



Extra Fouling Resistant Membranes Enables the Reuse of Textile Industry Wastewater in Turkey



DOW FILMTEC™ extra fouling resistant RO membranes enable the production of cooling tower make-up from textile industry wastewater.

Fast Facts

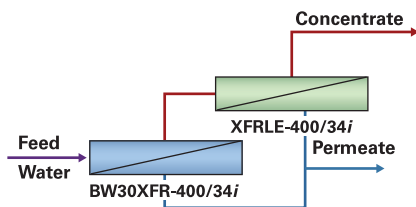
Location:	Lüleburgaz–Kırklareli, Turkey	Water Source:	Textile Plant Wastewater
Construction:	EKE Ltd.	Installed RO Capacity:	4,500 m ³ /day RO permeate flow
End-user:	Zorlu Holding A.Ş.	Start-Up Date:	November 2011
Purpose:	Cooling tower make-up water for combined cycle power plant		

Raw Water Quality and Specified Product Water Quality

Parameter	Unit	RO Feed Water	Specified RO Permeate Water
Temperature	°C	24 – 32	24 – 32
Silica (SiO ₂)	mg/L	40	< 5
Chloride (Cl ⁻)	mg/L	671	< 50
TDS	mg/L	3709	< 200

Reverse Osmosis System Design Information

- Average System Flux: 18.5 l/mh
- RO System Recovery: 73%
- Number of Trains: 2 + 1 (stand-by)
- DOW FILMTEC™ extra fouling resistant (XFR) reverse osmosis (RO) membranes selected
- Optimized plant design with mixing BW30XFR-400/34*i* and XFRLE-400/34*i* membranes in different stages
- Pilot trial prior to start-up with the chosen membrane elements met all required specifications and performed particularly well with regards to fouling resistance.



System Information

Stage	Number of Pressure Vessels	Membrane Elements/PV	Membrane Element Type	Total Number of Elements
First Stage	27 (3x9)	7	BW30XFR-400/34 <i>i</i>	189
Second Stage	12 (3x4)	7	XFRLE-400/34 <i>i</i>	84

Flow Diagram of the Plant

