

A novel high speed Li-ion battery fabrication process adopting the dewatering concept

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A crucial issue in manufacturing Lithium-ion battery (LiB) is to increase its productivity because of huge demand in a rapidly increasing market. In so many steps in the electrode fabrication process, the drying process consumes most of the time and is practically the rate-determining step. Many efforts have been carried out to increase the drying temperature or the amount of hot air to enhance the production rate. However, these approaches have a limitation in inducing both inhomogeneous binder distribution and coating defects. In this study, we adopt the dewatering concept from the paper manufacturing process to increase the production rate. The production speed is at least 50% higher than that of the conventional process. In terms of the electrochemical properties, the magnitude of the discharge capacity of the novel process is higher than that of the conventional process. The efficiency of the discharge capacity shows better performance than the electrode made by the conventional process. By adopting the dewatering concept, the efficiency and the magnitude of the discharge capacity, as well as the production rate, are improved.