Claims

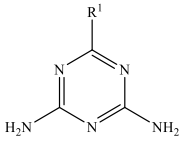
What is claimed is:

1. A photoresist stripper and etch residue remover solution comprising:

(i) one or more base component comprising one or more of an amine, a quaternary ammonium hydroxide, an inorganic base and combination thereof;

(ii) one or more organic solvents; and

(iii) one or more guanamine compounds of Formula 2:



Formula 2

wherein R^1 is selected from a hydrogen atom, an oxygen-containing group, a hydroxyl group, a mercapto group, a nitrogen-containing group, an amine, an amino group substituted with a C_1-C_{10} alkyl group, a carboxyl group, a phenyl group, a substituted phenyl group, an alkoxy group, a C_1 to C_{20} linear alkyl group, a C_3 to C_{20} branched alkyl group, a C_3 to C_{10} cyclic alkyl group, a C_5 to C_{12} aryl group, a C_2 to C_{10} linear alkenyl group, a C_3 to C_{10} branched alkenyl group, a C_2 to C_{10} linear alkynyl group, a C_3 to C_{10} branched alkynyl group, a C_1 to C_{20} linear alkyl group substituted with a halide and a C_1-C_{20} alkyl substituted with –OH.

2. The photoresist stripper and etch residue remover solution of claim 1, wherein the solution is free of DMSO.

3. The photoresist stripper and etch residue remover solution of claim 1, wherein R^1 is selected from hydrogen, an -OH group, a phenyl group, a substituted phenyl group, an amine, a carboxyl group, a C_1-C_6 linear alkyl group and a C_3-C_6 branched chain alky group.

4. The photoresist stripper and etch residue remover solution of claim 1, wherein R^1 is a phenyl group.

5. The photoresist stripper and etch residue remover solution of claim 1, wherein R^1 is a substituted phenyl group.

6. The photoresist stripper and etch residue remover solution of claim 1, wherein the (i) one or more base component comprises one or more of DMDPAH, TEAH, KOH, TMAH, ETMAH, choline hydroxide and monoethanolamine.

7. The photoresist stripper and etch residue remover solution of claim 1, wherein the (ii) one or more organic solvents comprises one or more of DMSO, propylene glycol, diethylene glycol

monoethyl ether, diethylene glycol monobutyl ether, triethylene glycol monomethyl ether and 3-methoxy-3-methyl-1-butanol.

8. The photoresist stripper and etch residue remover solution of claim 1 further comprising water as (iv) one or more secondary solvent.

9. The photoresist stripper and etch residue remover solution of claim 1 further comprising water as (iv) one or more secondary solvent and wherein the amount (wt %) of the (ii) one or more organic solvents exceeds the amount (wt%) of the (iv) one or more secondary solvent.

10. The photoresist stripper and etch residue remover solution of claim 1 further comprising one or more of resorcinol, BZT, sorbitol, 8-HQ and copper (II) nitrate as a (v) one or more non-triazine corrosion inhibitor.

11. The photoresist stripper and etch residue remover solution of claim 1 further comprising BZT and one or more of resorcinol, sorbitol, 8-HQ and copper (II) nitrate as a (v) one or more non-triazine corrosion inhibitor.

12. The photoresist stripper and etch residue remover solution of claim 1 comprising

(i) about 10 wt% to about 15 wt% of TEAH;

(ii) about 46.5 wt% to about 62.5 wt% of one or more of diethylene glycol monoethyl ether, diethylene glycol monobutyl ether, triethylene glycol monomethyl ether and 3-methoxy-3-methyl-1-butanol;

(iii) about 0.25 wt% to about 0.75 wt% benzoguanamine; and

(iv) about 24 wt% to about 40 wt% of water,

wherein the solution is free of DMSO.

13. The photoresist stripper and etch residue remover solution of claim 12, comprising about 13 wt% of TEAH.

14. The photoresist stripper and etch residue remover solution of claim 12, comprising about 0.5 wt% benzoguanamine.

15. The photoresist stripper and etch residue remover solution of claim 12, comprising about 40 wt% of water.

16. The photoresist stripper and etch residue remover solution of claim 12, comprising about 24 wt% of water.

17. The photoresist stripper and etch residue remover solution of claim 12, comprising about 62.5 wt% of diethylene glycol monoethyl ether.

18. The photoresist stripper and etch residue remover solution of claim 1 comprising

(i) about 1.75 wt% to about 2.0 wt% of KOH;

(ii) about 55 wt% to about 97.5 wt% of diethylene glycol monoethyl ether;

(iii) about 0.25 wt% to about 0.75 wt% benzoguanamine; and

(iv) a balance of water.

19. The photoresist stripper and etch residue remover solution of claim 1 comprising

(i) about 2.5 wt% to about 3.0 wt% of DMDPAH;

(ii) about 10.5 wt% of propylene glycol and about 45 wt% to about 86.5 wt% of diethylene glycol monoethyl ether;

(iii) about 0.25 wt% to about 0.75 wt% benzoguanamine; and

(iv) a balance of water.

20. The photoresist stripper and etch residue remover solution of claim 1 comprising

(i) about 2.6 wt% of DMDPAH and about 6 wt% of monoethanolamine;

(ii) about 80 wt% of DMSO and about 10.5 wt% of propylene glycol; and

(iii) about 0.75 wt% to about 1.0 wt% of benzoguanamine.

21. The photoresist stripper and etch residue remover solution of claim 20, further comprising one or more of resorcinol, 8-HQ, copper nitrate, histidine and sorbitol.

22. A method for removing a photoresist or etch residue from a substrate comprising the steps of:

(i) contacting the substrate with one or more of the photoresist stripper and etch residue remover solutions of claim 1 for a time sufficient to remove a desired amount of the photoresist or etch residue;

(ii) removing the substrate from the solution;

(iii) rinsing the solution from the substrate with DI water or a solvent; and

(iv) optionally drying the substrate.