

DENSITY OR TOTAL SOLIDS IN CALCIUM CARBONATE

Online process monitoring of
calcium carbonate slurries



BERTHOLD

MEASURING DENSITY OR TOTAL SOLIDS OF CALCIUM CARBONATE SLURRIES

The production of calcium carbonate is of enormous importance for many industries, as it is an important component of many products. Calcium carbonate is mainly obtained by processing natural deposits, such as limestone, marble or chalk, or by synthetic processes such as precipitated calcium carbonate, also known as PCC. The process steps include extraction, crushing, grinding, purification, thickening and refining.

Precise & reproducible microwave measurement

Measuring the total solids or slurry density of calcium carbonate during production is crucial for maintaining product quality, optimising processes, ensuring regulatory compliance, enhancing product performance and troubleshooting any issues that may arise during manufacturing. It plays a vital role in the overall efficiency, reliability, and success of calcium carbonate production across various industries. With the Micro-Polar LB 566 measurement system from Berthold it is possible to measure the density or total solids with high repeatability and accuracy, thus guaranteeing stable and reliable process control throughout the entire process.

Measuring principle

The MicroPolar measuring system uses the special dielectric property of water. It generates microwaves that interact predominantly with the water molecules. This interaction induces a weakening of the microwave energy, which can be detected as phase shift and attenuation. As the phase shift and attenuation change is directly proportional to the water content, this allows the determination of the concentration of the medium with high accuracy. Berthold's superior multi-frequency technology guarantees highly stable and reliable measurements that are unaffected by interferences caused by reflections or resonances. The microwave power of a MicroPolar system is so low (max. 10 mW) that the material to be measured is neither heated nor changed in any way.

Typical applications where calcium carbonate is used

- Pulp & paper industry
- Food and pharmaceutical industry
- Chemical industry (paints, coatings, adhesives)
- Building material & construction industry

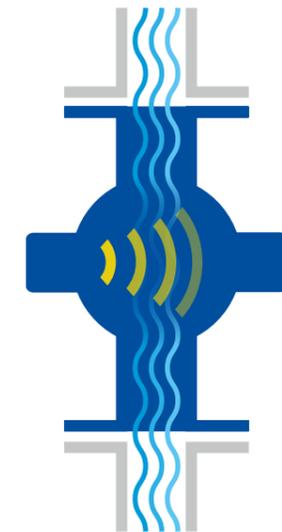


Customer Benefits

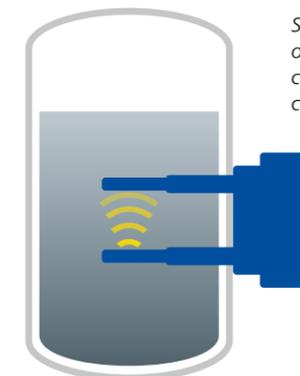
- Online total solids or density measurement
- Optimisation and control of the production process
- Cost reduction through optimised use of resources
- Optimised pump utilisation avoids blockages and ensures optimum efficiency
- Non-optical measurement, not sensitive to contamination therefore no cleaning required
- Not sensitive to film build-up

Technical Features

- High accuracy < 0.2 wt.% dry matter content (first standard deviation)
- Representative measurement results due to detection of the entire material flow in the pipeline
- Reliable measurement with only one calibration factor, even with different sludges
- Low maintenance



Schematic representation of a pipe installation with FlowCell



Schematic representation of an installation with container probe in a cooking pan



THE EXPERTS IN MEASUREMENT TECHNOLOGY

Berthold Technologies stands for excellent know-how, high quality and reliability. The customer is always the focus of our solution. We know our business!

Using our varied product portfolio, our enormous specialized knowledge and extensive experience, we develop suitable solutions together with our customers for new, individual measurement tasks in a wide variety of industries and applications.

We are here for you – worldwide!

The engineers and service technicians from Berthold Technologies are wherever you need them. Our global network assures you fast and above all competent and skilled assistance in case when needed. No matter where you are, our highly qualified experts and specialists are ready and waiting and will be with you in no time at all with the ideal solution for even the most difficult measurement task.

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