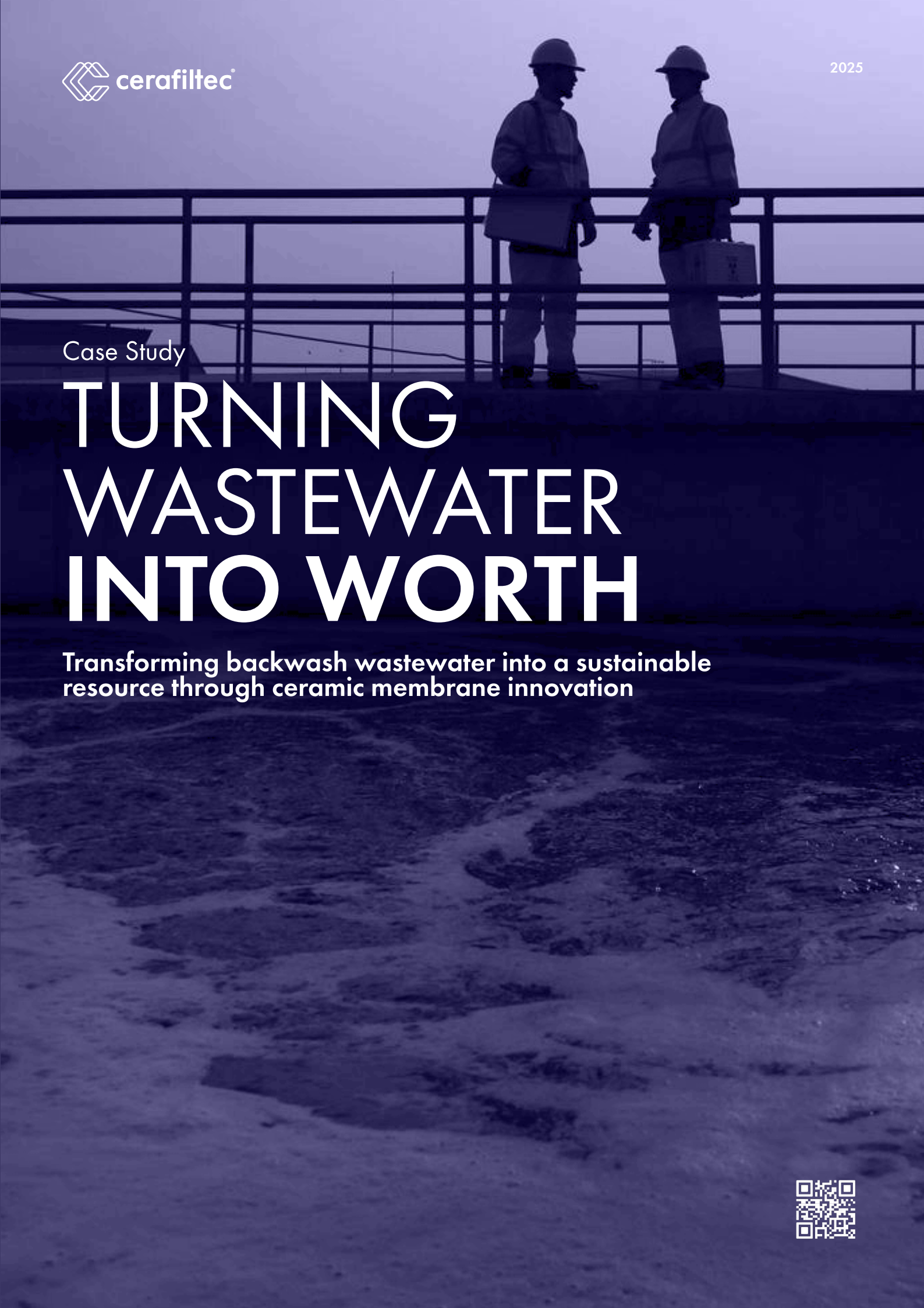
cerafiltec

2025



Case Study

TURNING WASTEWATER INTO WORTH

Transforming backwash wastewater into a sustainable resource through ceramic membrane innovation

ENGINEERING NEXT-GENERATION **WATER RECOVERY**

Across the globe, water scarcity challenges industries to rethink every drop. Cerafiltec's advanced ceramic ultrafiltration technology transforms backwash wastewater, which traditionally discarded as waste, into reusable, high-quality water. By applying robust ceramic plates in submerged out-in filtration systems, even streams with up to 10% TSS are effectively treated. This breakthrough enables a recovery rate of 99.7% for the whole system, paving the way toward Zero Liquid Discharge (ZLD) and sustainable water management.

Cerafiltec delivered a state-of-the-art ceramic ultrafiltration (UF) system to strengthen and protect the customer's reverse osmosis (RO) operation. The system treats 149,000 cubic meters of seawater per day (39.4 million gallons) from the Atlantic Ocean, making it the largest installations of its kind in the world.

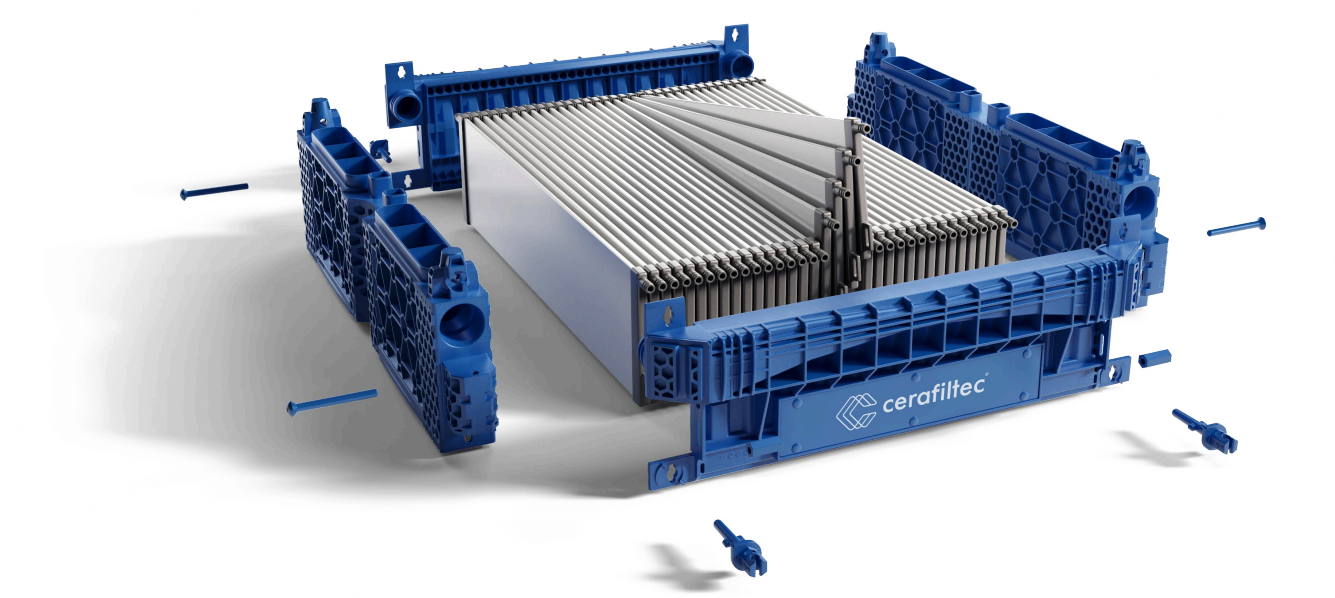
The setup includes over 5,000 ceramic modules arranged in 14 filtration trains, achieving a 94% recovery rate while ensuring a continuous supply of clean, high-quality water for RO treatment. The durable ceramic design resists fouling, allows for more aggressive cleaning, and avoids the common issues of polymeric membranes such as fiber breakage and complex maintenance.

Even in seawater with high algae content (Chlorophyll: 40 µg/l) and elevated total organic carbon (TOC), the system delivers outstanding clarity and consistency, reducing RO downtime and extending membrane lifespan.

Designed and delivered on a fast-track schedule, the project combined strong engineering, efficient project management, and local collaboration to meet tight deadlines without compromising reliability. The result is stable operation, simplified maintenance, and a new global benchmark for seawater pre-treatment performance

Key Facts

KPIs



Fact	Solution
Total Filtered water capacity	**99.7%**
Feed Water TSS Tolerance	**80K** ppm
Sludge drain TSS tolerance	**80K-100K** ppm
Design Flux	**100 LMh**
System Lifetime	**20+** years
Operational Sites	**Netherlands**
ZLD/MLD Capability	**Up to 70** MLD proven in pilot applications