Spheric Technologies Produces Lithium Battery Materials Cheaper and Faster with Microwave Furnace Systems

PHOENIX, /PRNewswire/ -- Lithium batteries are playing a central role in the new energy economy, powering everything from cell phones to electric cars. New research shows that pricey lithium battery materials can be produced cheaper and faster using industrial microwave furnace systems.

Spheric Technologies, a Phoenix, Arizona, high temperature microwave technology innovator, has developed a time- and cost-saving production process for a key cathode material utilized in lithium ion batteries -- lithium ferro phosphate (LFP).

The Spheric process uses unique precursors and applies microwave in the drying and synthesis stages. This yields a phase pure product requiring little, if any, refinement, eliminating costly refining required by other processes. Microwave reduces production time from more than 10 hours (with conventional systems) to 30 minutes, producing significant savings in energy consumption, equipment utilization and cost.

Spheric Technologies has filed two patent applications covering microwave techniques, material and technology for the synthesis of lithium ion battery materials. The company's AMPS microwave furnace is ideally configured for the production of LFP, among other applications. Spheric will market the furnace with a license for the patent-pending lithium battery material production technology.

The market for battery-grade lithium compounds is significant. The Freedonia Group estimates LFP demand at $135 million in 2012, growing to $330 million by 2017, a CAGR of 20%. Current material prices range up to $60 per kilogram, with much of the material produced in Asia.

As major U.S. auto and battery manufacturers prepare to build new domestic production facilities, the time and cost savings of the Spheric process should be especially attractive. LFP is used by leading battery companies, including A123, Phostech and Valence. Battery cost reduction will be critical to the success of electric or hybrid vehicles.

Earlier this year, researchers reported at the American Ceramic Society conference on The Material Challenges in Alternative and Renewable Energy that microwave techniques and advanced microwave furnaces capable of processing commercial volumes of lithium battery materials are now available in the U.S.

"These systems [from Spheric Technologies] offer the opportunity of scaling up developmental results to commercially viable production levels," the researchers said. Lithium-ion battery materials LFP and LTO (lithium ferro phosphate and lithium

titanate) have been successfully synthesized in a larger advanced microwave system supplied by Spheric Technologies.

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