

FOOD

INNOVATIVE MEMBRANE TECHNOLOGY REDUCES FRESH WATER DEMAND AND THE AMOUNT OF WASTEWATER



Thanks to an innovative membrane process, allergens at ZENTIS can be kept outside after the process water purification. Thus, the processed medium can be used for the pre-cleaning process which saves water and money.

Raw products are transported to the respective production facility in transport containers via conveyor belts. Allergenic residues emerge during purification.

DAS UNTERNEHMEN

**ADDRESS**

Zentis GmbH & Co. KG
Jülicher Str. 177, 52070 Aachen

INTERNET

www.zentis.de

ESTABLISHED

1893

LINE OF BUSINESS

Production of spreads, confectionary and fruit preparations for the baking, dairy and confectionary industry

EMPLOYEES

approx. 1,200

INITIAL SITUATION

ZENTIS is one of the leading fruit processing companies in Germany and Europe. Every day 600 tons of raw products are processed to jams, jelly and fruit preparations. The regular cleaning of the production facilities and transport containers meets highest hygienic requirements. Frequent product changes as well as a production expansion caused the fresh water consumption for purification purposes in the company to rise steadily.

Recycling the cleaning water with the existing processes was not possible, as the medium was contaminated with allergenic residues from nuts, gluten and eggs. Therefore, ZENTIS had to feed the majority of the water into the waste water network untreated. In order to reduce the fresh water demand, the waste water quantity and thus the costs, the company relied on the development of an innovative membrane system to reprocess a part of the cleaning water.

Saving resources. Strengthening the economy.

MEASURES AND ADVANTAGES

Together with the membrane manufacturer atech innovations GmbH from Gladbeck and the Institute for Product Quality in Berlin ZENTIS developed a solution which enables the separation also of allergen-triggering proteins by means of a membrane process. This was based on complex filtration trials, in order to determine the required pore size of the membrane.

During the ultra filtration, which is used in the company today, the watery medium is by-passed around the ceramic membranes. In this case, the highly porous ceramic structure serves as substrate material for extremely thin membranes which distinguishes itself through a high water permeability. Thus, the allergens can be completely filtered out of the process water. This high quality water – the so called permeate – is used for the pre-cleaning process again.

The process, which has been used in this line of business for the first time, has paid off for the company from Aachen: the recirculation of the reprocessed process water into the pre-state of the cleaning process reduces the fresh water demand as well as the waste water quantity by 52,000 cubic metres a year. Furthermore, the extracted process water does not need to be heated up for the cleaning process anymore, as opposed to the fresh water.



The ready fruit mixtures are stored and transported in stainless steel containers. After the purification the used water is fed into the new membrane facility.

RESOURCE EFFECTS AT A GLANCE

Fresh and waste water reduction	52,000 m ³ /a
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THE WAY TO FINANCING

The Effizienz-Agentur NRW (EFA) supported ZENTIS in implementing the project by means of the financial consulting. The company applied for subsidies from the investment programme 'Abwasser NRW, Förderbereich 1.1, Innovativer PIUS' with the NRW.Bank on the basis of

the advice. EFA supported ZENTIS also during the early stage of the application procedure and the transaction. In order to accomplish the project subsidies worth € 125,000 were eventually granted.

The project partner

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