SULZER

CASE STUDY

State-of-the-art potato starch plant relies on Sulzer's degassing process pumps

The Lyckeby potato starch plant in Mjällby, Southern Sweden, produces native and specialty starches along with valuable by-products such as fibers, proteins, and biofertilizers for the food and paper industries globally.

“We trust Sulzer not only for their top-quality equipment but above all for their people.”

Mattias Åkesson – Process Technician, Lyckeby

In 2022 the factory underwent modernization, expanding production to 40’000 tons of commercial starch annually, with a focus on energy savings for enhanced sustainability. Each process step involved selecting efficient, reliable, and cost-effective equipment from leading technology suppliers. Sulzer was chosen for the toughest liquid pumping applications. Twenty-eight new AHLSTAR and SNS pump units are now working smoothly on site, complementing the older installed Sulzer pumps that have given full satisfaction for decades.

The challenge

Producing potato starch involves technical challenges at each step of the process, from raw material washing and rasping to fiber and fruit juice separation, and final starch washing and drying.

Pumping liquids prone to foaming is a significant issue. This special feature arises partly because of the protein content of liquids and partly because the different raw material components are separated mechanically. The fiber pulp separation stage is particularly critical, as the liquids pumped can contain over 40% air.

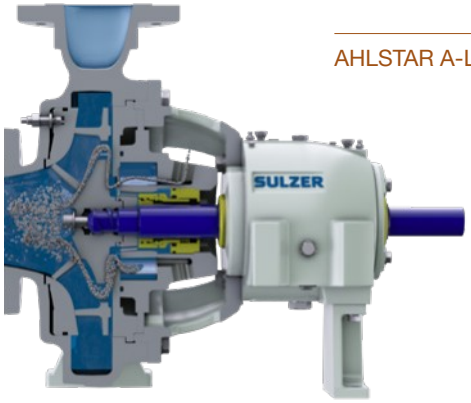
Conventional centrifugal pumps cannot operate with such high gas content as capacity is reduced dramatically and pumping becomes unstable.

The solution

After rasping, the slurry mixture of pulp, starch, and potato juice passes through rotating conical sieves for pulp fiber separation. In close collaboration with Lyckeby and the centrifugal sieves supplier, Sulzer provided seven AHLSTAR A-LM pumping units for transferring or recirculating starch and fruit juice, and fibers and water.

The AHLSTAR A pumps with LM integrated liquid ring pump degassing units are specifically designed to handle foamy suspensions effectively and reliably, ensuring trouble-free operation and a steady process.

Even for viscous slurries the A-LM pumps with built-in vacuum system can separate most of the air from the liquids, maintaining a constant flow.



AHLSTAR A-LM pump

Customer benefits

The AHLSTAR A-LM pump units stabilize the entire process, optimizing the operation of upstream and downstream equipment.

The internal degassing device in the A-LM pumps removes most air bubbles from the impeller eye, significantly increasing pump efficiency, which saves energy and benefits the environment.

Reduced air in the system also enhances the efficiency of other process devices, and the use of expensive antifoam agents is greatly minimized.

A-LM pump units on fiber separation

Project data

The new full starch line includes 28 Sulzer single-stage overhung process pumps in duplex material and double mechanical seals:

- 7 AHLSTAR A pumps with LM integrated liquid ring pump degassing units, and open impellers
- 21 SNS pumps with open impellers

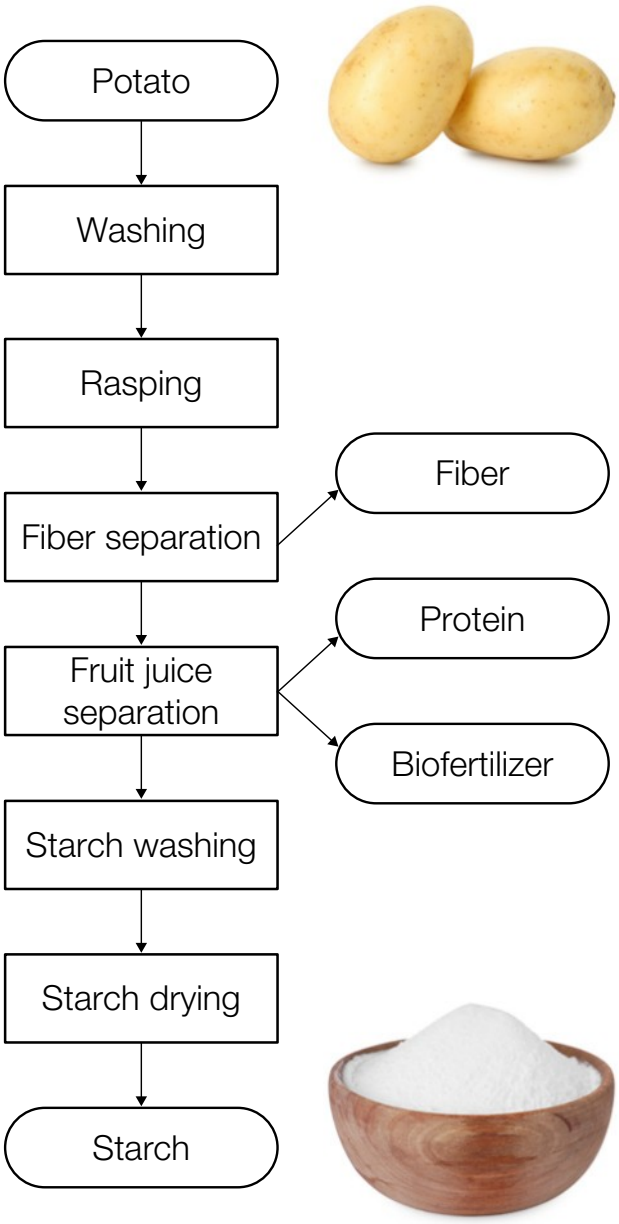
Most pump units are equipped with VFD for higher flexibility and efficiency.

The Sulzer plus

- Recognized player in the starch and sweeteners industries
- Over 10’000 pumps and agitators installed in potato, cassava, corn, and wheat starch plants worldwide
- Deep understanding of key processes and clients’ needs
- Optimal technical solutions tailored to real working conditions
- Preferred supplier for major starch OEMs
- Close cooperation with end-users from initial projects to long-term service

SNS pump units on starch washing

Simplified flowchart



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