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Performance of ultrafiltration plants in France

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ABSTRACT

The demand for high quality municipal potable water is booming all over the world, especially in France where there is an additional requirement for virus reduction that can be satisfied with the use of ultrafiltration (UF) membranes. Many of these advanced treatment plants have been awarded, and are using capillary UF membrane technology, such as the HYDRAcap UF membrane as part of the treatment process. Plant output from these installations ranges from 1000 m^3/d to 150,000 m^3/d and they treat different types of feed waters (mainly surface water and ground water), typically high turbidity values. Capillary UF is usually used as a final treatment step to successfully remove viruses, bacteria and the finest particles. The removal rating depends upon the pore size of the active layer of the membrane; for example HYDRAcap UF, has approximately 0.02 μm pore size. This paper will present the current and future trends regarding the use of UF in treatment plants in France. In particular, detailed design and commissioning data for two different plants will be presented. One site is a medium-scale operating plant for potable water use. The high quality of feed water enables the system to run at high fluxes, as we have also demonstrated at many other sites. Secondly, a small scale plant will be described; this plant can also run at high fluxes, but is subject to high concentrations of iron in feed water, which requires frequent cleanings at low pH. In both cases, UF performance data, including flux, transmembrane pressure, backflush trends and fiber integrity will be presented in order to have a clear picture of the potential of the plant.

Keywords: Ultrafiltration; Performances; Surface water; High permeability; High integrity

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