THE CLAIMS

1. A cleaning composition consisting of water, at least one corrosion inhibitor, at least one quaternary base, and at least one organic amine, wherein the corrosion inhibitor consists of a species selected from the group consisting of: glucuronic acid; squaric acid; adenosine and derivatives thereof; phenanthroline in combination with ascorbic acid; flavonols and derivatives thereof; anthocyanins and derivatives thereof; flavonols in combination with anthocyanins; quercitin and derivatives thereof; quercitin in combination with anthocyanins; and combinations thereof, wherein the cleaning composition is effective for the removal of residue from a microelectronic device having said residue thereon.

2. The cleaning composition of claim 1, wherein the corrosion inhibitor consists of at least one species selected from the group consisting of squaric acid, adenosine and derivatives thereof, phenanthroline in combination with ascorbic acid, flavonoids, anthocyanins, flavonols in combination with anthocyanins, quercitin and derivatives thereof, glucuronic acid, quercitin in combination with anthocyanins, and combinations thereof.

3. The cleaning composition of claim 1, wherein the corrosion inhibitor consists of adenosine and derivatives thereof.

4. The cleaning composition of any of claims 1 to 3, wherein the at least one organic amine comprises a species selected from the group consisting of aminoethylethanolamine, N-methylaminoethanol, aminoethoxyethanol, dimethylaminoethoxyethanol, diethanolamine, N-methyldiethanolamine, monoethanolamine, triethanolamine, 1-amino-2-propanol, 2-amino-1-butanol, isobutanolamine, triethylenediamine, other C_1 - C_8 alkanolamines and combinations thereof.

5. The cleaning composition of any of claims 1 to 3, wherein the at least one quaternary base comprises a species selected from the group consisting of tetraethylammonium hydroxide, tetramethylammonium hydroxide, tetrapropylammonium hydroxide, tetrabutylammonium hydroxide, tributylmethylammonium hydroxide, benzyltrimethylammonium hydroxide, and combinations thereof.

6. The cleaning composition of any of claims 1, 2 or 3, wherein the residue consists of post-CMP residue, post-etch residue, post-ash residue, or combinations thereof.

7. The cleaning composition of any of claims 1, 2 or 3, wherein the composition is substantially devoid of oxidizing agent, fluoride source, and/or abrasive material prior to removal of residue material from the microelectronic device.

8. The cleaning composition of any of claims 1 to 3, wherein the composition is diluted in a range from 5:1 to 200:1.

9. The cleaning composition of any of claims 1, 2 or 3, wherein the at least one amine has the general formula $NR^1R^2R^3$, where R^1, R^2 and R^3 may be the same as or different from one another and are selected from the group consisting of hydrogen, straight-chained C_1-C_6 alkyl, branched C_1-C_6 alkyl, straight-chained C_1-C_6 alcohol, and branched C_1-C_6 alcohol.

10. The cleaning composition of any of claims 1 to 3, wherein the at least one quaternary base has the formula $NR^1R^2R^3R^4OH$, wherein R^1, R^2, R^3 and R^4 may be the same as or different from one

another and are selected from the group consisting of hydrogen, straight-chained C_1-C_6 alkyl, branched C_1-C_6 alkyl, substituted C_6-C_{10} aryl, and unsubstituted C_6-C_{10} aryl.

11. A method of removing residue and contaminants from a microelectronic device having said residue and contaminants thereon, said method comprising contacting the microelectronic device with a cleaning composition for sufficient time to at least partially clean said residue and contaminants from the microelectronic device, wherein the cleaning composition consists of water, at least one corrosion inhibitor, at least one quaternary base, and at least one organic amine, wherein the corrosion inhibitor consists of a species selected from the group consisting of glucuronic acid; squaric acid; adenosine and derivatives thereof; phenanthroline in combination with ascorbic acid; flavonols and derivatives thereof; anthocyanins and derivatives thereof; flavonols in combination with anthocyanins; quercitin and derivative thereof; quercitin in combination with anthocyanins; and combinations thereof.

12. The method of claim 11, wherein the corrosion inhibitor comprises at least one species selected from the group consisting of squaric acid, adenosine and derivatives thereof, phenanthroline in combination with ascorbic acid, flavonoids, anthocyanins, flavonols in combination with anthocyanins, quercitin and derivatives thereof, glucuronic acid, quercitin in combination with anthocyanins, and combinations thereof.

13. The method of claim 11, wherein the wherein the corrosion inhibitor consists of adenosine and derivatives thereof.

14. The method of claim 11, further comprising diluting the cleaning composition with solvent

at or before a point of use, wherein the solvent comprises water and wherein the composition is diluted in a range from 5:1 to 200:1.

15. The method of claim 11, wherein the residue is post-CMP residue.