CLAIMS

1. A method of producing a sulfur cathode for a rechargeable energy storage cell, the method comprising the steps of:

mixing in a dry state a sulfur containing source, a conductive agent and a binder to form a dry mix; and

mixing the dry mix with a solvent to form a processable mixture,

wherein the amount of solvent added to the dry mix is below the solubility of the binder, and preferably well below the solubility of the binder.2. A method as in claim 1, wherein solvent is selected from the group of: water, NMP, alcohol-based solvents, and DMF.

3. A method as in claim 1, further comprising the step of processing the mixture onto a current collector to form the sulfur cathode.

4. A method as in claim 1, wherein the sulfur containing source comprises 5 to 95% sulfur by volume, preferably more than 50% sulfur, more preferably more than 65% sulfur, and most preferably more than 75%.

5. A method as in claim 1, wherein the sulfur containing source contains approximately 80% sulfur by volume.

6. A method as in any one of claim 1, wherein the sulfur containing source is selected from the group of: crystalline sulfur, colloidal sulfur, Li_2S and MoS_2.

7. A method as in claim 1, wherein the dry mix comprises 1 to 40% binder by volume, preferably less than 20%, more preferably less than 15% binder, and most preferably less than 10%.

8. A method as in claim 7 wherein the dry mix comprises approximately 5% binder by volume.

9. A method as in claim 7, wherein the binder is selected from the group of: Polytetrafluoroethylene (PTFE), polyvinylidene fluoride (PVDF), Gum Binders such as Gum Arabic, Xanthan gum, and Guar gum, Natural Cellulose based binders, Polysaccharides such as Na-CMC, Li-CMC, Na-Alginate, Polyacrylates, Aliphatic

Polymers such as Polyvinyl butyral (PVB), Aromatic Polymers such as Styrene–Butadiene Rubber.

10. A method as in claim 7 wherein the Polysaccharides based binder is selected from the group: CMC, Na alginate and CNC.