

## Process Optimization of a Pilot Plant 18650 Cell Line - Towards Large Volume Production

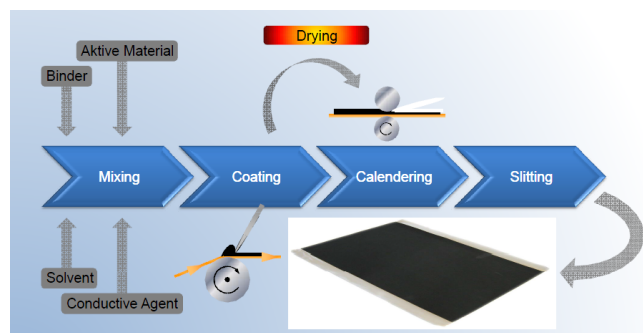
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In the battery research centre MEET (Münster Electrochemical Energy Technology) at the university of Münster, a complete pilot production line has been established capable of manufacturing cylindrical 18650 cells.

The production line includes different mixer types which enable the utilization of different mixing conditions towards an ideal slurry preparation. The coating process is realized via a commubar role reverse coater containing a convection dryer.

To generate a defined porosity and homogeneous electrode surface a calender with a constant gap function and a maximum line load of 25t can be applied (see Figure 1).



**Figure 1:** Schematic electrode manufacturing process.

In order to investigate upscaling effects which occurs by bringing different and novel battery active materials from the lab scale to high volume production, the influence of the following parameters are studied:

- pretreatment of solvents & active materials
- slurry composition & handling
- mixing conditions & techniques
- time scales
- correlation of dryer length & tape speed
- temperature ranges
- calender pressure

The presentation will show results obtained from recent experiments and outline critical effects and aspects of lithium-ion battery production.