Desalination and Water Treatment
www.deswater.com

doi: 10.1080/19443994.2014.982955

53 (2015) 1559–1564
February

Taylor & Francis
Taylor & Francis Group

Novel polytetrafluoroethylene tubular membranes for membrane distillation

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Received 8 October 2014; Accepted 27 October 2014

ABSTRACT

This paper deals with the preparation of novel polytetrafluoroethylene (PTFE) membranes from an aqueous dispersion of fluorinated polymer and a pore forming agent (PFA) sintered onto the outer surface of a porous tubular support. Different membranes were obtained by varying the ratio between PTFE and PFA in the starting dispersion as well as the number of dispersion layers sintered on the support. Membranes were characterized through scanning electron microscopy and gas–liquid displacement porosimetry. Distillation tests of the membrane were carried out on a laboratory scale unit fed with a NaCl solution. The characteristics and performance of the membranes were compared with those of commercial porous PTFE tubulets.

Keywords: Polytetrafluoroethylene; Hydrophobic membrane; Membrane distillation

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Presented at the conference Engineering with Membranes—Towards a Sustainable Future (EWM 2013), Saint-Pierre d'Oléron, France, 3–7 September 2013