CLAIM(S):

1. A chemical-mechanical polishing composition comprising:

(a) an abrasive selected from wet-process silica, alpha alumina, fumed alumina, ceria, zirconia, titania, and combinations thereof,

(b) an oxidation catalyst selected from ferrous sulfate, ferric sulfate, ferrous perchlorate, manganese (II) sulfate, manganese (II) nitrate, copper(II) sulfate, copper(II) nitrate, cobalt (II) sulfate, cobalt (II) nitrate, nickel (II) sulfate, nickel (II) nitrate, zinc (II) sulfate, zinc (II) nitrate, and combinations thereof,

(c) a non-transition metal sulfate salt,

(d) a complexing agent,

(e) hydrogen peroxide,

(f) a nonionic surfactant,

(g) an anionic surfactant, and

(h) water,

wherein the polishing composition has a pH of about 1 to about 5, and wherein the polishing composition is substantially free of a peroxydisulfate salt.

2. The polishing composition of claim 1, wherein the oxidation catalyst is present in amount sufficient to provide about 1 ppm to about 500 ppm of metal cation.

3. The polishing composition of claim 1, wherein the non-metallic sulfate salt is sodium sulfate, and wherein the sodium sulfate is present in an amount of about 50 ppm to about 700 ppm.

4. The polishing composition of claim 1, wherein the complexing agent is glycine, hydroxyethylethylenediamine triacetic acid, or a combination thereof.

5. The polishing composition of claim 1, wherein the nonionic surfactant is polyvinylalcohol.

6. The polishing composition of claim 1, wherein the anionic surfactant is selected from the group consisting of polystyrenesulfonic acid, polystyrene sulfonic acid-co-maleic acid (PSS-CO-MA), polyvinyl sulfonic acid (PVS), disodium capryloampho dipropionate (CAD); polyacrylamide (PAM), polyacrylic acid (PAA or Dequest 9020), acrylic acid-2-acrylamido-2-methylpropane sulfonic acid copolymer (AA/AMPS), copolymer of maleic, acrylic acid (MA/AA), sodium polyaspartic acid, polyepoxysuccinic acid, and polyvinylphosphonic acid.

7. A chemical-mechanical polishing composition comprising:

(a) an abrasive selected from wet-process silica, alpha alumina, fumed alumina, ceria, zirconia, titania, and combinations thereof,

(b) an oxidation catalyst selected from ferrous sulfate, ferric sulfate, ferric nitrate, ferrous perchlorate, manganese (II) sulfate, manganese (II) nitrate, copper(II) sulfate, copper(II) nitrate, cobalt (II) sulfate, cobalt (II) nitrate, nickel (II) sulfate, nickel (II) nitrate, zinc (II) sulfate, zinc (II) nitrate, and combinations thereof,

(c) sodium sulfate,

(d) a complexing agent,

(e) hydrogen peroxide,

(f) a nonionic surfactant,

(g) an anionic surfactant, and

(h) water,

wherein the polishing composition has a pH of about 1 to about 5, and wherein the polishing composition is substantially free of a peroxydisulfate salt.

8. The polishing composition of claim 7, wherein the oxidation catalyst is present in amount sufficient to provide about 1 ppm to about 500 ppm of metal cation.

9. The polishing composition of claim 7, wherein the sodium sulfate is present in an amount of about 50 ppm to about 700 ppm.

10. The polishing composition of claim 7, wherein the complexing agent is glycine, hydroxyethylethylenediamine triacetic acid, or a combination thereof.

11. The polishing composition of claim 7, wherein the nonionic surfactant is polyvinylalcohol.

12. The polishing composition of claim 7, wherein the anionic surfactant comprises a sulfonic acid group and a carboxylic acid group.

13. A method of chemically-mechanically polishing a substrate comprising:

(i) contacting a substrate with a polishing pad and a chemical-mechanical polishing composition comprising:

(a) an abrasive selected from wet-process silica, alpha alumina, fumed alumina, ceria, zirconia, titania, and combinations thereof,

(b) an oxidation catalyst selected from ferrous sulfate, ferric sulfate, ferrous perchlorate, manganese (II) sulfate, manganese (II) nitrate, copper(II) sulfate, copper(II) nitrate, cobalt (II) sulfate, cobalt (II)

nitrate, nickel (II) sulfate, nickel (II) nitrate, zinc (II) sulfate, zinc (II) nitrate, and combinations thereof,

(c) a non-transition metal sulfate salt,

(d) a complexing agent,

(e) hydrogen peroxide,

(f) a nonionic surfactant,

(g) an anionic surfactant, and

(h) water,

wherein the polishing composition has a pH of about 1 to about 5, and wherein the polishing composition is substantially free of a peroxydisulfate salt,

(ii) moving the polishing pad and the chemical-mechanical polishing composition relative to the substrate, and

(iii) abrading at least a portion of the substrate to polish the substrate.

14. The method of claim 13, wherein the oxidation catalyst is present in amount sufficient to provide about 1 ppm to about 500 ppm of metal cation.

15. The method of claim 13, wherein the non-metallic sulfate salt is sodium sulfate, and wherein the sodium sulfate is present in an amount of about 50 ppm to about 700 ppm.

16. The method of claim 13, wherein the complexing agent is glycine, hydroxyethylethylenediamine triacetic acid, or a combination thereof.

17. The method of claim 13, wherein the nonionic surfactant is polyvinylalcohol.

18. The method of claim 13, wherein the anionic surfactant comprises a sulfonic acid group and a carboxylic acid group.

19. The method of claim 13, wherein the substrate is a nickel-phosphorous-coated aluminum memory disk, and wherein at least a portion of the nickel-phosphorous is removed to polish the substrate.

20. A method of chemically-mechanically polishing a substrate comprising:

(i) contacting a substrate with a polishing pad and a chemical-mechanical polishing composition comprising:

(a) an abrasive selected from wet-process silica, alpha alumina, fumed alumina, ceria, zirconia, titania, and combinations thereof,

(b) an oxidation catalyst selected from ferrous sulfate, ferric sulfate, ferric nitrate, ferrous perchlorate, manganese (II) sulfate, manganese (II) nitrate, copper(II) sulfate, copper(II) nitrate, cobalt (II) sulfate, cobalt

(II) nitrate, nickel (II) sulfate, nickel (II) nitrate, zinc (II) sulfate, zinc (II) nitrate,, and combinations thereof,

(c) sodium sulfate,

(d) a complexing agent,

(e) hydrogen peroxide,

(f) a nonionic surfactant,

(g) an anionic surfactant, and

(h) water,

wherein the polishing composition has a pH of about 1 to about 5, and wherein the polishing composition is substantially free of a peroxydisulfate salt,

(ii) moving the polishing pad and the chemical-mechanical polishing composition relative to the substrate, and

(iii) abrading at least a portion of the substrate to polish the substrate.

21. The method of claim 20, wherein the oxidation catalyst is present in amount sufficient to provide about 1 ppm to about 500 ppm of metal cation.

22. The method of claim 20, wherein the sodium sulfate is present in an amount of about 50 ppm to about 700 ppm.

23. The method of claim 20, wherein the complexing agent is glycine, hydroxyethylethylenediamine triacetic acid, or a combination thereof.

24. The method of claim 20, wherein the nonionic surfactant is polyvinylalcohol.

25. The method of claim 20, wherein the anionic surfactant comprises a sulfonic acid group and a carboxylic acid group.

26. The method of claim 20, wherein the substrate is a nickel-phosphorous-coated aluminum memory disk, and wherein at least a portion of the nickel-phosphorous is removed to polish the substrate.