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### Recycling water and materials from process waste water for electrolysis

In the ReSalt joint research project, partners from academia and industry investigated the preparation of process waste water with the objective of reusing the water and the salt contained within it for chlor-alkali electrolysis. When doing so, even the smallest traces of contamination must be removed from the water in order to prevent faults during the electrolysis.

To this end, EnviroChemie designed and built the pilot system for treating the process waste water using high-pressure reverse osmosis. This system can extract pure water – known as permeate – from the process water. At the same time, the salt in the process water (table salt, NaCl) is concentrated so that it can be used again in electrolysis following further purification.

In the project network, EnviroChemie tested the high-pressure reverse osmosis procedure for the energy-efficient concentration of the salt and developed the concept for its technical implementation. In this context, suitable materials were tested, the plant components selected and the pilot system designed.

During the joint project, table salt was removed from an industrial water stream and concentrated at the premises of project coordinator Covestro, thereby proving that the designed high-pressure reverse osmosis method is also suitable for practical application.

The ReSalt project was funded by the German Federal Ministry of Education and Research (BMBF) and coordinated by Covestro.



Image: In the ReSalt joint project, the fully automatic high-pressure osmosis system from EnviroChemie removes table salt from industrial water and concentrates it. ©image Covestro

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