

Interactive comment on “Preparation of TFC Membranes Supported with Electrospun Nanofibers for Desalination by Forward Osmosis” by Mustafa Al-Furaiji et al.

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Dear reviewer,

Thank you so much for your time and efforts to come up with these valuable comments to improve the quality of our manuscript. The following are our answers to your concerns.

line 11 and line 29 suggests that FO is less energy consuming compared to other desalination technologies. This is in fact not true: FO is producing a diluted draw solution. Another treatment technology is required to produce fresh water from the diluted draw

C1

solution and to recycle the original draw solution. This downstream technology will be probably RO and will consume about the same amount of energy as conventional desalination. FO as such produces only a useless saline stream.

Answer: We agree with the reviewer in that FO process requires another step in recycling the draw solution to become a useful process. However, it is not necessary to use RO process to recycle the draw solution. We used NaCl as a draw solution because it acts as a model draw solution for most of the FO researches and to make a comparison with others works. Different processes –other than RO- can be used to separate the draw solution: 1. Magnetic separation for magnetic nanoparticle draw solutions 2. Heating for NH₃-CO₂ draw solution 3. Ultrafiltration for nanoparticles-based draw solution 4. Precipitation for Al₂(SO₄)₃ draw solution 5. Nanofiltration for MgSO₄ and Na₂SO₄ draw solutions 6. Membrane distillation for NaCl, KCl, MgCl₂ draw solutions Nevertheless, some draw solutions can be used directly after dilution in the FO process such as fertilizer and glucose draw solutions. For more details, please see the following document: Long, Q.; Jia, Y.; Li, J.; Yang, J.; Liu, F.; Zheng, J.; Yu, B. Recent Advance on Draw Solutes Development in Forward Osmosis. Processes 2018, 6, 165.

line 128 mention dimensions in inches. Please use metric units.

Answer: We changed the dimensions to metric units

line 152: 'Also, it can be seen that polyamide selective membrane was successfully formed...' Please explain how this can be concluded from this photo.

Answer: It can be seen from the SEM image after the IP reaction that it has a leaf-like morphology compared to the PAN support layer which has nanofibrous structure. It has been reported in the literature that the leaf-like structure confirms the formation of the polyamide selective layer.

line 154: please justify by references that the contact angle is 'extremely' low. Also figure 6 can be deleted. Just mention the measured contact angle.

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Answer: The word 'extremely' has been removed from the text. Figure 6 was deleted according to the reviewer's recommendation.

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