Claims:

1. A method for depositing lithium on a substrate to form an electrode, the method comprising applying to the substrate a printable lithium composition comprised on a solution basis:

a) 10 to 50 percent of lithium metal powder;

b) 0.1 to 20 percent of a polymer binder compatible with the lithium metal powder wherein the polymer binder is selected from the group consisting of unsaturated elastomers, saturated elastomers, polyacrylic acid, polyvinylidene chloride and polyvinyl acetate;

c) 0.1 to 30 percent of a rheology modifier compatible with the lithium metal powders and;

d) 50 to 95 percent of a non-polar solvent compatible with the lithium metal powder and with the polymer binder's wherein the non-polar solvent is selected from the group consisting of acyclic hydrocarbons, cyclic hydrocarbons, and aromatic hydrocarbons.

2. The method of Claim 1, wherein applying to the substrate the printable lithium composition comprises printing the printable lithium composition onto the substrate with a slot die print head.

3. The method of Claim 2 further including loading the printable lithium composition to the slot die print head.

4. The method of Claim 2 further including

loading the printable lithium composition into a cartridge,

loading the cartridge into a dispenser attached to the slot die print head, and

mounting the slot die print head onto a printer for printing the printable lithium composition onto the substrate.

5. The method of Claim 1, wherein applying the printable lithium composition to the substrate comprises extruding the printable lithium composition onto the substrate.

6. The method of Claim 5, wherein extruding the printable lithium composition onto the substrate comprises inserting the printable lithium composition into an extruder and extruding the printable lithium composition out of a nozzle.

7. The method of Claim 5, wherein extruding the printable lithium composition onto the substrate comprises extruding the printable lithium composition onto the substrate as a pattern.

8. The method of Claim 1, wherein applying the printable lithium composition comprises applying coating to a roller and passing the substrate through the roller.

9. The method of Claim 1, wherein applying to the substrate the printable lithium composition comprises applying the printable lithium composition onto an anode.

10. The method of Claim 1, further including a step of forming a battery comprised of an anode with the printable lithium composition applied thereto.

11. The method of Claim 9, wherein applying to the substrate the printable lithium composition comprises applying the printable lithium composition onto a current collector at a thickness between about 10 microns to about 200 microns.

12. The method of Claim 1, wherein applying the printable lithium composition to the substrate comprises applying the printable lithium composition as a monolithic coating forming an anode for a solid-state battery.

13. The method of Claim 1, wherein applying the printable lithium composition to the substrate comprises applying the printable lithium composition to a solid electrolyte for a solid-state battery.

14. The method of Claim 1, wherein the printable lithium composition includes a solvent compatible with the lithium powder and with the polymer binder.

15. A method for depositing lithium on a substrate to form an electrode, the method comprising printing a printable lithium composition using a slot die print head onto the substrate, the printable lithium composition comprised on a solution basis;

a) 10 to 50 percent of lithium metal powder;

b) 0.1 to 20 percent of a polymer binder compatible with the lithium metal powder wherein the polymer binder is selected from the group consisting of unsaturated

elastomers, saturated elastomers, polyacrylic acid, polyvinylidene chloride and polyvinyl acetate;

c) 0.1 to 30 percent of a rheology modifier compatible with the lithium metal powders and;

d) 50 to 95 percent of a non-polar solvent compatible with the lithium metal powder and with the polymer binders, wherein the non-polar solvent is selected from the group consisting of acyclic hydrocarbons, cyclic hydrocarbons, and aromatic hydrocarbons to a substrate with the slot die print head.

16. The method of Claim 15 further including

loading the printable lithium composition into a cartridge,

loading the cartridge into a dispenser attached to the slot die print head, and

mounting the slot die head onto a printer for printing the printable lithium composition onto the substrate.

17. The method of Claim 15, wherein applying to the substrate the printable lithium composition comprises applying the printable lithium composition onto an anode, cathode, solid electrolyte, current collector, or carrier material.

18. The method of Claim 17 further including a step of forming a battery comprised of the anode, cathode, solid electrolyte, current collector, or carrier material.

19. A method for depositing lithium on a substrate to form an electrode, the method comprising extruding or roller coating a printable lithium composition on the substrate, the printable lithium composition comprised on a solution basis:

a) 10 to 50 percent of lithium metal powder;

b) 0.1 to 20 percent of a polymer binder compatible with the lithium metal powder wherein the polymer binder is selected from the group consisting of unsaturated elastomers, saturated elastomers, polyacrylic acid, polyvinylidene chloride and polyvinyl acetate;

c) 0.1 to 30 percent of a rheology modifier compatible with the lithium metal powders and;

d) 50 to 95 percent of a non-polar solvent compatible with the lithium metal powder and with the polymer binders,

wherein the non-polar solvent is selected from the group consisting of acyclic hydrocarbons, cyclic hydrocarbons, and aromatic hydrocarbons.