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(71) Applicant (for all designated States except US): **3M INNOVATIVE PROPERTIES COMPANY** [US/US];
3M Center, Post Office Box 33427, Saint Paul, Minnesota
55133-3427 (US).

(72) Inventors: **CHRISTENSEN, Leif**; Post Office Box
33427, Saint Paul, Minnesota 55133-3427 (US).
OBROVAC, Mark N.; Post Office Box 33427, Saint Paul,
Minnesota 55133-3427 (US). **LE, Dinh Ba**; Post Office
Box 33427, Saint Paul, Minnesota 55133-3427 (US).

(74) Agents: **WEISS, Lucy C.**, et al.; Office of Intellectual
Property Counsel, Post Office Box 33427, Saint Paul, Min-
nesota 55133-3427 (US).

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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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