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(54) Title: MULTI-PHASE, SILICON-CONTAINING ELECTRODE FOR A LITHIUM-ION BATTERY

(57) Abstract: An electrode composition for a lithium-ion battery comprising particles having an average particle size ranging from 1 µm to 50 µm. The particles include an electrochemically active phase and an electrochemically inactive phase that share a common phase boundary. The electrochemically active phase includes elemental silicon and the electrochemically inactive phase includes at least two metal elements in the form of an intermetallic compound, a solid solution, or combination thereof. Each of the phases is free of crystallites that are greater than 1000 angstroms prior to cycling. In addition, the electrochemically active phase is amorphous after the electrode has been cycled through one full charge-discharge cycle in a lithium-ion battery.

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