

Claims:

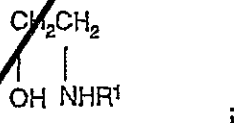
1. A stripper solution for removing a photoresist from a substrate comprising dimethyl sulfoxide, a quaternary ammonium hydroxide base, water, and an alkanolamine, said stripper solution having a dryness coefficient of at least about 1 wherein said dryness coefficient (DC) is defined by the equation:

$$DC = \frac{\text{mass of base/mass of solution tested}}{\text{mass of water/mass of solution tested}}$$

2. The solution of claim 1, wherein said quaternary ammonium hydroxide has substituents that are C_x-alkyl, arylalkyl or combinations thereof and x is an integer ranging from about 1 to about 4 and said alkanolamine has at least two carbon atoms, at least one amino substituent and at least one hydroxyl substituent, the amino and hydroxyl substituents attached to different carbon atoms.

3. The solution of claim 2, additionally comprising a secondary solvent.

4. The solution of claim 2, wherein the alkanolamine is:



where R¹ is H, C₁-C₄ alkyl, or C₁-C₄ alkylamino.

5. The solution of claim 3, wherein said secondary solvent is a glycol ether.

6. The solution of claim 5, wherein said glycol ether is diethylene glycol monomethyl ether.

7. The solution of claim 6, wherein the quaternary ammonium hydroxide is tetramethylammonium hydroxide.

8. The solution of claim 4, wherein R¹ is CH₂CH₂NH₂.

9. The solution of claim 8, having a dryness coefficient of at least about 1.8.

What is claimed is:

1. A stripper solution for removing a photoresist from a substrate comprising dimethyl sulfoxide, tetramethylammonium hydroxide, water, and an alkanolamine, said stripper solution having a dryness coefficient of at least 1 wherein said dryness coefficient (DC) is defined by the equation:

$$DC = \frac{\text{mass of tetramethylammonium hydroxide}}{\text{mass of water}}.$$

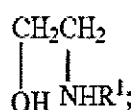
2. The solution of claim 1 wherein said alkanolamine is monoethanolamine.

3. The solution of claim 1, additionally comprising a secondary solvent.

4. The solution of claim 3, wherein said secondary solvent is a glycol ether.

5. The solution of claim 4, wherein said glycol ether is diethylene glycol monomethyl ether.

6. The solution of claim 1, wherein the alkanolamine is:



where R^1 is H, C_1 - C_4 alkyl, or C_1 - C_4 alkylamino.

7. The solution of claim 6, wherein R^1 is $\text{CH}_2\text{CH}_2\text{NH}_2$.

8. The solution of claim 7, having a dryness coefficient of at least about 1.8.

9. A method for removing a photoresist from a substrate comprising:

- (a) selecting a substrate having a photoresist thereon;
- (b) providing a stripper solution; wherein said stripper solution is a stripper solution according to claim 1;
- (c) contacting the substrate with said stripper solution for a time sufficient to remove a desired amount of photoresist;
- (d) removing the substrate from said stripper solution; and
- (e) rinsing the stripper solution from the substrate with a solvent.

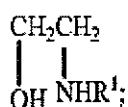
10. The method of claim 9 wherein said contacting comprises contacting said substrate with a stripper solution according to claim 1 wherein said alkanolamine is monoethanolamine.

11. The method of claim 9 wherein said contacting comprises contacting said substrate with a stripper solution further comprising a secondary solvent.

12. The method of claim 11, wherein said contacting comprises contacting said substrate with a stripper solution having a dryness coefficient of at least about 1.8.

13. The method of claim 11, wherein said contacting comprises contacting said substrate with a stripper solution maintained at a temperature of at least about 20° C. during the contacting.

14. The method of claim 11, wherein said contacting comprises contacting said substrate with a stripper solution according to claim 1 wherein said alkanolamine is of the formula:



where R¹ is H, C₁-C₄ alkyl, or C₁-C₄ alkylamino.

15. The method of claim 14, wherein said contacting comprises contacting said substrate with a stripper solution wherein said secondary solvent is a glycol ether.

16. The method of claim 15 wherein said contacting comprises contacting said substrate with said stripper solution having said glycol ether that is diethylene glycol monomethyl ether.

17. The method of claim 16, wherein said photoresist is a bilayer resist having one inorganic layer and one polymer layer.

18. The method of claim 16, wherein said photoresist is a bilayer resist having two polymer layers.

19. The method of claim 16, wherein said contacting comprises contacting said substrate with a stripper solution having said alkanolamine wherein said R¹ is CH₂CH₂NH₂.

20. The method of claim 16, wherein said contacting comprises contacting said substrate with a stripper solution having said alkanolamine wherein said R¹ is hydrogen.