one or more corrosion inhibitors.

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

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

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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 about 55 wt % to about 90 wt % of the composition.

10. The composition of claim 1, wherein the one or more corrosion inhibitors comprises about 0.005 wt% to about 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 one or more corrosion inhibitors comprises one or more of catechol, resorcinol, methylcatechol, ethylcatechol, t-butylcatechol, phenol, pyrogallol, benzotriazole, 1-aminobenzotriazole, 2-aminobenzothiazole (ABT), glycerol, xylitol, sorbitol, sebacic acid, formic acid, acetic acid, propionic acid, butyric acid, isobutyric acid, oxalic acid, malonic acid, succinic acid, glutaric acid, maleic acid, fumaric acid, benzoic acid, phtahlic acid, 1,2,3-benzenetricarboxylic acid, glycolic acid, lactic acid, malic acid, citric acid, acetic anhydride, phthalic anhydride, maleic anhydride, succinic anhydride, salicylic acid, gallic acid, methyl gallate and propyl gallate, copper (II) nitrate, copper (II) bromide, copper (II) chlorate, copper (II) chloride, copper (II) fluorosilicate, copper (II) formate, copper (II) selenite, copper (II) sulfate, 1,2-propanediaminetetramethylene phosphonic acid, hydroxyethane phosphonic acid,

ethylenediaminetetraacetic acid and its sodium and ammonium salts, dihydroxyethylglycine, nitrilotriacetic acid, bipyridine, tetraphenylporphyrin, phenanthroline, dimethylglyoxime and diphenylglyoxime.

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

15. The composition of claim 1, wherein the one or more corrosion inhibitors comprises about 0.5 wt% to about 1.5 wt% of resorcinol.

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

17. The composition of claim 1, wherein the one or more corrosion inhibitors comprises a copper nitrate salt.

18. The composition of claim 1, wherein the one or more corrosion inhibitors comprises one or more of ethylene glycol, 1,2-propanediol, 1,3-propanediol, 1,2,3-propanetriol, 1,2-butanediol, 1,3-propanediol, 2,3-butanediol, 1,4-butanediol, 1,2,3-butanetriol, 1,2,4-butanetriol, 1,2-pentanediol, 1,3-pentanediol, 1,4-pentandiol, 2,3-pentanediol, 2,4-pentandiol, 3,4-pentanediol, 1,2,3-pentanetriol, 1,2,4-pentanetriol, 1,2,5-pentanetriol, 1,3,5-pentanetriol, etohexadiol, p-methane-3,8-polyhydroxyl compound, 2-methyl-2,4-pentanediol, 2,2-dimethyl-1,3-propanediol, glycerin, trirnethylolpropane, xylitol, arabitol, 1,2-cyclopentanediol, 1,3-cyclopentanediol, 1,2-cyclohexanediol, 1,3-cyclohexanediol, 2,3-norbornanediol, 1,8-octanediol, 1,2-cyclohexane-dimethanol, 1,3-cyclohexanedimethanol, 1,4-cyclohexanedimethanol, 2,2,4-trimethyl-1,3-pentanediol, hydroxypivalyl hydroxypivalate, 2-methyl-1,3-propanediol, 2-butyl-2-ethyl-1,3-propanediol, 2-ethyl-2-isobutyl-1,3-propanediol, 1,6-hexanediol, 2,2,4,4-tetramethyl-1,6-hexanediol, 1,10-decanediol, 1,4-benzenedimethanol, hydrogenated bisphenol A, 1,1,1-trimethylol propane, 1,1,1-trimethylolethane, pentaerythritol, erythritol, threitol, dipentaerythritol and sorbitol.

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

20. The composition of claim 1, further comprising about 10% to about 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.