
WATER AND WASTE WATER MANAGEMENT

**WASTE WATER-FREE THANKS TO
INNOVATIVE REVERSE OSMOSIS**



The first combination of a brine evaporator with downstream two-stage osmosis saves 4,000 tons of waste water annually.

In 2010 the contracting service company Cobos Fluid Service GmbH established an innovative waste water treatment facility on the SKF.

THE COMPANY

**ADDRESS**

Cobos Fluid Service GmbH
Heinrichstrasse 155
40239 Düsseldorf

INTERNET

www.cobos-fs.de

ESTABLISHED

2007

LINE OF BUSINESS

Reprocessing of industrial waste water

EMPLOYEES

29

INITIAL SITUATION

Cobos Fluid Service GmbH is a certified provider of operator models for the disposal of emulsions and industrial waste water. In 2009 a cooperation with the SKF Sealing Solution GmbH in Leverkusen developed. The company produces seals made of a rubber-metal compound for engines. For the pre-treatment process, the metal components must be degreased using wet chemicals, pickled, activated, phosphatized and passivated. So far, SKF has treated the waste water using an internal chemical and physical waste water treatment.

In 2003 a resources efficiency advice came to the conclusion to replace the existing waste water treatment with an evaporator with downstream reverse osmosis, in order to reduce the consumption of chemicals and water. However, the investment decision was postponed. In 2009, the results gained in importance again, as a result of a conversation with Cobos. Cobos worked out a contracting solution for SKF's waste water treatment on the basis of the 2003 results and covered all planning, investment and operational risks.

Saving resources. Strengthening the economy.

MEASURES AND ADVANTAGES

In the new plant also the organically contaminated liquid waste such as emulsions of cooling lubricants, which had been disposed of externally up to then, was supposed to be reprocessed together with the volume flows of the phosphatizing plant. After the collection of data, a brine evaporation with downstream reverse osmosis of the distillate seemed to be appropriate. A large batch of the specific waste water flows was already treated in Cobos' evaporation plant, whereas the distillates had to undergo reverse osmosis. Important process parameters such as throughput rates, pH values, conductivities as well as the remaining contaminations regarding ammonium, CSB or chloride were measured.

The technical result of this research project was the first combination of a brine evaporator and downstream two-stage reverse osmosis for the treatment of highly inorganically as well as organically contaminated waste water. The process resulted in extremely pure reprocessed water which meets the production's high requirements.

Through this new plant technology, SKF became waste water free and is able to save large quantities of drinking water as well as the costs for desalinating the drinking water and for the chemicals. Cobos has invested € 450,000 in this measure.



With the dual level reverse osmosis system, both an-organic as well as organic highly contaminated waste water can be treated.

Comparison of the processes

CHEMICAL AND PHYSICAL WASTE WATER TREATMENT (old)

Waste water **4,000 t/a**

Emulsion **600 t/a**

Filter cake **12,5 t/a**

Chemicals **16.000 l/a**

Concentrate **0 t/a**

VE-Water (conductivity index at 20 µS/cm) **0 m³/a**

INNOVATIVE REVERSE OSMOSIS PROCESS (new)

Waste water **0 t/a**

Emulsion **0 t/a**

Filter cake **0 t/a**

Chemicals **1,000 l/a**

Concentrate **approx. 350 t/a**

VE-Water (conductivity index at max. 20 µS/cm) **4,000 m³/a**

THE WAY TO FINANCING

In 2009 EFA supported Cobos Fluid Service GmbH with the financial consulting. As a result, the company applied for subsidies from the investment programme 'Abwasser NRW, Förderbereich 1.1, Innovativer PIUS' to the

NRW.Bank. EFA supported the company also during the application phase. The project was funded with subsidies worth € 196,500.

The project partners

EFFIZIENZ AGENTUR NRW

Andreas Kunsleben
+49 203 / 378 79-50
aku@efanrw.de

EFFIZIENZ AGENTUR NRW

Marcus Lodde
+49 203 / 378 79-58
lod@efanrw.de

PUBLISHER

Effizienz-Agentur NRW | Dr.-Hammacher-Strasse 49 | 47119 Duisburg
Tel. +49 203 / 378 79-30 | Fax +49 203 / 378 79-44 | efa@efanrw.de
www.ressourceneffizienz.de

Contracted by

Ministerium für Klimaschutz, Umwelt,
Landwirtschaft, Natur- und Verbraucherschutz
des Landes Nordrhein-Westfalen

