



MYTEX

CASE STUDY

Conversion of an Industrial Wastewater
Treatment Plant in the Beverage
Industry

Customer's Problem

In a beverage bottling factory, wastewater is generated from production residues. These primarily consist of washing and cleaning wastewater, residual quantities from bottling, as well as emergency and off-spec batches. These wastewaters vary greatly in quantity and concentration and must be treated safely in the factory's own wastewater treatment plant. Due to the extreme fluctuations, such as in the COD of the individual wastewaters, unwanted effects occur in the existing SBR (Sequencing Batch Reactor) such as sludge loss or elevated effluent values exceeding regulatory limits.

Solution Proposals

The conversion of the existing SBR round tanks to MBR reactors with submerged MYTEX membrane modules proved to be the best solution. The submerged membrane modules were integrated directly into the round reactors. Four modules of 500 m² each were installed for 2 tanks. Each individual module can be separated from the process and removed during operation via a special construction of guide rails and fastening. The removed module can be treated in a specially provided cleaning tank with both water and chemicals. Hypochlorite is used for the removal of biological deposits and citric acid for the removal of mineral deposits.



Results

The implementation of the submerged MYTEX membrane units in the industrial wastewater treatment plant led to significant results. By increasing the sludge content in the round tanks, the resulting wastewater volumes can be safely treated. The limits for discharging the treated wastewater into nearby surface water bodies are significantly exceeded. Sludge loss is no longer possible. The costs for converting SBR to MBR were significantly cheaper and faster compared to building additional SBR tanks. The construction of two round tanks for capacity expansion for the SBR process would have taken much longer due to the necessary regulatory approvals, thus jeopardizing the production site. Operating costs for personnel, chemical consumption, and sludge dewatering were significantly reduced. This resulted in an ROI of less than 3 years for the investment in MBR technology.

Conclusion

Safe effluent values and significantly lower operating costs were the motivation for implementing the project. Since then, colleagues willingly take on the responsibility for operating the wastewater treatment plant on weekends or holidays, as they can rely on their MBR system with MYTEX modules.



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