CLAIMS

1. A photoresist or semiconductor manufacturing residue stripping and cleaning composition comprising water, one or more alkaline compounds, one or more corrosion inhibitors, and one or more oxidized products of one or more of catechol, t-butyl catechol, resorcinol, pyrogallol, gallic acid, esters of gallic acid or ascorbic acid, wherein the one or more oxidized products comprises from 0.001 to 5 wt % of said composition.

2. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said one or more corrosion inhibitors are selected from the group consisting of catechol, t-butyl catechol, resorcinol, pyrogallol, gallic acid, esters of gallic acid and ascorbic acid.

3. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 2, wherein said one or more oxidized products are formed by oxidizing said one or more corrosion inhibitors.

4. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 2, wherein said one or more oxidized products were formed in situ by adding oxygen-containing gas, peroxides or nitrates to said composition.

5. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 2, further comprising one or more passivation corrosion inhibitors.

6. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 5, wherein said one or more passivation corrosion inhibitors are selected from the group consisting of anthranilic acid, benzoic acid, isophthalic acid, maleic acid, fumaric acid, D,L-malic acid, malonic acid, phthalic acid, maleic anhydride, phthalic anhydride, benzotriazole (BZT), carboxybenzotriazole, diethyl hydroxylamine, lactic acid and citric acid salts thereof, pyrogallol, fructose, ammonium thiosulfate, glycine, lactic acid, tetramethylguanidine, iminodiacetic acid, and dimethylacetoacetamide, trihydroxybenzene, dihydroxybenzene, and salicylhydroxamic acid.

7. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1 wherein said one or more alkaline compounds comprise one or more amines selected from the group consisting of hexyl amine, 5-amino-2-methyl pentane, heptyl amine, octyl amine, nonyl amine, decyl amine, dipropyl amine, diisopropyl amine, dibutyl amine, diisobutyl amine, di-n-butyl amine, di-t-butyl amine, dipentyl amine, dihexyl amine, diheptyl amine, dioctyl amine, dinonyl amine, didecyl amine, amyl methyl amine, methyl isoamyl amine, tripropyl amine, tributyl amine, tripentyl amine, dimethyl ethyl amine, methyl diethyl amine, methyl dipropyl amine, N-ethylidene methyl amine, N-ethylidene ethyl amine, N-ethylidene propyl amine, N-butyl amine ethylidene, alkanolamines, ethanolamine, N-methyl ethanolamine, N-ethyl ethanolamine, N-propyl ethanolamine, N-butyl ethanolamine, diethanolamine, 1-amino-2-propanol, N-methyl amine isopropanol, N-ethyl-isopropanol amine, N-propyl isopropanol amine, 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-aminobutan-1-ol, N-methyl-2-aminobutane-1-ol, N-ethyl-2-aminobutane-1-ol, N-hydroxy-methyl ethanol amine, N-hydroxymethyl ethylene diamine, N,N'-bis (hydroxymethyl) ethylene diamine, N-hydroxymethyl propanol amine, ethylene diamine, propylene diamine, trimethylene diamine, tetramethylene diamine, 1,3-diaminobutane, 2,3-diaminobutane, pentamethylene diamine, 2,4-diamino pentane, hexamethylene diamine, heptamethylene diamine, octamethylene diamine, nonamethylene diamine, N-methyl ethylene diamine, N,N-dimethyl ethylene diamine, trimethyl ethylene diamine, N-ethyl ethylene diamine, N,N-diethyl ethylene diamine, triethyl ethylene diamine, 1,2,3-triaminopropane, hydrazine, tris (2-aminoethyl) amine, tetra (aminomethyl) methane, diethylene triamine, triethylene tetramine, tetraethyl pentamine, heptaethylene octamine,

nonaethylene decamine, diazabicyclo undecene, hydroxylamine, N-methyl hydroxylamine, N-ethyl hydroxylamine, N,N-diethyl hydroxylamine morpholine, and N-methylethanolamine (NMEA), monoethanolamine (MEA), diethanolamine, mono-, di- and triisopropanolamine, 2-(2-aminoethylamino) ethanol, 2-(2-aminoethoxy) ethanol, triethanolamine

8. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said alkaline compound is selected from the group consisting of primary, secondary and tertiary alkanolamines having from 1 to 5 carbon atoms.

9. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said alkaline compound comprises one or more amines selected from the group consisting of morpholine, cyclohexylamine, piperidine alkylamines (where the alkyl group has 1 to 5 carbons) and alkylene diamines (having 1 to 5 carbons).

10. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said alkaline compound comprises one or more amines selected from the group consisting of alkanolamines, hydroxylamines and mixtures of alkanolamines and hydroxylamines.

11. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1 wherein said alkaline compound comprises one or more quaternary ammonium hydroxides selected from the group consisting of compounds having the formula $[N\text{-}R_1R_2R_3R_4]^+ OH^-$ wherein R_1, R_2, R_3, and R_4 are each independently an alkyl group, a hydroxyalkyl group, and combinations thereof, where said alkyl group is a straight or branched chain hydrocarbon groups having 1 to 20 carbon atoms and where said hydroxyalkyl group is a straight or branched hydroxyl group containing hydrocarbon groups of from 1 to 20 carbon atoms.

12. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said composition comprises 5 to 50 wt % of said water.

13. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said composition comprises 10 to 30 wt % of said water.

14. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said composition comprises 35 to 94.5 wt % of said one or more alkaline compounds.

15. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said composition comprises 45 to 90 wt % of said one or more alkaline compounds.

16. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, wherein said composition comprises 0.1 to 15 wt % of said one or more corrosion inhibitors.

17. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 5, wherein said one or more corrosion inhibitors comprise about 0.1 to 10% by weight of one or more passivation corrosion inhibitors and about 0.1 to 10% by weight of one or more corrosion inhibitors selected from the group consisting of catechol, t-butyl catechol, resorcinol, pyrogallol, gallic acid, esters of gallic acid and ascorbic acid.

18. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 1, comprising about 70 to 85% by weight of said one or more alkaline compounds wherein said alkaline compound comprises one or more alkanolamines, about 0.5 to 2.5% by weight of one or more corrosion inhibitors, 0.001 to 1% of one or more oxidation products of one or more of catechol, t-butyl catechol, resorcinol, pyrogallol, gallic acid, esters of gallic acid or ascorbic acid, and 9.9 to 28.99 wt. % water.

19. The photoresist or semiconductor manufacturing residue stripping and cleaning composition of claim 18, wherein said one or more corrosion inhibitors comprises gallic acid or catechol or mixtures of gallic acid and catechol.

20. A process for removing a photoresist or residue on a silicon substrate comprising silicon, the process comprising the steps of: contacting said substrate with a stripping and cleaning effective amount of the composition of claim 1; permitting said stripping composition to contact said substrate for a stripping effective period of time; and removing the photoresist or the photoresist residues from said substrate, wherein said silicon of said silicon substrate is etched at a rate that is less than 1 Å/min.

21. The process of making the composition of claim 2, comprising the steps of combining water, one or more alkaline compounds, one or more corrosion inhibitors selected from the group consisting of catechol, t-butyl catechol, resorcinol, pyrogallol, gallic acid, esters of gallic acid and ascorbic acid in a container and adding oxygen-containing gas, peroxides or nitrates to said composition to form the one or more oxidized products of one or more of catechol, t-butyl catechol, resorcinol, pyrogallol, gallic acid, esters of gallic acid or ascorbic acid in said composition.

22. The process of claim 21 wherein said adding step is performed by bubbling oxygen-containing gas through said composition in said container.

23. The process of claim 20, further comprising after the removing step, a step of washing the substrate with water.

24. The process of claim 23, wherein only water is used to wash the substrate in the washing step.