

## Abstract

Sodium hypochlorite is widely used to clean/sanitize PES/PVP membranes. However, this strong oxidant is responsible for accelerated polymer ageing, thus impairing PES/PVP membrane lifespan. This work aimed at getting a better understanding of the role of PVP in the degradation of PES/PVP membranes. As the precise chemical composition of commercial membranes is most often unknown, PES/PVP membranes with various PVP to PES ratios (from 0 to 44 wt%) were synthesized and aged dynamically by filtering sodium hypochlorite solutions. PVP oxidization and partial disappearance from the membrane matrix was observed whatever the membrane composition. Moreover, PES-chain scissions were put in evidence even for pure PES membranes, thus highlighting that PES degradation was not systematically related to the presence of PVP. Conversely, PES hydroxylation was observed only for membranes containing PVP, the hydroxylation rate being dependent on the PVP content. Interestingly, the occurrence of PES-chain scissions impacted the membrane filtration performance while no correlation was found between the PES hydroxylation rate and the filtration performance.