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Innovation process configuration in Mozzarella (Pasta filata) and milk powder production aiming at reduced water and energy consumption

E nReMilk aims at significant water and energy savings in representative dairy case studies, mozzarella and milk powder production, across the supply chain. The dairy industry is an important food industry sector with sales of €124.3 billion and added value of €17.4 billion p.a. It is a high energy and water consumer, both overall and per unit production. 98% of the fresh water used is of drinking water quality with 80% of energy consumed in process heating, pasteurization, sterilization, drying and cleaning operations. The case studies of a novel Mozzarella process and skim milk powder production by spray drying will show approaches and results on technology based water consumption savings and reduced energy requirements respectively. In Mozzarella production, a continuous process has been developed based on understanding of rheological behavior and structuring of cheese curd. The technology will be presented and placed in the broader context of the total production process. Reduction in energy consumption in the spray drying process is tackled especially by super-heated steam drying. This process has proven to allow the reutilization of the latent heat of evaporation. The specific use in spray drying of dairy products has particular aspects due to the heat sensitivity of the product. Energy balance, specific benefits, issues and draw backs will be presented as well as reference results from alternative pilot plant spray drying approaches and placed in the context of production results.

Biography

Reinhard Kohlus is full time Professor for "food process engineering and powder technology" at the University of Hohenheim in Stuttgart, Germany. His background is process engineering particularly particle technology. His working experiments includes several positions at Unilever B. V., both in research and development, dealing with products like dry soups, seasonings, bouillons and instant-drinks. Particularly research interests include spray drying, agglomeration and coating technologies, behavior of dry food products that mean all low aw products, the generation and optimization of in use properties of these products as well as structure analysis of granulated or otherwise structured powders.

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