

Food & Beverage producer

A Mellifiq reference project



Eckes-Granini successfully reduces BOD and COD with advanced oxidation and adsorption

**Tailored treatment system
successfully reached
compliance levels**

MELLIFIQ

Food & Beverage Producer, Lithuania

Eckes-Granini is a multi-national beverage producer specializing in commercial distribution of large volumes of juice and flavored drinks, having more than 150 years of experience in juice production. Headquartered in Germany, our client is active in several countries where they are top of the class, both locally and regionally, when it comes to high quality fruit drinks. The company boasts several renowned brands including Pago, Rynkeby and Ohne Zucker.

Facts

Client:	Eckes-Granini
Location:	Lithuania
Application	COD and BOD treatment
Industry:	Food and Beverage production
Project value (EUR):	650 000
Project period:	2023-2024

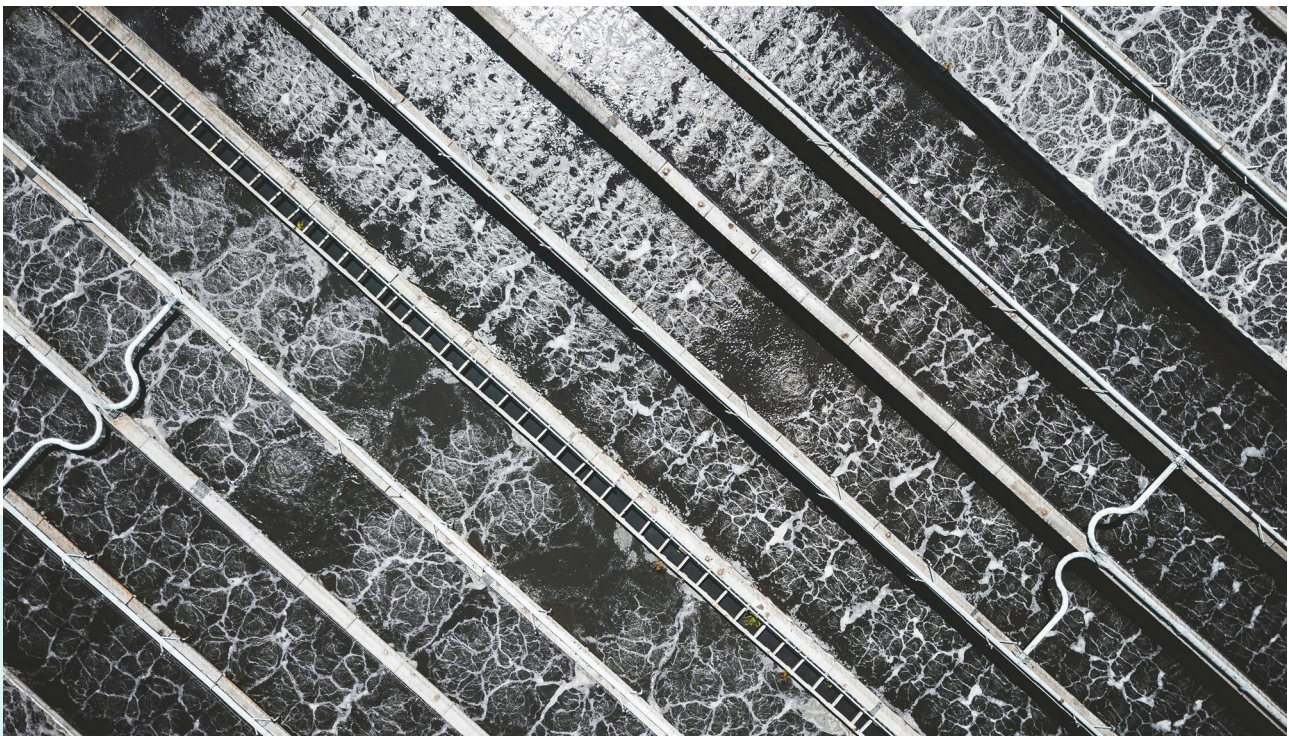
Solution:

Mellifiq delivery:	The full-scale implementation included a pressurized particle removal filtration step using our Water Maid FlexKarb-S system, an ozonation step using our Ozonetech RENA Vivo G-series turn-key ozone system and a final polishing step with our Water Maid FlexKarb-C system.
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The problem

With increasingly steep European directives for waste management, Eckes-Granini was under regulatory pressure to reduce the COD (Chemical Oxygen Demand) and the BOD (Biochemical Oxygen Demand) in their effluent wastewater. Their incoming concentration levels were above 4 000 ppm and the target level was 500 ppm for both the COD and the BOD. The highly contaminated wastewater is a direct result of a high production rate and the fact that our client processes fresh foodstuff, including peeling and rinsing the raw material.

The complex wastewater composition required a stable solution that could target several groups of dissolved and suspended organics. The average effluent flows reach an average of 3-5 m³/h with the flow profile being highly variable. Hence, it was necessary to find a solution that could definitely ensure an effluent concentration below legal thresholds, while also having a built-in capacity to cope with the variable concentrations and loads.



The solution

Eckes-Granini reached out to Mellifiq to address the main issue of the COD and BOD concentrations being too high. They wanted to lower these concentrations as quickly as possible in order to avoid legal ramifications. Since excellent treatment results were of utmost importance, we launched a complete engineering design project that also included executing an on-site pilot to determine the most optimal technical implementation. The experience and expertise obtained from similar situations enabled us at Mellifiq to tailor a pilot-scale treatment system based on the on-site conditions and the wastewater characteristics.

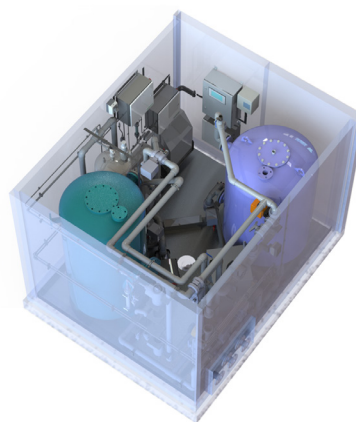
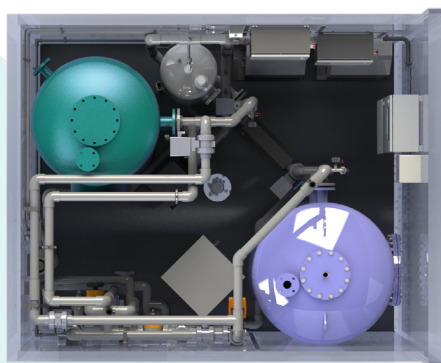
In order to evaluate the removal rates, we implemented a system with proper particle pre-filtration followed by an advanced oxidation process targeting dissolved organics, and lastly, a high-rate adsorption step. This system was delivered in a containerized form.

This approach also allowed both Eckes-Granini and Mellifiq to verify operational stability and treatment results over an extended period of time.

The pre-engineered solution proved itself very effective: it was able to exceed the treatment requirements by more than 20%. The results were used as a basis for a full scale design.

The full-scale implementation included a pressurized particle removal filtration step using our Water Maid FlexKarb-S system, an ozonation step using our Ozonetech RENA Vivo C-series turn-key ozone system and a final polishing step with our Water Maid FlexKarb-C system. The FlexKarb-C uses activated adsorption media that targets protein residues, dissolved short-chained hydrocarbons and various carbohydrates.

The delivery was executed as a complete engineering project, where Mellifiq acted as the Front End Engineering Design (FEED) entity. We were responsible for the complete process & instrumentation design, automation and integration into a facility extension that was specifically adapted to the new wastewater treatment system. Mellifiq also commissioned the system on-site to ensure complete system functionality before Eckes-Granini took over.



Pilot scale system commissioned on site to determine the suitable scaling parameters.

Evaluation

The full scale implementation replicated the stable treatment results obtained in the pilot project, where we succeeded in reducing the targeted COD and BOD content to levels far below the required limits. We are looking at a total reduction rate of 78%.

The system has operated without problems since early 2024 and successfully meets the tough customer requirements. Eckes-Granini has closely monitored the water quality in order to produce consistent governmental reports.



Full scale solution with customer designed piping, automation in a dedicated process building adapted to accommodate the effluent treatment process.

About Mellifiq

Mellifiq is a multi-awarded environmental service company group, that has since the early nineties evolved into a world leading system and solution provider with multiple groundbreaking applications for industrial, municipal, and real estate clients. We supply cutting-edge technologies to manage the most sophisticated air, water, and energy challenges.

Mellifiq offers a complete range of air and water treatment technologies and solutions across multiple industries such as processing industry, energy sector, food and beverage, pharmaceutical, wastewater treatment and commercial real estate.

Mellifiq offers strong and renowned brands, such as Ozonotech, Nodora and Water Maid, and world-class engineering services combined an excellent track record of more than 40 years of innovation. We help our clients achieve the most efficient and sustainable solutions while creating the maximum value for their businesses.

With several business units across Europe, Mellifiq is headquartered in Stockholm where research and development, production, QA and certification all take place. Our unique technology and our extensive expertise have made us the Center of Excellence for the world's most complex projects, and a global player with installations on all six continents.

Everyday millions of people rely on our solutions for ventilation, disinfection, sanitation, and odor control. We are committed to raising the bar for the concept of clean and the industry standard for engineering, technical services and general contracting.

For additional information, visit our website at www.mellifiq.com

