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Enthalpy – Reducing energy and water usage in dairy and spray drying due to innovative technologies

The Enthalpy project is an European FP-7 project, which overall objective is to significantly reduce energy and water consumption in the European dairy industry, by 63% and 18% respectively. This will lead to increased competitiveness in the dairy sector. To achieve this, innovations are introduced and existing technologies are adapted. These investigated innovations are mono-disperse atomising, radio-frequency heating for the pasteurisation step, membrane distillation in the feed line, membrane contactor on the exhaust of the spray dryer, solar thermal energy for reheating the drying air and enzymatic cleaning of all processing units. Besides introducing these innovative units also a process systems engineering approach is implemented to optimise the processing plant as a whole instead of optimising individual units. These innovations are validated on lab scale and will be demonstrated at a pilot plant to show the potential of upscaling these technologies to production units. Next to the sustainability aspects of these developments also the impact on the product quality is investigated, because at a minimum the same product quality needs to be obtained. While the project aims at the dairy industry the technologies have a wider applicability and can result in significant improvements in different sectors.

Biography

Pieter Debrauwer obtained his MSc in Aerospace Engineering at Delft University of Technology and is currently working as Program Manager at TNO in the field of 3D printing. He is involved in R&D projects both in EU as well as in contract research. One of the spin-outs of 3D printing is the use of mono-disperse atomizing for spray drying. He is the Coordinator of the Enthalpy project which brings multiple innovative technologies to the dairy processing, which should lead to a reduction of energy use by 60%.

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