



FILMTEC Membranes

Water Chemistry and Pretreatment: Colloidal and Particulate Fouling Prevention

Design and Operational Considerations

The prevention of colloidal fouling is not only a matter of the proper pretreatment selection, but also of the system design and operation. As an extreme example, surface water could be pretreated by coagulation-flocculation and ultrafiltration. The RO system could then operate with a high permeate flux, and almost no cleaning would be required. If the same water, however, is just filtered with cartridge filtration, then the RO system would need much more membrane area, and more frequent cleaning and maintenance would be required. A poor pretreatment process can be partially compensated for by adding more membrane area and modifying the system (see *System Design, Section 3*), and by more frequent and/or harsh cleaning. On the other hand, improving the pretreatment system means lower membrane costs.

To minimize the pretreatment effort and/or improve the feed water quality, the best available raw water quality should be used. The location of the intake of surface water, including seawater, is of paramount importance. Contamination of the raw water with waste water effluent may cause serious problems in the RO plant. A deep well close to the shore or the river is preferred. If an open intake is required, it should be located well away from the shore and some meters below the water surface.

New wells often release suspended matter in the first days of operation. Care must be taken that wells are properly rinsed out. Fouling by iron oxide is also a common problem. It can be avoided by selecting non-corrosive materials - see [Materials of Construction, Corrosion Control \(Section 3.14\)](#).

FILMTEC™ Membranes

For more information about FILMTEC membranes, call the Dow Liquid

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Notice: The use of this product in and of itself does not necessarily guarantee the removal of cysts and pathogens from water. Effective cyst and pathogen reduction is dependent on the complete system design and on the operation and maintenance of the system.

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