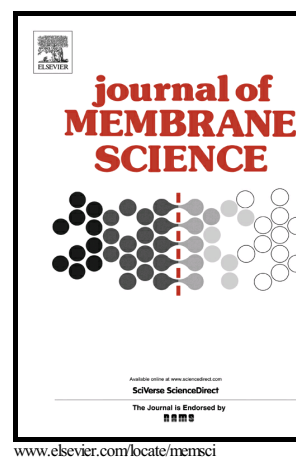


Author's Accepted Manuscript

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PII: S0376-7388(15)30037-5
DOI: <http://dx.doi.org/10.1016/j.memsci.2015.07.009>
Reference: MEMSCI13828

To appear in: *Journal of Membrane Science*

Received date: 6 May 2015
Revised date: 1 July 2015
Accepted date: 2 July 2015

Cite this article as: Jorge Garcia-Ivars, Maria-Isabel Iborra-Clar, Maria-Isabel Alcaina-Miranda and Bart Van der Bruggen, Comparison between Hydrophilic and Hydrophobic metal nanoparticles on the phase separation phenomena during formation of asymmetric polyethersulphone membranes, *Journal of Membrane Science*, <http://dx.doi.org/10.1016/j.memsci.2015.07.009>

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Comparison between hydrophilic and hydrophobic metal nanoparticles on the phase separation phenomena during formation of asymmetric polyethersulphone membranes

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ABSTRACT

Inorganic nanoparticles have been applied as additive in membrane synthesis for improving different properties from the base polymer such as hydrophilicity, fouling resistance or permselectivity. To investigate the changes caused by the presence of the inorganic nanoparticles in the formation of the membrane structure, two different metallic compounds with opposite hydrophilicity were used as additives: hydrophilic zinc oxide (ZnO) and hydrophobic tungsten disulphide (WS₂). For this purpose, the effect of these metal nanoparticles at ultra-low concentrations (0.05 and 0.25 wt% metal nanoparticles/polymer ratio) in the preparation of flat-sheet membranes based on polyethersulphone (PES) by immersion-precipitation method was investigated. N-methyl-2-pyrrolidone (NMP) was used as solvent. The influence of both metal

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