

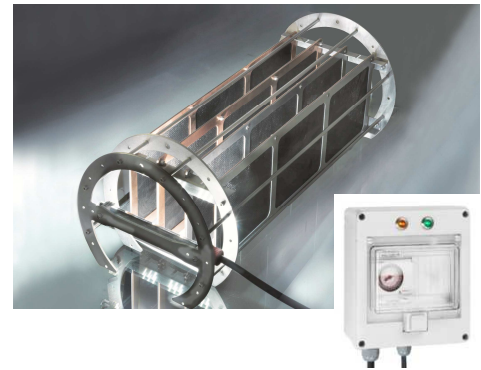


Natural and Effective Solution against Biofouling

The technology

BerkeMOL®LIK technology consists on high-performance catalysts (Nanostructured Oxygen Alloys) specially developed to eliminate the biology present in water transfer systems without the use of biocides. By combining solid-state catalysts, LED light exposure and electrostatic charging, free microorganisms in the water system are attracted to the surface of the catalyst and through their fragmentation biosurfactants are produced. These biosurfactants cause a removal and inactivation of the biofilms.

- ▶ **Stainless steel frame with integrated NOA-foils**
- ▶ **Integrated LED light**
- ▶ **Light exposure control timer**



Our expertise

Easy installation. The catalyst module is installed at a suitable location of the water system based on water volume and circulation rate. The light exposure is automatically controlled and will depend on the microbiological load of the system. A conventional cleaning of the system before installation is recommended.

Low maintenance. BerkeMOL®LIK is a robust technology with long endurance and minimal operational costs. A daily check of the LED system would be optimal, as well as a monthly manual cleaning of the module (to remove dust or fragments of detached biofilm, just a simple brush is enough).

Complete service. We will provide a solution that meets your needs and focus on both effectiveness and sustainability. Installation, commissioning and periodic maintenance (inspection) is provided to ensure an efficient performance of the technology. A regular microbiological monitoring of the water system is available.

CASE STUDY – GETEC Brökelmann

BerkeMOL®LIK technology was used at Brökelmann+Co in Hamm, Germany. The installation consists on a Ultrafiltration and Reverse Osmosis system for treating the boiler feed water. The maximum UF permeate flow is around 35 m³/h and is stored into a tank with a capacity of 10 m³.

To prevent biofouling and invest in a sustainable solution, the conventional biocide disinfection (DPNBA) of the RO system was replaced by a BerkeMOL®LIK module, installed upstream in the UF permeate tank. Via a control timer, the LED light exposure was programmed according to the water conditions, with a daily power consumption of 50 Wh/day.



The process resulted in a complete elimination of the biofouling without the usage of harmful chemicals. The costs dropped for the microbiological-related increase of the pump energy consumption of about 5000 KWh/year. In addition, the operator benefited from the complete absence of biocide by using a sustainable solution.

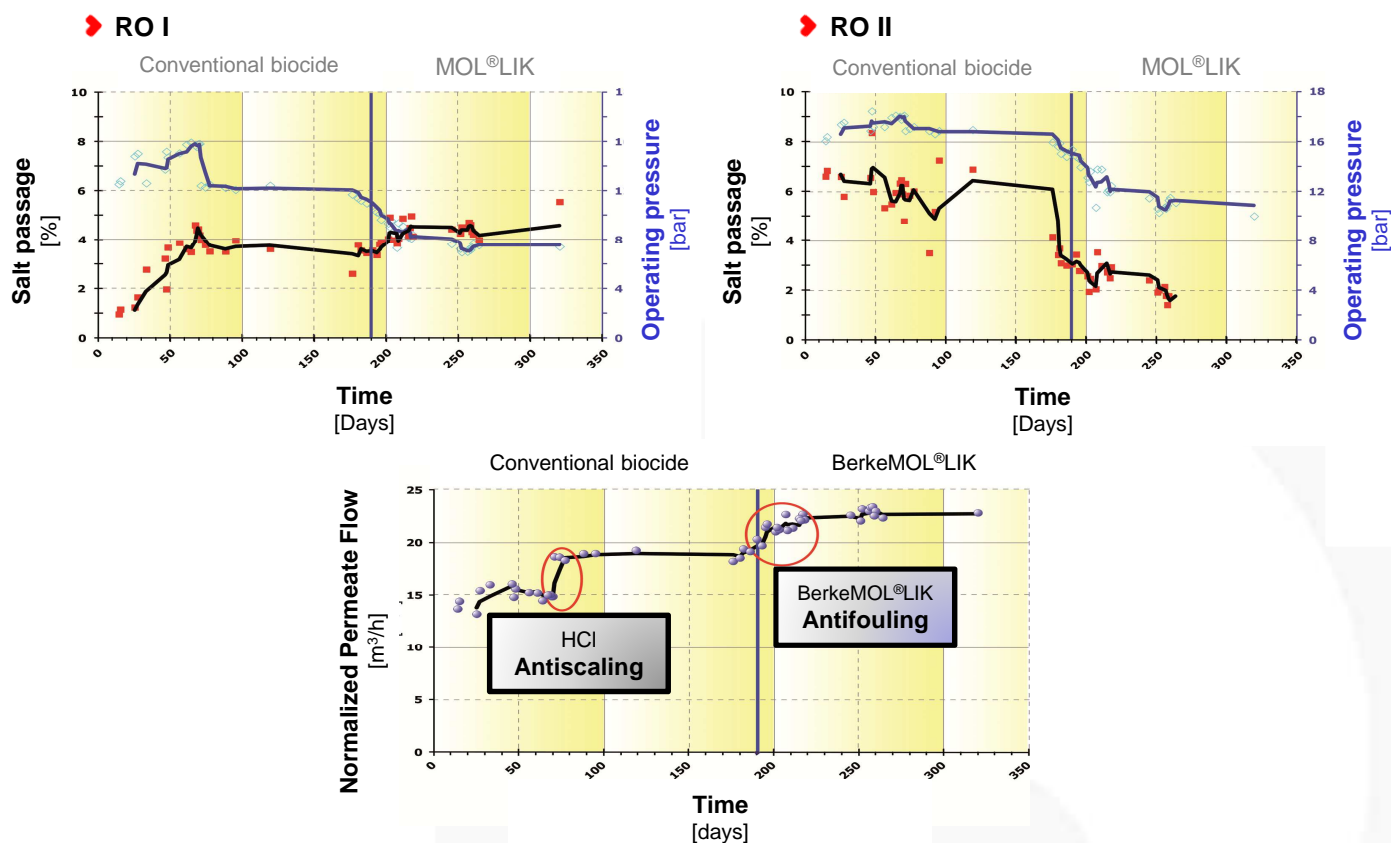


Practical experience

The efficiency of the BerkeMOL[®]LIK catalyst was tested and compared to the conventional biocide previously applied. A continuous monitoring of different operational parameters, as the differential pressure or the permeate flow was conducted and studied.

From these studies the following main conclusions could be drawn:

- ▶ Reduction on differential pressure with BerkeMOL[®]LIK
- ▶ Increase of permeate flow
- ▶ Extended running time (longer periods between CIP)
- ▶ No chemicals = No toxicity
- ▶ Decrease plant downtime



▶ Before

- Microbiological Impact on the energy demand (additional energy consumption 5000 kW/h year)
- High expenditure on biocides
- Chemical storage
- Health & Risk management

▶ After

- No microbiological impact on system
- 2000 Eur/year biocide depreciation
- Improvement of equipment performance
- Weekly inspection of BerkeMOL module
- SAFETY