TEXTILES

Filtration service for Hydroentanglement quality improvement

A nonwovens manufacturer was suffering from lost production, but the root cause was unclear. A mobile filtration system installed after the onsite DAF cut freshwater make-up demand.



CLIENT
Nonwoven textile manufacturer

LOCATION
United Kingdom

SERVICE
Emergency: multi-media filtration for three months then a long-term 5.5 year agreement with additional O&M scope

DURATION
6 years

<1 NTU
PRODUCT WATER TURBIDITY

70–90%
TSS REMOVED BY DAF

6 Yrs
OUTSOURCED SERVICES SOLUTION

THE CHALLENGE

Lost production, time and revenue from material binding failures

A nonwoven textile manufacturer faced intermittent production failures because its hydroentanglement process did not adequately bond the base material to a high-value outer layer. Urgent action was needed, but the root cause was unclear amid several changes on site, including a new base material, new machinery and recent staff changes.

Ecolutia was asked to provide an emergency temporary solution so the existing system could be taken offline for investigation. Strict local discharge regulations added urgency to finding a permanent solution.

The site had to recycle wastewater containing high levels of organic

KEY DATA

Application
Recycle of hydroentanglement water

Industry
Textiles

Feed water source
Municipal and textile wastewater

Feed quality
50–150 NTU

fibres, turbidity of up to 150 NTU and a high risk of microbial growth. Water reuse in hydroentanglement and related wet processes requires turbidity below 1 NTU, zero ATP and water suitable for use in production of material that would be in contact with sensitive human skin.

THE SOLUTION

Media backwashed out, and a multi-barrier strategy to replace it

During the initial investigation Ecolutia engineers found that the activated carbon filter media had been inadvertently discharged during backwashing, leaving the customer's DAF the only filtration process. Within 24 hours, the Ecolutia team installed Ecolutia's mobile Proteus multi-media filtration system downstream of the DAF, establishing the cornerstone of a multi-barrier treatment strategy for reliable water recycling.

Dosing of suitable coagulation and flocculation using turbidity and TSS data, while controlling pH, was introduced as the first step to improve the DAF filtration. Despite changing solids loads the DAF quickly started removing 70–90% of TSS before the following multi-media filtration step.

Implementing a consistent regime of backwashing the Ecolutia multi-media filtration systems during shift changes also reduced product water turbidity to below 1 NTU. Continuous ATP monitoring confirmed zero microbial activity, while Ecolutia onsite engineers and remote monitoring technical teams managed the site operations 24/7.

TREATMENT FLOW PATH



THE RESULTS

Emergency support that became a long-term collaboration

The consistently favourable results from the emergency solution were quickly noted by the customer. The Ecolutia multi-media filter and operational regime improved production runs to be more consistent and longer, whilst also reducing freshwater make-up needs. Discussions soon started about a long-term Ecolutia deployment as operational, financial, and environmental benefits were easily evident.

- **Stable and reliable operation.** Automated controls and 24/7 monitoring ensured consistent water quality, eliminating process disruptions.
- **Cost savings.** Optimised chemical dosing, reduced personnel requirements, and decreased downtime lowered overall operational

Production flow rate
40 m³/h

Product water quality
<1 NTU, 0 ATP

Treatment flow path
DAF, multi-media filter

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costs.

- **Sustainability.** Significant reduction in freshwater use and wastewater discharge costs.
- **Process integrity.** Treated water met strict turbidity and microbial standards, enabling safe reuse.

The project combined advanced filtration technologies, process automation, proactive monitoring and skilled water chemistry knowledge to achieve its goal of producing consistent and reliable water quality for the customer. The collaboration resulted in a close working relationship for multiple years until site requirements ended.

RECYCLING PROCESS WATER?

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