NAPCON CONTROLLER

MAXIMIZES WHEY

POWDER PRODUCTION

Valio Oy is the largest producer of dairy products in Finland. At Valio's dairy complex in Lapinlahti, eastern Finland, demineralized whey powder is produced in large quantities. The moisture content of the final product is adjusted in the final stage of the production line by a spray dryer. This is a very energy-intensive process, and moreover, the moisture content must be controlled exactly, because excessive water content causes the powder to become sticky. This causes disturbances and might even result in shut-downs. Excessively dry whey powder generates more dust, which has a negative effect on product properties and uses excess energy.

By controlling the spray dryer capacity and hot air streams in an optimal way using Multivariable Model-predictive Control (MMPC), it is possible to keep the moisture content of the final whey powder product very close to it's target value in all process conditions and under multiple dynamically changing process constraints. This leads directly to a significant increase of production without any increase of total energy used for heating the drying air. Moreover, the risk for shut-downs due to bag filter clogging is also significantly reduced.

CLIENT

Valio Oy Dairy products, Lapinlahti, Finland

NESTE JACOBS DELIVERED THE FOLLOWING PRODUCTS AND SERVICES TO VALIO OY:

- NAPCON Controller MMPC software package
- NAPCON Analyst Process calculation sofware package
- OPC-UA connection between NAPCON and Valio's process control system
- Full engineering and implementation services
- Client training

BENEFITS TO VALIO OY:

- More than 10% increase in whey powder production
- No increased energy consumption
- Decreased variations in whey powder moisture content

NAPCON DELIVERY PROJECT HIGHLIGHTS:

- Fast track from project initiation to start of MMPC: only three months
- No process or control system shut-downs due to installation and commissioning of NAPCON
- Remote telecom connection between Client's process and Neste Jacobs

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