



Textile Effluent Recycle, India

Location: Rajasthan, India

Model: Q-SEP 6008

Capacity: 25 m³/hr

Number of Membranes: 10

Application: Wastewater Recycle for Dye House

Project Overview

The customer is a vertically integrated textile mill that manufactures man-made synthetic blended yarn, wool yarn, all type of fabrics, jacquard furnishing fabrics, along with the production of ready-made garments and technical fabric. The customer is one of the largest single-mill-setups in Asia producing spun fiber-dyed yarns, and is ISO 9001:2008 and ISO 14001:2004 certified by the Bureau of Indian Standards.

An existing effluent treatment plant was not meeting the customer's requirements for the recycle and reuse of textile effluent water for process purposes.

Concerns With Previous Effluent Treatment

- Removal of BOD, COD, color and TDS to the desired norms of the pollution control board - was not possible with the existing effluent treatment configuration.
- Water recycle/reuse was not an option in previous scheme because of the treated effluent quality.
- Disposal of treated effluent was not easy and required huge area within the premises.

QUA Solution

QUA supplied Q-SEP 6008 ultrafiltration modules as part of a water treatment system that includes equalization, flash mixing, flocculation, clarifier, rapid sand filter, holding tank, MGF, ACF, Q-SEP ultrafiltration, and reverse osmosis.

A Q-SEP system with a treatment capacity of 25m³/hr was installed as pretreatment to the RO for the removal of turbidity from the effluent. This also achieved a low silt density index (SDI) for enhanced performance of RO, which was not achievable through the conventional method of media filtration.

Q-SEP was able to exceed performance expectations due to the membranes' manufacturing by the innovative Cloud Point precipitation process. The membranes were able to maintain a higher operating flux with low Transmembrane Pressure (TMP), and had pores that were prone to less clogging. This allowed for better operating efficiency, along with effective backwash cycles.

Project Profile

Textile Effluent Recycle, Rajasthan, India Ultrafiltration Membranes (Q-SEP®)

Q-SEP Ultrafiltration Reduced Water Footprint and:

- Recycled wastewater for production, reduced fresh water consumption, and reduced the quantity of effluent for final disposal
- Improved treated effluent quality, suitable for RO feed
- Prolonged the life of RO membranes by reducing CIP frequency as a result of improved quality of RO feed water
- Reduced the cleaning frequency of RO membranes to **one-sixth**
- Provided continuous and enhanced performance of RO membranes

Waste stream parameter (Equalization Tank Inlet)

| | Unit | Value |
|-----|--------|-------------|
| pH | | 8 - 9 |
| TDS | mg/lit | 2000 - 2500 |
| TSS | mg/lit | 500 - 1000 |
| COD | mg/lit | 800 - 1200 |

UF Product Parameter

| | Unit | Value |
|-----------|--------|-------------|
| pH | | 8 - 8.5 |
| TDS | mg/lit | 2000 - 2500 |
| Turbidity | NTU | < 0.2 |
| SDI | | 1.5 to 2.0 |

UF Operational Parameter

| | Unit | Value |
|----------------|--------------------|------------|
| Flow Rate | m ³ /hr | 25 |
| No. of Modules | | 10 |
| TMP | kg/hr | 0.7 to 0.9 |