What is claimed is:

1. A method of fabricating copper nanoparticles comprising:

heating a copper salt solution comprising a copper salt, an *N,N'*-dialkylethylenediamine, and a C6-C18 alkylamine in an organic solvent to a temperature between about 30 °C to about 50 °C;

heating a reducing agent solution comprising a reducing agent, an *N,N'*-dialkylethylenediamine, and a C6-C18 alkylamine in an organic solvent to a temperature between about 30 °C to about 50 °C; and

adding the heated copper salt solution to the heated reducing agent solution, thereby producing copper nanoparticles.

2. The method of claim 1, wherein the copper salt is selected from a copper halide, copper nitrate, copper acetate, copper sulfate, copper formate, and copper oxide.

3. The method of claim 2, wherein the copper halide is selected from copper chloride, copper bromide, and copper iodide.

4. The method of claim 3, wherein the copper halide is copper chloride.

5. The method of claim 1, wherein the organic solvent is triglyme.

6. The method of claim 1, wherein said *N,N'*-dialkylethylenediamine comprises a C1-C4 *N,N'*-dialkylethylenediamine.

7. The method of claim 1, wherein the C6-C18 alkylamine is a C7-C10 alkylamine.

8. The method of claim 1, wherein the C6-C18 alkylamine is *n*-heptylamine.

9. The method of claim 1, wherein the C6-C18 alkylamine is *n*-octylamine.

10. The method of claim 1, wherein the C6-C18 alkylamine is *n*-nonylamine.

11. The method of claim 1, wherein the reducing agent is sodium borhohydride,.

12. The method of claim 1, wherein the produced copper nanoparticles range in size from between about 1 nm to about 10 nm.

13. The method of claim 1, wherein the heating of the solution of copper salt and solution of reducing agent is in a range from between about 30 °C to about 45 °C.

14. The method of claim 13, wherein the produced copper nanoparticles range in size from between about 1 nm to about 5 nm.

15. The method of claim 1, wherein the heating of the solution of copper salt and solution of reducing agent is in a range from between about 45 °C to about 50 °C.

16. The method of claim 15, the produced copper nanoparticles range in size from between about 5 nm to about 10 nm.

17. The method of claim 1, wherein the addition step is performed in less than 5 minutes.

18. The method of claim 1, wherein the addition step is performed in less than 4 minutes.

19. The method of claim 1, wherein the addition step is performed in less than 3 minutes.

20. The method of claim 1, wherein the addition step is performed in less than 2 minutes.

21. The method of claim 1, wherein the addition step is performed in less than 1 minute.

22. A stabilized copper nanoparticle made by the method of claim 1.

23. A composition comprising copper nanoparticles, a C6-C18 alkylamine and an *N,N'*-dialkylethylenediamine ligand, said copper nanoparticles of said composition having a fusion temperature between about 100 °C to about 200 °C.

24. The composition of claim 23, wherein the C6-C18 alkylamine is a C7-C10 alkylamine.

25. The composition of claim 23, wherein the C6-C18 alkylamine is *n*-heptylamine.

26. The composition of claim 23, wherein the C6-C18 alkylamine is *n*-octylamine.

27. The composition of claim 23, wherein the C6-C18 alkylamine is *n*-nonylamine.

28. The composition of claim 23, wherein the copper nanoparticles range in size from between about 1 nm to about 10 nm.

29. The composition of claim 23, wherein the copper nanoparticles range in size from between about 1 nm to about 5 nm.

30. A surfactant system for the stabilizing copper nanoparticles comprising an *N*,*N*'-dialkylethylenediamine and a C6-C18 alkylamine.

31. The surfactant system of claim 30, wherein *N*,*N*'-dialkylethylenediamine and a C6-C18 alkylamine are present in a ratio from between about 1:1 to about 2:1.

What is claimed is:

1. A method comprising:

providing a copper salt solution comprising a copper (II) salt, an N,N'-dialkylethylenediamine, a C6-C18 alkylamine, and an organic solvent;

providing a reducing agent solution comprising a reducing agent and an organic solvent; and

combining the copper salt solution with the reducing agent solution, thereby producing copper nanoparticles.

2. The method of claim 1, wherein combining the copper salt solution with the reducing agent solution comprises adding the copper salt solution to the reducing agent solution.

3. The method of claim 1, wherein the reducing agent solution also comprises an N,N'-dialkylethylenediamine and a C6-C18 alkylamine.

4. The method of claim 1, wherein the copper salt solution and the reducing agent solution are heated to a temperature between about 30°C to about 50°C prior to being combined.

5. The method of claim 4, wherein the copper salt solution and the reducing agent solution are heated to a temperature between about 30°C to about 50°C while being combined.

6. The method of claim 1, wherein the N,N'-dialkylethylenediamine comprises a C1-C4 N,N'-dialkylethylenediamine.

7. The method of claim 1, wherein the C6-C18 alkylamine comprises a C7-C10 alkylamine.

8. The method of claim 1, wherein the organic solvent is anhydrous.

9. The method of claim 1, wherein the copper (II) salt is selected from the group consisting of copper (II) chloride, copper (II) bromide, copper (II) iodide, copper (II) nitrate, copper (II) acetate, copper (II) sulfate, copper (II) formate, and copper (II) oxide.

10. The method of claim 1, wherein the organic solvent comprises triglyme.

11. The method of claim 1, wherein the reducing agent comprises sodium borohydride.

12. The method of claim 1, wherein the copper nanoparticles range from about 1 nm to about 10 nm in size.

13. A stabilized copper nanoparticle composition made by a method comprising:

providing a copper salt solution comprising a copper (II) salt, an N,N'-dialkylethylenediamine, a C6-C18 alkylamine, and an organic solvent;

providing a reducing agent solution comprising a reducing agent and an organic solvent; and

combining the copper salt solution with the reducing agent solution, thereby producing copper nanoparticles.

14. The stabilized copper nanoparticle composition of claim 13, wherein the copper nanoparticles have a fusion temperature ranging between about 100°C and about 200°C.

15. The stabilized copper nanoparticle composition of claim 14, wherein the copper nanoparticles range from about 1 nm to about 10 nm in size.

16. The stabilized copper nanoparticle composition of claim 13, wherein the N,N'-dialkylethylenediamine and the C6-C18 alkylamine are present in a ratio from between about 1:1 to about 2:1.

17. A stabilized copper nanoparticle composition comprising:

copper nanoparticles having a surfactant coating, the surfactant coating comprising a C6-C18 alkylamine and an N,N'-dialkylethylenediamine.

18. The stabilized copper nanoparticle composition of claim 17, wherein the copper nanoparticles have a fusion temperature ranging between about 100°C and about 200°C.

19. The stabilized copper nanoparticle composition of claim 18, wherein the copper nanoparticles range from about 1 nm to about 10 nm in size.

20. The stabilized copper nanoparticle composition of claim 17, wherein the N,N'-dialkylethylenediamine and the C6-C18 alkylamine are present in a ratio from between about 1:1 to about 2:1.