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.** A cleaning composition consisting essentially of:~~

~~**(i)** one or more alkanolamines,~~

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

~~**(iii)** one or more corrosion inhibitors.~~

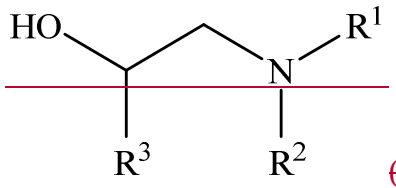
~~**3.** A cleaning composition consisting of:~~

~~**(i)** one or more alkanolamines,~~

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

~~**(iii)** one or more corrosion inhibitors.~~

~~**4.** The composition of any of claims 1-3, wherein the one or more alkanolamines comprises a 1,2-alkanolamine of formula (I):~~



~~(I)~~

~~wherein each of R^1, R^2 and R^3 is independently selected from H, an unsubstituted C_1-C_6 alkyl, a substituted C_1-C_6 alkyl, a branched C_3-C_6 alkyl and a C_1-C_6 alkylamino.~~

~~**5.** The composition of claim 4, wherein the one or more alkanolamines comprises a 1,2-alkanolamine.~~

~~**6.**~~**2.** The composition of ~~claim 4~~claim 1, wherein the composition comprises between approximately 5 wt% and 50 wt% of a 1,2-alkanolamine.

~~**7.** The composition of claim 4, wherein the composition comprises between approximately 10 wt% and 40 wt% of a 1,2-alkanolamine.~~

~~**8.** The composition of claim 4, wherein the composition comprises between approximately 15 wt% and 35 wt% of a 1,2-alkanolamine.~~

~~**9.** The composition of claim 4, wherein the composition comprises between~~

~~approximately 20 wt% and 30 wt% of a 1,2-alkanolamine.~~

~~**10.** The composition of claim 4, wherein the composition comprises between approximately 15 wt% and 20 wt% of a 1,2-alkanolamine.~~

~~**11.** The composition of claim 4, wherein the composition comprises between approximately 10 wt% and 20 wt% of a 1,2-alkanolamine.~~

~~**12.** The composition of claim 4, wherein the composition comprises approximately 10 wt% of a 1,2-alkanolamine.~~

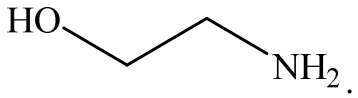
~~**13.** The composition of claim 4, wherein the composition comprises approximately 15 wt% of a 1,2-alkanolamine.~~

~~**14.** The composition of claim 4, wherein the composition comprises approximately 20 wt% of a 1,2-alkanolamine.~~

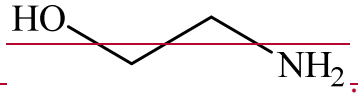
~~**15.** The composition of claim 4, wherein the composition comprises approximately 25 wt% of a 1,2-alkanolamine.~~

~~**16.** The composition of claim 4, wherein the composition comprises approximately 30 wt% of a 1,2-alkanolamine.~~

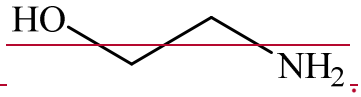
~~**17.**__**3.**__ The composition of ~~claim 4~~claim 1, wherein the one or more alkanolamines comprises



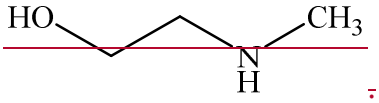
.

~~**18.** The composition of claim 4, wherein the composition comprises approximately 15 wt% of~~ 

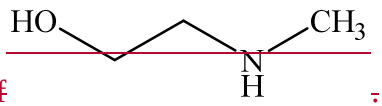
~~.~~

~~**19.** The composition of claim 4, wherein the composition comprises approximately 30 wt% of~~ 

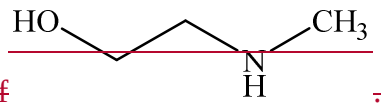
~~.~~

~~**20.** The composition of claim 4, wherein the one or more alkanolamines comprises~~ 

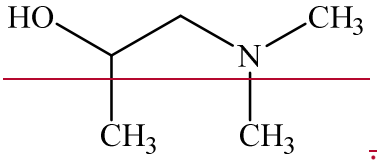
~~.~~

~~**21.** The composition of claim 4, wherein the composition comprises approximately 15 wt% of~~ 

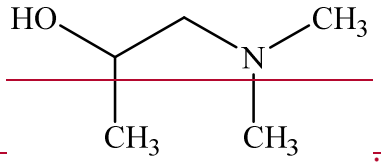
~~.~~

22. The composition of claim 4, wherein the composition comprises approximately 30 wt% of 

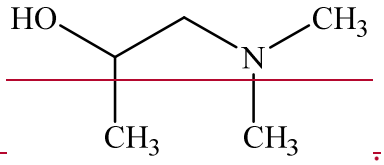
.

23. The composition of claim 4, wherein the one or more alkanolamines comprises 

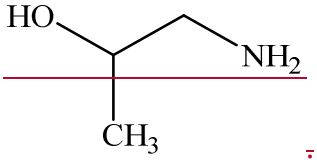
.

24. The composition of claim 4, wherein the composition comprises approximately 15 wt% of 

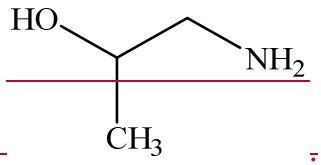
.

25. The composition of claim 4, wherein the composition comprises approximately 30 wt% of 

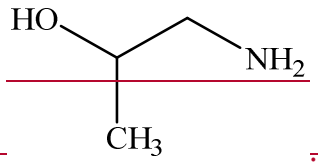
.

26. The composition of claim 4, wherein the one or more alkanolamines comprises 

.

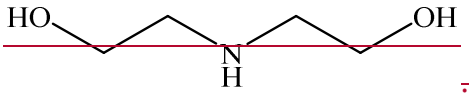
27. The composition of claim 4, wherein the composition comprises approximately 15 wt% of 

.

28. The composition of claim 4, wherein the composition comprises approximately 30 wt% of 

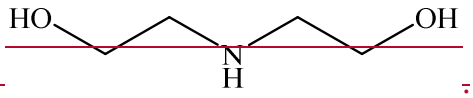
.

29. The composition of claim 4, wherein the one or more alkanolamines comprises



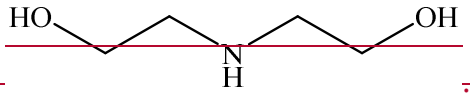
.

30. The composition of claim 4, wherein the composition comprises approximately 15 wt%



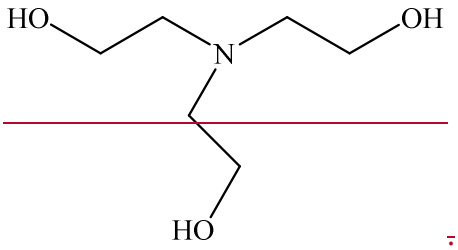
of .

31. The composition of claim 4, wherein the composition comprises approximately 30 wt%



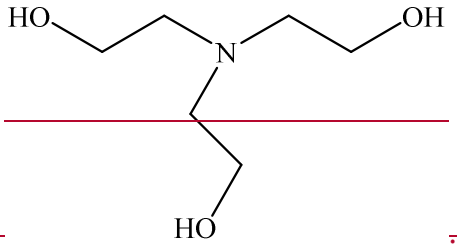
of .

32. The composition of claim 4, wherein the one or more alkanolamines comprises



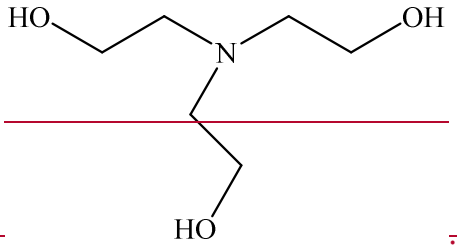
.

33. The composition of claim 4, wherein the composition comprises approximately 15 wt%



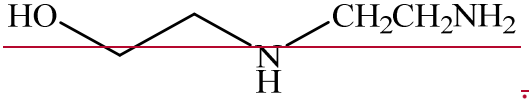
of .

34. The composition of claim 4, wherein the composition comprises approximately 30 wt%



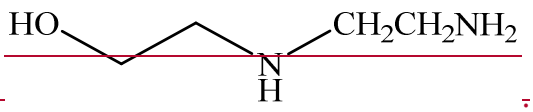
of .

35. The composition of claim 4, wherein the one or more alkanolamines comprises



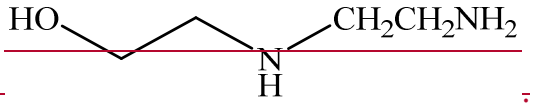
.

36. The composition of claim 4, wherein the composition comprises approximately 15 wt%



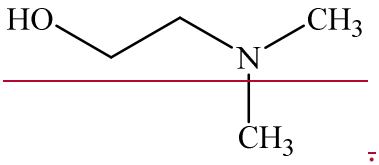
of .

37. The composition of claim 4, wherein the composition comprises approximately 30 wt%



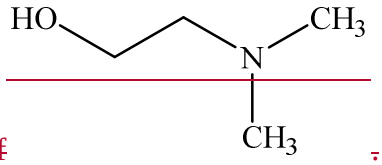
of .

38. The composition of claim 4, wherein the one or more alkanolamines comprises



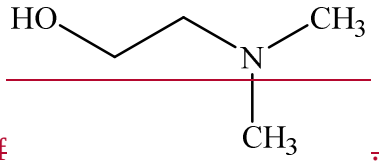
.

39. The composition of claim 4, wherein the composition comprises approximately 15 wt%



of .

40. The composition of claim 4, wherein the composition comprises approximately 30 wt%



of .

41.4. The composition of any of claims 1-4claim 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.

~~42.~~**5.** The composition of ~~any of claims 1-4~~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.

~~43.~~**6.** The composition of ~~any of claims 1-4~~claim 1, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises one or more glycol ether.

~~44.~~**7.** The composition of ~~any of claims 1-4~~claim 1, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises one or more alcohol having an ether group.

~~45.~~**8.** The composition of ~~any of claims 1-4~~claim 1, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises one or more alkanol substituted benzene.

~~**46.** The composition of any of claims 1-4, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises about 50 wt % to about 90 wt % of the composition.~~

~~47.~~**9.** The composition of ~~any of claims 1-4~~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.

~~**48.** The composition of any of claims 1-4, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises about 60 wt % to about 88 wt % of the composition.~~

~~**49.** The composition of any of claims 1-4, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises about 65 wt % to about 85 wt % of the composition.~~

~~**50.** The composition of any of claims 1-4, wherein the one or more ether alcohol solvents or aromatic containing alcohol comprises about 80 wt % to about 85 wt % of the composition.~~

~~**51.** The composition of any of claims 1-4, wherein the one or more ether alcohol solvents~~

~~or aromatic containing alcohol comprises about 30 wt % to about 50 wt % of the composition.~~

~~52.~~**10.** The composition of ~~any of claims 1-4~~claim 1, wherein the one or more corrosion inhibitors comprises about 0.005 wt% to about 10 wt% of the composition.

~~**53.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.25 weight percent to about 5 weight percent of the composition.~~

~~**54.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.1 weight percent to about 4 weight percent of the composition.~~

~~**55.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.25 weight percent to about 2 weight percent of the composition.~~

~~**56.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.005 wt% of the composition.~~

~~**57.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.02 wt% of the composition.~~

~~**58.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.08 wt% of the composition.~~

~~**59.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.1 wt% of the composition.~~

~~**60.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.2 wt% of the composition.~~

~~**61.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.25 wt% of the composition.~~

~~**62.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.3 wt% of the composition.~~

~~**63.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.4 wt% of the composition.~~

~~**64.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.5 wt% of the composition.~~

~~**65.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.7 wt% of the composition.~~

~~**66.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.9 wt% of the composition.~~

~~**67.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 1 wt% of the composition.~~

~~**68.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 2 wt% of the composition.~~

~~**69.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 3 wt% of the composition.~~

~~**70.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 4 wt% of the composition.~~

~~**71.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 5 wt% of the composition.~~

~~**72.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 6 wt% of the composition.~~

~~**73.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 7 wt% of the composition.~~

~~**74.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 8 wt% of the composition.~~

~~**75.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 9 wt% of the composition.~~

~~**76.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 10 wt% of the composition.~~

~~**77.**~~**11.** The composition of ~~any of claims 1-4~~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.

~~**78.**~~**12.** The composition of ~~any of claims 1-4~~claim 1, wherein the one or more corrosion inhibitors comprises a metal salt.

~~**79.**~~**13.** The composition of ~~any of claims 1-4~~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.

~~**80.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises catechol.~~

~~**81.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises resorcinol.~~

~~**82.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises glycerol.~~

~~**83.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises sebacic acid.~~

~~**84.**__**14.**__ The composition of ~~any of claims 1-4~~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.

~~**85.**__**15.**__ The composition of ~~any of claims 1-4~~claim 1, wherein the one or more corrosion inhibitors comprises about 0.5 wt% to about 1.5 wt% of resorcinol.

~~**86.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.5 wt% to about 1.5 wt% of glycerol.~~

~~**87.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors comprises about 0.5 wt% to about 1.5 wt% of sebacic acid.~~

~~**88.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of catechol.~~

~~**89.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of resorcinol.~~

~~**90.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of glycerol.~~

~~**91.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of sebacic acid.~~

~~**92.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of about 0.5 wt% to about 1.5 wt% of catechol.~~

~~**93.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of about 0.5 wt% to about 1.5 wt% of resorcinol.~~

~~**94.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of about 0.5 wt% to about 1.5 wt% of glycerol.~~

~~**95.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of about 0.5 wt% to about 1.5 wt% of sebacic acid.~~

~~**96.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of catechol.~~

~~**97.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of resorcinol.~~

~~**98.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of glycerol.~~

~~**99.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of sebacic acid.~~

~~**100.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of about 0.5 wt% to about 1.5 wt% of catechol.~~

~~**101.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of about 0.5 wt% to about 1.5 wt% of resorcinol.~~

~~**102.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of about 0.5 wt% to about 1.5 wt% of glycerol.~~

~~**103.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of about 0.5 wt% to about 1.5 wt% of sebacic acid.~~

~~**104.**~~**16.** The composition of ~~any of claims 1-4~~claim 1, wherein the one or more corrosion inhibitors comprises a copper nitrate salt and resorcinol.

~~**105.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of a copper nitrate salt and resorcinol.~~

~~**106.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of a copper nitrate salt and resorcinol.~~

~~**107.**~~**17.** The composition of ~~any of claims 1-4~~claim 1, wherein the one or more corrosion inhibitors comprises a copper nitrate salt.

~~**108.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists essentially of a copper nitrate salt.~~

~~**109.** The composition of any of claims 1-4, wherein the one or more corrosion inhibitors consists of a copper nitrate salt.~~

~~**110.**~~**18.** The composition of ~~any of claims 1-4~~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.

~~**111.** The composition of claim 1 or 2 further comprising one or more secondary solvent.~~

~~**112.** The composition of claim 1 or 2 further comprising from about 10% to about 50% of a secondary solvent.~~

~~**113.**~~**19.** The composition of claim 1~~ or 2~~, 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.

~~**114.**~~**20.** The composition of claim 1~~ or 2~~, 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.

~~**115.** A method of using the cleaning composition comprising:~~

~~contacting a semiconductor substrate comprising a photoresist thereon with the composition of any of claims 1-114.~~