What is claimed is:

1. A method comprising:

immersing an electrically conductive substrate into an electrodepositable composition, the substrate serving as an electrode in an electrical circuit comprising the electrode and a counter-electrode immersed in the composition, a coating being applied onto or over at least a portion of the substrate as electric current is passed between the electrodes,

the electrodepositable composition comprising:

(a) an aqueous medium;

(b) an ionic resin; and

(c) solid particles,

wherein the composition has a weight ratio of solid particles to ionic resin of at least 4:1.

2. The method of claim 1, wherein the substrate is a foil comprising aluminum, iron, copper, manganese, nickel, a combination thereof, and/or an alloy thereof.

3. The method of claim 1, wherein the ionic resin comprises an anionic resin.

4. The method of claim 3, wherein the anionic resin comprises a base-neutralized, carboxylic acid group-containing resin.

5. The method of claim 4, wherein the base-neutralized, carboxylic acid group-containing resin is water soluble.

6. The method of claim 5, wherein the water soluble resin comprises a cellulose derivative.

7. The method of claim 6, wherein the cellulose derivative comprises an alkali salt of a carboxymethylcellulose.

8. The method of claim 7, wherein the carboxymethylcellulose has a weight average molecular weight of 100,000 to 500,000.

9. The method of claim 5, wherein the water soluble resin is present in the composition in an amount of at least 50 percent by weight, based on the total weight of resin in the composition.

10. The method of claim 1, wherein the solid particles comprise lithium-containing particles.

11. The method of claim 10, wherein the lithium-containing particles comprise $LiCoO_2$, $LiNiO_2$, $LiFePO_4$, $LiCoPO_4$, $LiMnO_2$, $LiMn_2O_4$, $Li(NiMnCo)O_2$, and/or $Li(NiCoAl)O_2$.

12. The method of claim 10, wherein the lithium-containing particles are present in an amount of at least 50 percent by weight, based on the total weight of the solids in the composition.

13. The method of claim 10, wherein the solid particles further comprise electrically conductive particles.

14. The method of claim 13, wherein the electrically conductive particles comprise electrically conductive carbon particles.

15. The method of claim 14, wherein the relative weight ratio of lithium-containing particles to electrically conductive particles in the composition is at least 3:1.

16. The method of claim 1, wherein the composition has a weight ratio of solid particles to ionic resin of at least 8:1.

17. The method of claim 1, wherein the composition has a total solids content of 1 to 5 percent by weight, based on the total weight of the composition.

18. A method comprising:

immersing an electrically conductive substrate into an electrodepositable composition, the substrate serving as an electrode in an electrical circuit comprising

the electrode and a counter-electrode immersed in the composition, a coating being applied onto or over at least a portion of the substrate as electric current is passed between the electrodes,

the electrodepositable composition comprising:

(a) an aqueous medium;

(b) an ionic resin; and

(iii) solid particles comprising lithium-containing particles.

19. The method of claim 18, wherein the composition has a weight ratio of solid particles to ionic resin of at least 4:1.

20. The method of claim 19, wherein the weight ratio is at least 8:1.

21. The method of claim 18, wherein the substrate is a foil comprising aluminum, iron, copper, manganese, nickel, a combination thereof, and/or an alloy thereof.

22. The method of claim 18, wherein the ionic resin comprises an anionic resin.

23. The method of claim 22, wherein the anionic resin comprises a base-neutralized, carboxylic acid group-containing resin that is a water soluble resin.

24. The method of claim 23, wherein the base-neutralized, carboxylic acid group-containing resin comprises an alkali salt of a carboxymethylcellulose.

25. The method of claim 23, wherein the water soluble resin is present in the composition in an amount of at least 50 percent by weight, based on the total weight of resin in the composition.

26. The method of claim 18, wherein the lithium-containing particles comprise $LiCoO_2$, $LiNiO_2$, $LiFePO_4$, $LiCoPO_4$, $LiMnO_2$, $LiMn_2O_4$, $Li(NiMnCo)O_2$, and/or $Li(NiCoAl)O_2$.

27. The method of claim 18, wherein the lithium-containing particles are present in an amount of at least 50 percent by weight, based on the total weight of the solids in the composition.

28. The method of claim 18, wherein the solid particles further comprise electrically conductive particles.

29. The method of claim 28, wherein the electrically conductive particles comprise electrically conductive carbon particles.

30. The method of claim 29, wherein the relative weight ratio of lithium-containing particles to electrically conductive particles in the composition is at least 3:1.

31. The method of claim 18, wherein the composition has a total solids content of 1 to 5 percent by weight, based on the total weight of the composition.

32. An electrodepositable composition comprising:

(a) an aqueous medium;

(b) an ionic resin; and

(c) solid particles comprising:

(i) lithium-containing particles, and

(ii) electrically conductive particles,

wherein the composition has a weight ratio of solid particles to ionic resin of at least 4:1.

33. The composition of claim 32, wherein the weight ratio is at least 8:1.

34. The composition of claim 32, wherein the ionic resin comprises an anionic resin.

35. The composition of claim 34, wherein the anionic resin comprises a base-neutralized, carboxylic acid group-containing resin that is a water soluble resin.

36. The composition of claim 35, wherein the base-neutralized, carboxylic acid group-containing resin comprises an alkali salt of a carboxymethylcellulose.

37. The composition of claim 35, wherein the water soluble resin is present in the composition in an amount of at least 50 percent by weight, based on the total weight of resin in the composition.

38. The composition of claim 32, wherein the lithium-containing particles comprise $LiCoO_2$, $LiNiO_2$, $LiFePO_4$, $LiCoPO_4$, $LiMnO_2$, $LiMn_2O_4$, $Li(NiMnCo)O_2$, and/or $Li(NiCoAl)O_2$.

39. The composition of claim 32, wherein the lithium-containing particles are present in an amount of at least 50 percent by weight, based on the total weight of the solid particles.

40. The composition of claim 32, wherein the electrically conductive particles comprise electrically conductive carbon particles.

41. The composition of claim 32, wherein the relative weight ratio of lithium-containing particles to electrically conductive particles in the composition is at least 3:1.

42. The composition of claim 32, wherein the composition has a total solids content of 1 to 5 percent by weight, based on the total weight of the composition.

What is claimed is:

1. A method comprising:

immersing an electrically conductive substrate into an electrodepositable composition, the substrate serving as an electrode in an electrical circuit comprising the electrode and a counter-electrode immersed in the composition, a coating being applied onto or over at least a portion of the substrate as electric current is passed between the electrodes,

the electrodepositable composition comprising:

(a) an aqueous medium;

(b) an ionic resin; and

(c) solid particles,

wherein the composition has a weight ratio of solid particles to ionic resin of at least 17:1; the ionic resin is a water-soluable, base-neutralized carboxylic acid group containing resin that is a cellulose ether; the solid particles comprising lithium-containing particles and electrically conductive carbon particles in which the weight ratio of lithium-containing particles to electrically conductive carbon particles being at least 3 to 1 and wherein the electrodepositable composition has a total solids content of 1 to 5 percent by weight based on total weight of the composition.

2. The method of claim 1, wherein the substrate is a foil comprising aluminum, iron, copper, manganese, nickel, a combination thereof, and/or an alloy thereof.

3. The method of claim 1, wherein the cellulose ether comprises an alkali salt of a carboxymethylcellulose.

4. The method of claim 3, wherein the carboxymethylcellulose has a weight average molecular weight of 100,000 to 500,000.

5. The method of claim 1, wherein the water soluble resin is present in the composition in an amount of at least 50 percent by weight, based on the total weight of resin in the composition.

6. The method of claim 1, wherein the lithium-containing particles comprise $LiCoO_2$, $LiFePO_4$, $LiCoPO_4$, $LiMnO_2$, $LiMn_2O_4$, $Li(NiMnCo)O_2$, and/or $Li(NiCoAl)O_2$.

7. The method of claim 1, wherein the lithium-containing particles are present in an amount of at least 50 percent by weight, based on the total weight of the solids in the composition.

8. An electrodepositable composition comprising:

(a) an aqueous medium;

(b) an ionic resin; and

(c) solid particles comprising:

(i) lithium-containing particles, and

(ii) electrically conductive carbon particles,

Wherein the composition has a weight ratio of solid particles to ionic resin of at lease 17:1; the ionic resin is a water-soluable, base-neutralized carboxylic acid group containing resin that is a cellulose derivative; the weight ratio of lithium-containing particles to electrically conductive carbon particles being at least 3 to 1 and wherein the electrodepositable composition has a total solids content of 1 to 5 percent by weight based on total weight of the composition.

9. The composition of claims 8, wherein the lithium-containing particles comprise $LiCoO_2$, $LiNiO_2$, $LiFePO_4$, $LiCoPO_4$, $LiMnO_2$, $LiMn_2O_4$, $Li(NiMnCo)O_2$, and/or $Li(NiCoAl)O_2$.

10. The composition of claim 8, wherein the solid lithium-containing particles are present in an amount of at least 50 percent by weight, based on the total weight of the solid particles.

11. A method of producing an electrode for a lithium ion battery comprising:

immersing an electrically conductive substrate into an electrodepositable composition, the substrate serving as the electrode in an electrical circuit comprising the electrode and a counter-electrode immersed in the composition, a coating being

applied onto or over at least a portion of the substrate as electric current is passed between the electrodes,

the electrodepositable composition comprising:

(a) an aqueous medium;

(b) an ionic resin; and

(c) solid particles comprising:

(i) lithium-containing particles, and

(ii) electrically conductive particles;

wherein the composition has a weight ratio of solid particles to ionic resin of at least 17:1 and the weight ratio of lithium-containing particles to electrically conductive particles being at least 3:1.

12. The method of claim 11, wherein the substrate is a foil comprising aluminum, iron, copper, manganese, nickel, a combination thereof, and/or an alloy thereof.

13. The method of claim 11, wherein the ionic resin is anionic.

14. The method of claim 13, wherein the anionic resin comprises a base-neutralized carboxylic acid group-containing resin.

15. The method of claim 11, wherein the lithium-containing particles comprise $LiCoO_2$, $LiNiO_2$, $LiFePO_4$, $LiCoPO_4$, $LiMnO_2$, $LiMn_2O_4$, $Li(NiMnCo)O_2$, and/or $Li(NiCoAl)O_2$.

16. The method of claim 11, wherein the lithium-containing particles are present in an amount of at least 50 percent by weight, based on the total weight of the solids in the composition.

17. The method of claim 11, wherein the electrically conductive particles comprise electrically conductive carbon particles.

18. The method of claim 17, wherein the electrically conductive carbon particles comprise carbon black.

19. The method of claim 11, wherein the composition has a total solids content of 1 to 5 percent by weight, based on the total weight of the composition.