**High-speed electrode manufacturing process utilizing the dewatering process**

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**Extended Abstract**

With a rapid increase in lithium-ion battery (LIB) production, more effort is directed to increase its productivity. Currently, the production rate of LIB is about 50 m/min [1]. To enhance the production rate, most effort was put to increase the drying temperature or the amount of hot air. However, this approach could induce inhomogeneous binder distribution in the electrode [2]. In this talk, we show the possibility of increasing the production rate by introducing the dewatering concept which has been used in paper manufacturing to the conventional process.

In this research, the aqueous anode slurries were used, which are composed of graphite, carbon black, carboxymethyl cellulose (CMC), and styrene-butadiene rubber (SBR). The slurry was coated onto the porous media and was drained by the vacuum pump. After half of the water was removed, the wet slurry chunk was transferred to the copper foil, after which it entered the drying chamber. It is confirmed that the production rate is much higher than that of the conventional process by removing half of the solvent in advance during the dewatering process.

**References**

[1] W. B. Hawley, J. Li, “Electrode manufacturing for lithium-ion batteries – analysis of current and next generation processing,” J. Energy Storage, **25** (2019) 100862.

[2] F. Font, B. Protas, G. Richardson, J. M. Foster, “Binder migration during drying of lithium-ion battery electrodes: Modelling and comparison to experiment,” J. Power Sources, **393** (2018), 177-185.