

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

FILMTEC™ XFR (Extra Fouling Resistant) Elements enable the production of cooling tower make-up from textile industry wastewater.



Fast Facts

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| Location | Lüleburgaz-Kırklareli, Turkey |
| Construction | EKE Ltd. |
| End-user | Zorlu Holding A.S. |
| Purpose | Cooling tower make-up water for combined cycle power plant |

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|-----------------------|--|
| Water Source | Textile Plant Wastewater |
| Installed RO Capacity | 4,500 m ³ /day RO permeate flow |
| Start-up Date | November 2011 |

Raw Water Quality and Specified Product Water Quality

| Parameter | Unit | RO Feedwater | 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 |

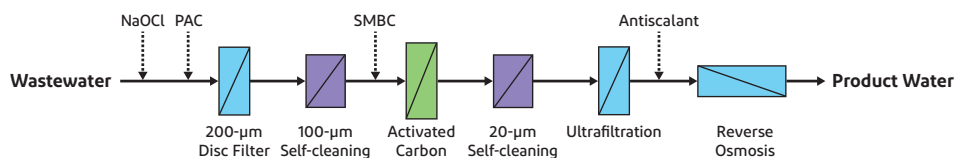
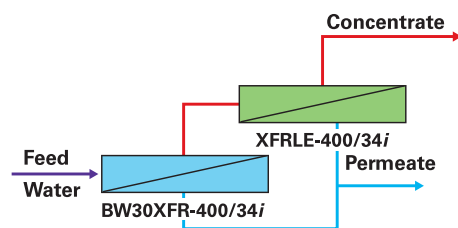
Reverse Osmosis System Design Information

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

System Information

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

Flow Diagram of the Plant



Have a question? Contact us at: dupont.com/water/contact-us

