

CASE STUDY

RO | UF | MBR | CHEMICALS

Wastewater Reuse
Mansfield, United Kingdom



Toray RO Supports Quality and Sustainability in Textile Manufacturing by Purifying and Recycling Water



Figure 1 : Toray Textiles Europe Limited (TTEL)

PROJECT OVERVIEW

Toray Textiles Europe Limited, located in UK, is a leading manufacturing company supplying into apparel, medical, automotive, lamination, interiors, industrial & technical textile sectors. Water jet weaving technology is used to produce lightweight textiles and requires specific water quality to achieve efficient processing efficiency and product quality. This is achieved by recovering 65% of process water and blending with new raw borehole water before using Toray RO to successfully produce high quality recycled water.

BACKGROUND

At the inception of the weaving & dyeing factory design, a Toray RO membrane system was selected to ensure excellent water quality for the manufacturing process and to comply with ever tightening environmental regulation regarding water usage. The site is situated on top of an old coal mine from which the company extract borehole water for use in weaving and dyeing. As this borehole water contains calcium carbonate, iron, and organic matter, it required treatment to remove these impurities, making the membrane system an ideal technology to achieve required water specification.



Coaters / Laminators



Automotive



Medical / Surgical

Figure 2 : Textile Products of TTEL

Table 1 — Quick Facts

Client	Toray Textiles Europe Limited (TTEL)
Location	Mansfield, Nottinghamshire, United Kingdom
Operation start	1992
Production capacity	3,024 m ³ /d
Toray Product model	Toray RO SU-series
Application	Wastewater reuse in the textile industry

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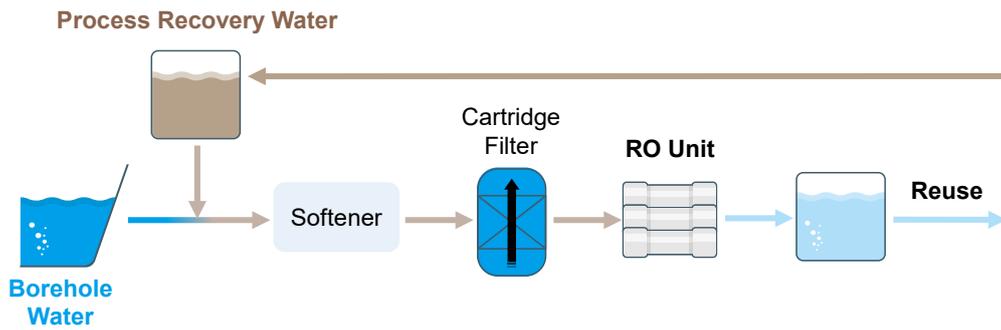


Figure 3 : Process Flow

Table 2 — Target Characteristics

	Raw Wastewater	RO Permeate
Water Temperature (°C)	14°C	
pH	7.65	6.80
Capacity (m ³ /d)	3,120	3,024
Hardness (ppm)	250	n / a
SDI	n / a	0.15
Conductivity (µS/cm)	720.0	7.4
Color	Clear	Clear

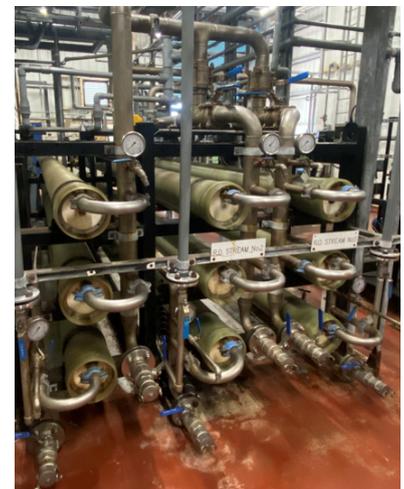


Figure 4 : RO Unit

RESULT

Thanks to TTEL's proper operation and maintenance, the Toray RO system has been running smoothly since its installation in 1992 without major issues in water quality or operational performance. The initial membranes were exchanged in 2001, and since then, the RO system has continued to deliver long-term reliability up to the present day.

CUSTOMER VOICE

We are highly satisfied with the quality and long-term durability of the Toray RO system and would recommend it to similar textile processing operations. Furthermore, the RO-treated recycled water can be reused not only in the water jet weaving process but also as boiler feedwater, supporting our sustainable business operations.

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