

**HIGH-EFFICIENCY FILTRATION AS PRETREATMENT  
TO MEMBRANE-BASED DEMINERALIZATION SYSTEMS**

Jason Fues

Nalco Company

**ABSTRACT**

Reverse osmosis (RO) has become a common method to demineralize water for a variety of applications. A successful RO system requires not only a good design but also appropriate pretreatment to minimize fouling of the membranes with suspended solids. High-efficiency filtration is a technique typically used in cooling tower systems remove particles down to a 0.50 - 0.25-micron size level. This level of filtration is very effective in removing the majority of suspended solids in cooling water applications to minimize corrosion, deposition and decrease operational costs. The success of these filters in removing sub-micron particles in cooling water systems, might point to success in RO pretreatment applications as well to minimize the potential for fouling the membrane with these small particles. This paper investigates the use of high-efficiency filtration as pretreatment to RO systems to remove suspended solids and minimize fouling of the RO membranes.