



# Taking the next step in dairy process control

German dairy cooperative Berchtesgaden decided to take advantage of new technology and opted for a measuring solution to help them optimise yield and control key quality parameters in their butter and cheese production. Using a near infrared, in-line analysis solution to control a broad range of natural products, guarantees them a consistent final product quality while making optimal use of raw materials.



Berchtesgaden is a medium-sized company based on a cooperative of dairy farmers from around Piding in Berchtesgaden, formed in 1927. The company produces high quality butter, yoghurt, cream, cottage cheese and other products, using only the best raw materials for optimal taste. The secret behind their dairy products is the great care with which they are made, with a focus on hygiene and international management systems according to the highest international standards. In correspondence with production level, a similarly high level of attention is focused on process analysis.

### **Making the move**

The partnership with FOSS goes back decades. Many traditional Piding milk laboratories have been using FOSS MilkoScan as a fast and reliable solution to measure parameters such as fat, protein, lactose, sucrose, total dry mass, fat-free dry mass, density and acids for years. Based on this collaboration and a new goal to upgrade production control, switching to continuous in-line analysis seemed like a natural step.

The dairy plant produces a large variety of dairy products, necessitating frequent grade changes on production lines. In 2011 an in-line system was integrated into the quark line. Standardising dry matter and getting the protein content just right, has made it possible to increase yield and save on costly raw materials, while improving product quality. Additionally, the capacity of the production line has been improved and compared to conventional laboratory measurement control; continuous in-line analysis has significantly reduced variation in final products.

Based on the positive experiences in the quark line, a ProFoss system was installed in the butter churn in 2012. The ProFoss measures water and fat-free dry matter content, ensuring that these parameters are optimised, standardised and documented according to legal requirements. With more precise control and understanding of the production process it is possible to make timely adjustments and ensure optimum yield without overusing expensive raw materials.

“With our product structure and the large variety of products we are able, thanks to the new systems, to trace all transactions accurately for faster and better control,” says quality manager Lorenz Engeljählinger about the benefits of in-line analysis.

Through continuous monitoring, the Berchtesgaden dairy cooperative is able to maintain their own high quality standards, which in turn is rewarded by satisfied customers. The implementation of in-line monitoring has also resulted in the establishment of best practice routines throughout the Berchtesgaden dairy cooperative.

### **Real-time measurements for improved control**

The ProFoss system uses high resolution diode array technology with no bypass for non-destructive analysis of food in the process line. The system is installed at the appropriate point in the production area and data is transmitted to the control room. ProFoss is easy to install and complies with all health and safety requirements of the food industry such as IP 69 and EHEDG.

Results can also be sent to an external control system for automatic regulation. This system is just as precise as ordinary lab analysis, but with continuous, real-time process analysis it is possible to immediately identify out of spec variations and make adjustments when necessary.

“For us as a medium-sized dairy plant, the investment in in-line process control is definitely worth it,” says production manager Bernard Staller of the Berchtesgaden milk plant. “So far we’ve had hourly samples brought to our lab for analysis. In between measurements we had basically no precise information about our products. With the new system we get real-time production data and can intervene directly in the process. Now we know every ounce of our final butter and cheese products, so to speak, and can take immediate action when we detect even the smallest changes in production. In the event that we receive a complaint, we can retrieve all traceable data with the press of a button.”

*Translated from an article by Susann Balsler-Hahn*

### **Calculation example:**

For an annual production of 4500 tons of butter, for example, an increase in the water content of 0.2 percent amounts to an annual saving of around Euro 40,000, guaranteeing a return on investment in two years.

In comparison to manual sampling, control costs and loss of time are reduced as is the potential for production errors. Measurement results can be incorporated into existing ERP systems and meet with existing documentation requirements.