



cleaning
systems
for liquids

Industrial Laundry Water Treatment

Workwear & Mats Industry

CaseStudy

Challenge: Increasing discharge requirements and operational instability

A global provider of workwear logistics and industrial laundry services aimed to modernize its wastewater treatment process in order to meet increasingly strict environmental discharge standards while improving operational reliability and reducing treatment costs.

The existing DAF-based treatment system was no longer able to consistently handle the demanding wastewater streams generated during the cleaning of industrial workwear and mats. Particularly challenging were wastewater streams containing:

- oils and grease (FOG)
- detergents and surfactants
- fine fibres and suspended solids

The fibre-heavy wastewater caused unstable discharge quality, increased chemical dependency, and high maintenance requirements.

Initial Situation

The existing dissolved air flotation (DAF) system was originally designed for conventional wastewater treatment but struggled with the increasing load and complexity of the wastewater streams.

To achieve reliable compliance with modern discharge standards, the customer decided to implement a new membrane-based treatment solution operating alongside the existing infrastructure.

The upgraded system needed to:

- improve effluent quality
- reduce operational effort
- stabilize treatment performance
- reduce chemical consumption
- ensure long-term operational reliability

The new treatment plant was designed for a treatment capacity of up to approximately 120 m³/day.

Requirements

- Reliable compliance with discharge limits
- Improved treatment of fibre-heavy wastewater
- Reduction of maintenance effort
- Reduced chemical dependency
- Stable automated operation
- Future-proof treatment concept

Project at a Glance

Upgrade of an industrial laundry wastewater treatment system for workwear and mats applications.

System Technology:

- Vibro screening
- Self-cleaning pressure filtration
- Ceramic microfiltration system
- Fully automated PLC control
- Remote monitoring
- Modular multi-loop design

System Performance:

- Treatment capacity up to ~120 m³/day
- Ceramic membrane area: 64 m²

Customer:

Global service provider in the field of industrial laundry and workwear logistics.

Contractor:

MKR Metzger GmbH
Rappenfeldstraße 4
86653 Monheim | Germany



MKR Solution

Belmar Technologies and MKR Metzger implemented a modern multi-stage membrane treatment system specifically designed for demanding industrial laundry wastewater applications. The treatment process starts with vibro screening technology to remove fibres, solids, and debris directly at the source and protect downstream components.

A self-cleaning pressure filtration stage reduces residual solids and minimizes membrane loading before the wastewater enters the ceramic microfiltration system.

The ceramic crossflow membrane technology reliably removes:

- oils and grease
- surfactants
- fine suspended solids

The fully automated system ensures stable operation with minimal operator intervention and significantly improved process reliability.

Results

- Reliable compliance with discharge standards
- Improved removal of oils, surfactants, and fibres
- Reduced chemical consumption
- Lower maintenance requirements
- Stable automated operation
- Reduced operator intervention
- Improved process reliability
- Future-proof wastewater treatment solution

Bottom Line

This project demonstrates how industrial laundry operations can move beyond conventional DAF treatment and adopt membrane-based systems to achieve higher performance, improved reliability, and consistent compliance.

