

TOTAL SOLIDS MEASUREMENT FOR INFANT FORMULA

Precise inline control at
the high pressure pump



TOTAL SOLIDS CONTENT MONITORING DURING PRODUCTION

Producing high-quality infant formula demands absolute precision. Every batch must meet strict nutritional standards while delivering the consistency expected by both customers and regulators.

Maintaining the correct total solids at the high-pressure pump is essential for stable spray drying. Total solids directly influence viscosity, atomization performance, and the final powder characteristics. Keeping this parameter tightly controlled ensures uniform droplet formation, reduces dryer fouling, and improves both powder consistency and reconstitution – critical quality attributes for sensitive infant nutrition products.

By monitoring total solids immediately before atomization, manufacturers ensure the feed enters the spray dryer at the optimal concentration. This minimizes process variability, reduces off-spec production, and supports reliable, continuous operation.

Precise & reproducible microwave measurement

Our advanced multi-frequency microwave measurement technology redefines process control performance. Installed directly downstream of the high-pressure pump, it delivers real-time, highly accurate, and reproducible measurements enabling immediate response to concentration changes. The result is a perfectly conditioned feed to the spray dryer, driving improved energy efficiency, reduced process variability, and consistently superior powder quality.

Engineered to support the full range of infant nutrition products, the system enables a single calibration curve across multiple recipes. Its robust sensor design, combined with tangible operational advantages, allows manufacturers to operate within tighter specifications, increase throughput, and ensure exceptional product consistency.

Food safety through international quality standards



The measuring principle

The MicroPolar measuring system determines concentration by utilizing the dielectric properties of water. It emits low-power microwaves that primarily interact with water molecules in the medium. This interaction results in a measurable reduction of microwave energy, observed as phase shift and attenuation. Because these changes are directly proportional to the water content, the system enables highly accurate determination of concentration. Berthold's advanced multi-frequency technology ensures exceptionally stable and reliable measurements, effectively eliminating interference from reflections and resonances. With a maximum microwave power of just 10 mW, the MicroPolar system operates non-invasively ensuring that the material being measured is neither heated nor altered in any way.

Quality control with the LB 566 and a DN100 FlowCell during spray dryer optimisation before packaging

Customer Benefits

- Real-time monitoring reduces moisture load on the spray dryer
- Optimises energy consumption of spray dryer
- Cost reduction through optimised use of resources
- Insensitive to viscosity, colour, or inhomogeneity
- Hygienic, FDA/EHEDG-compliant design suitable for CIP/SIP

Technical Features

- High accuracy < 0.2 % total solids (one product)
- Representative measurement results due to detection of the entire material flow in the pipeline
- Maintenance-free



Schematic representation of a water/solids content measurement on a pipeline with FlowCell



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.

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. Berthold Technologies is specialised in radiometric process measurements for over 75 years. More than 30 years ago Berthold expanded their portfolio and introduced microwave technology to the sugar industry. Today sugar mills worldwide depend on measurement solutions from Berthold. Our expertise in microwave technology is one of our core competences – the vast amount of systems in operation in the sugar industry worldwide speaks for itself.

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 of need. 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.

Berthold Technologies GmbH & Co. KG

Calmbacher Straße 22 · 75323 Bad Wildbad · Germany
+49 7081 1770 · industry@berthold.com · www.berthold.com

