QuaLiB.
Inline Quality Control System.

Innovations for a **Better World.**

BÜHLER

Bringing battery slurry production **into the digital age.**

QuaLiB* solution to bring systematic analysis and quality characterization into continuous battery slurry production. Monitoring of important process parameters leads to a seamless interface to the coating process and brings inline quality monitoring to the next level.

Real time monitoring and visualization of product properties.

The real time, continuous feedback on the slurry properties during production allows for steady supervision of the process and fast reaction based on the measured process and product parameters. The direct feedback provided by the live visualization let the operators and supervisors judge product quality and process consistency in depth.

Reducing waste, increasing productivity, and creating process understanding.

Automatic switching between production and waste based on objective quality criteria allows our customers to reduce waste and use the slurry from the first to the last drop satisfying the quality criteria. This increases overall productivity, either allowing for higher overall output or reducing operating hours and costs. Getting direct feedback allows our customers to optimize the production process and to run the slurry production with maximum efficiency.

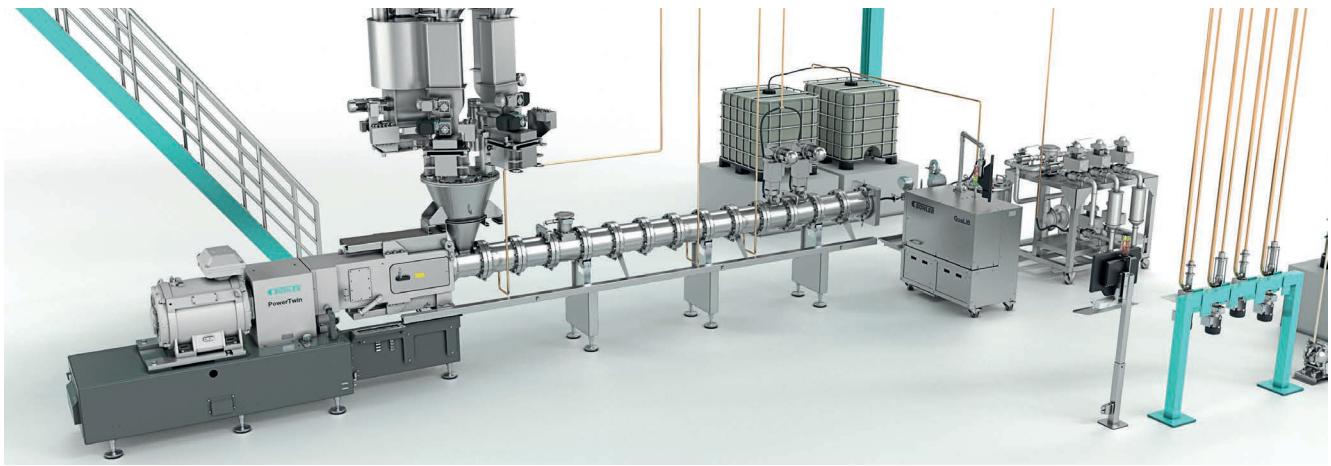
*Patent pending

Creating the interface for big data applications and digital twins.

Introduction of QuaLiB opens the possibility to integrate big data and digital twin technologies into the battery slurry production by providing the necessary sensor data and system information. This increases transparency throughout the whole production process and provides the possibility to collect the necessary data to fully describe cells and batteries based on measured slurry properties.

Seamless system integration and cleaning procedures.

QuaLiB is seamlessly integrated into the plant, both from a software and hardware point of view. Its additional back-pressure regulation increases process stability at the extruder endplate. The integrated cleaning procedure allows for fast and easy cleaning of the system. The cleaning concept can even be extended to the adjacent piping, automatically handling cleaning of the plant with a minimum of operator intervention needed.



Overview of the configuration possibilities. **The appropriate solution for any requirement.**

Configuration possibilities:

QuaLiB Basic

Provides the full set of sensor information and quality characterization as well as integration into plant control system for all Bühler extruder sizes.

QuaLiB Advanced

Building up on the basic system, the evaluated quality characteristics are used to automatically switch the directional control valve to the respective storage tank, fully automating handling of quality selection. Automatic generation of reports for campaigns, days or timespans spanning multiple days removes manual analysis efforts and consistently provides the required information.

Benefits

- Realtime monitoring
- Completely automated process based on product quality selection
- Visualization of product properties
- Reducing waste
- Increasing productivity
- Improve process understanding
- Interface for big data applications and digital twins
- Seamleass integration into plant and plant control system
- Integrated cleaning procedure for fast and easy cleaning

Measured parameters:

Measured property	Unit
Viscosity as function of shear rate	Pa*s
Density	kg/m³
Mass flow	kg/h
Volume flow	l/h
Ph-value	-
Conductivity	mS/cm
O2 saturation	%
Approximation of solid content	wt.%
Slurry temperature	°C

Environmental sensors:

Atm. Pressure	mbar
Temperature	°C
Humidity	rel. %

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