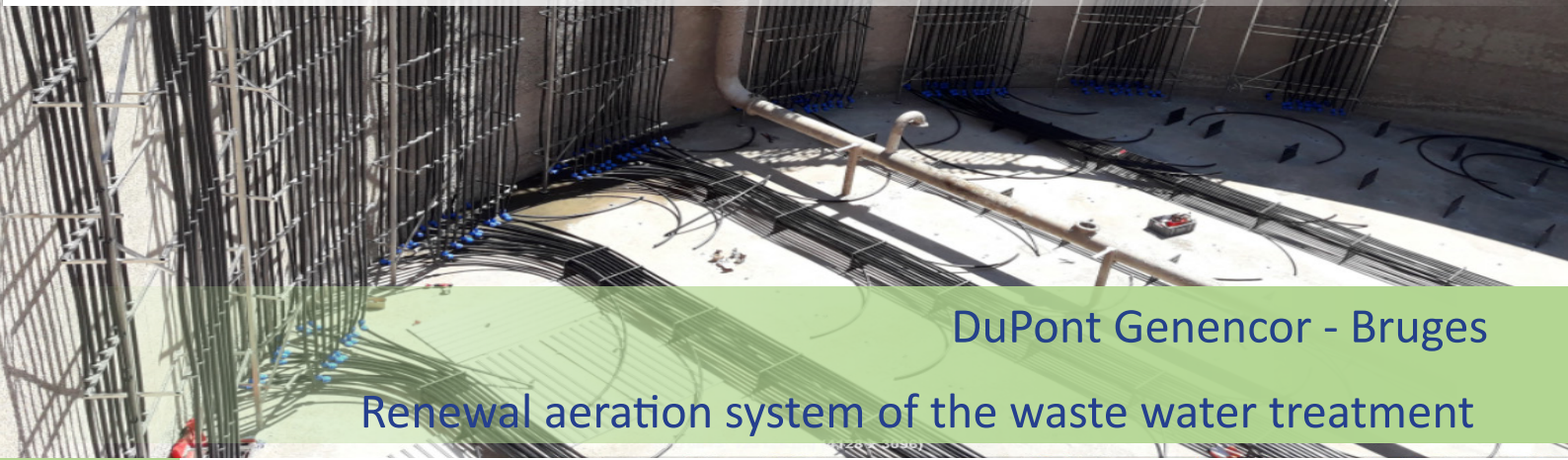


ENVIRONMENTAL TECHNOLOGY



DuPont Genencor - Bruges

Renewal aeration system of the waste water treatment

DUPONT GENENCOR produces tailor-made industrial enzymes. To this end, the old yeast factory in Bruges was transformed into a modern production plant. The enzymes are obtained by bioengineered microorganisms grown in batch fermenters. The waste water is treated at the plant by ultrafiltration to retain an important part of the dirt load amongst others. The filtrate is then discharged to the company's own wastewater treatment plant (WWTP).

In figures

The biological water purification system consists of two covered buffer tanks, an aeration tank and a clarifier. The process is designed for biological nitrogen and phosphorus removal. The installation processes an average of 1300 m³/d wastewater. The effluent is discharged to the RWZI of Bruges. The biological system was aerated by an outdated system consisting of heavy circulation pumps, venturi-air vents and surpressors. This type of aeration resulted in high energy consumption.

Through a feasibility study, Trevi demonstrated that replacing the aeration system was a profitable investment.

Implementation

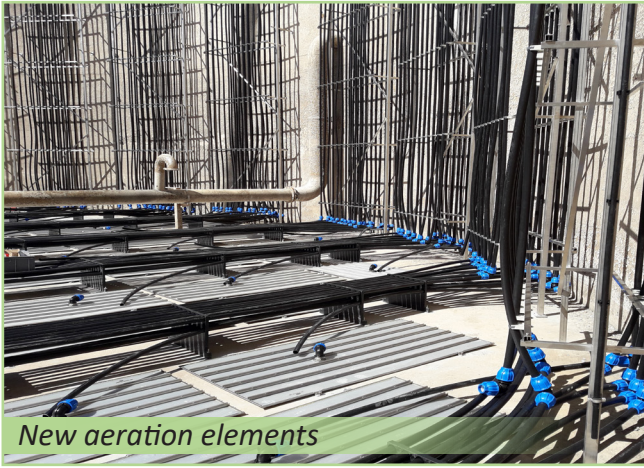
As production is only stopped every three years for extensive maintenance, DuPont Genencor decided to replace the aeration during the production stop of summer 2017.

In a period of 12 days, the entire project was completed. This included emptying and cleaning the 5500 m³ aeration tank, removing the old aeration system, installing the new aeration system, adapting electricity and control, filling the tank and restarting the process.



Old aeration system

The new aeration system consists of 145 fine-grained aeration panels (each 2.0 m²) which are attached to the bottom of the tank. Each panel is connected with a PE pipe to the central air pipe, which is located on the edge of the tank. The air is supplied by the existing surpressors.

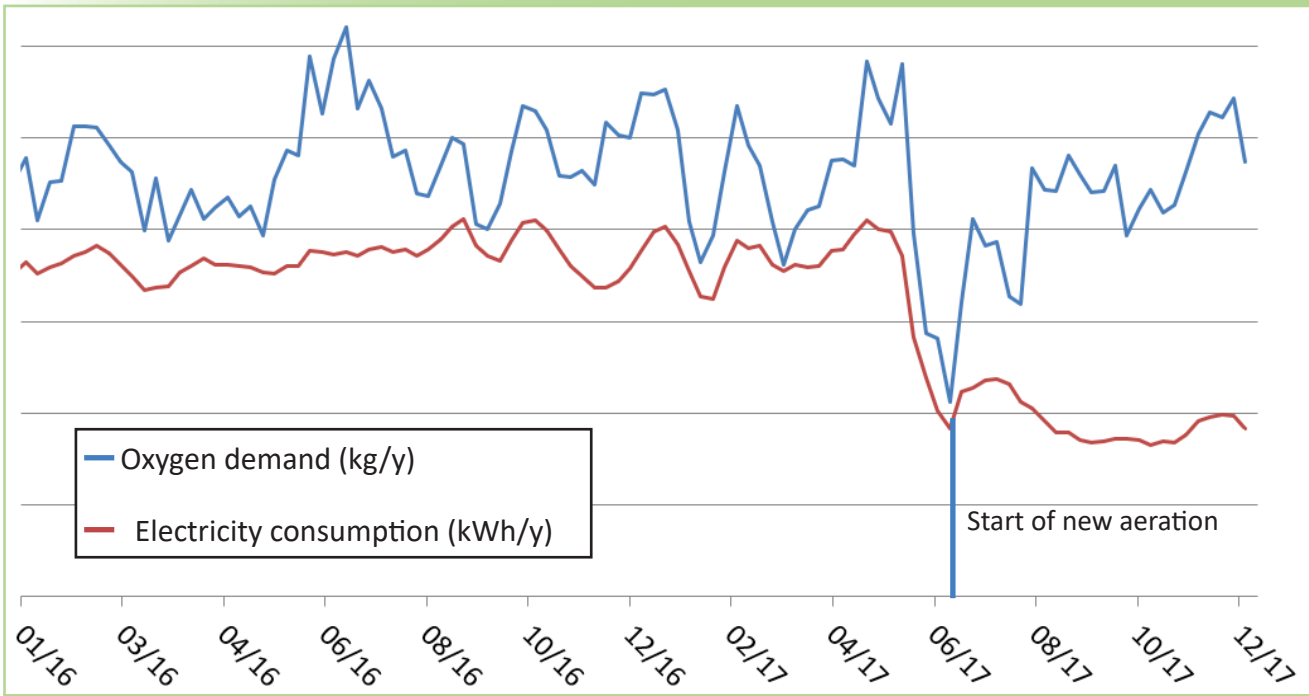


New aeration elements

Realised saving

The following figure shows the remarkable decrease in electricity consumption after the adjustment of the aeration in June 2017. Based on these data, the average electricity consumption is decreased by almost 50% before and after the adjustment. The aeration resulted in a total saving of 70%. At the current electricity rate, the payback period of the investment is estimated at 5 years.

Oxygen demand and consumption of electricity, period 2016-17, running average



Old aeration



New aeration



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Trevi is a Belgian company with a team of specialised professionals at its disposal: environmental consultants, process experts, programmers and installers. This diversity offers you as a client the advantage to solve all environmental problems with only one partner in all disciplines: water, air, soil and energy as well. Our consequent approach by research, pilot tests, design, realisation, start-up, follow up and exploitation guarantees the provided quality.