

### **List of Supplementary Figures**

- Figure S1. Determination of molecular weight cut-off (MWCO) of PSF substrate based on neutral solute rejection profile
- Figure S2. FTIR spectra of (a) TFC, (b) TFN<sub>aq-0.05</sub> and (c) TFN<sub>cyclo-0.05</sub>
- Figure S3. FTIR spectra of the interaction between NH<sub>2</sub>-TNTs and TMC monomer
- Figure S4. TGA curves of TFN<sub>cyclo-</sub> and TFN<sub>aq-</sub> membrane
- Figure S5. 3D AFM images of the membrane top surface together with surface roughness values,  $R_q$  (root mean square of z data),  $R_a$  (mean roughness) and  $R_z$  (mean difference in the height between the five highest peaks and the five lowest peaks), (a) TFC, (b) TFN<sub>aq-0.05</sub> and (c) TFN<sub>cyclo-0.05</sub>. All surface roughness values are in nm.

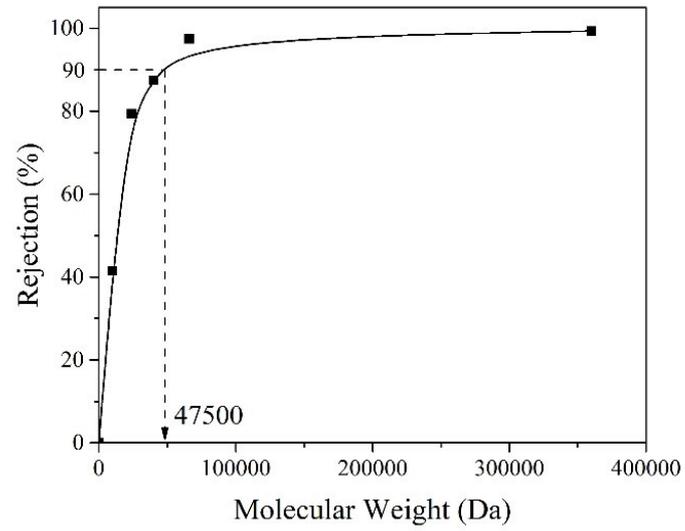


Figure S1. Determination of molecular weight cut-off (MWCO) of PSF substrate based on neutral solute rejection profile

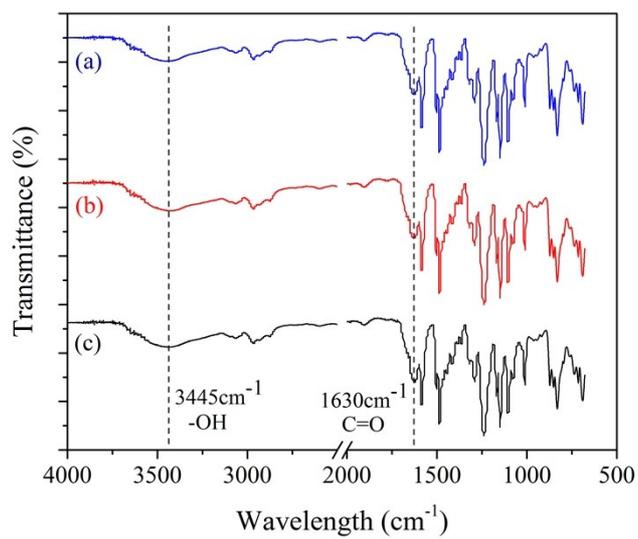


Figure S2. FTIR spectra of (a) TFC, (b) TFN<sub>aq-0.05</sub> and (c) TFN<sub>cyclo-0.05</sub>

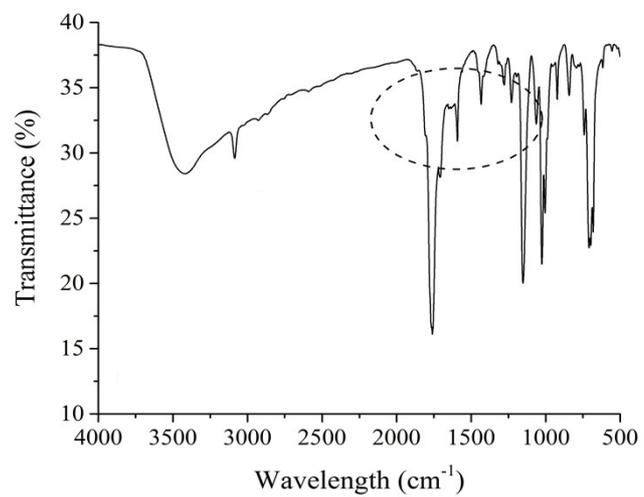


Figure S3. FTIR spectra of the interaction between NH<sub>2</sub>-TNTs and TMC monomer

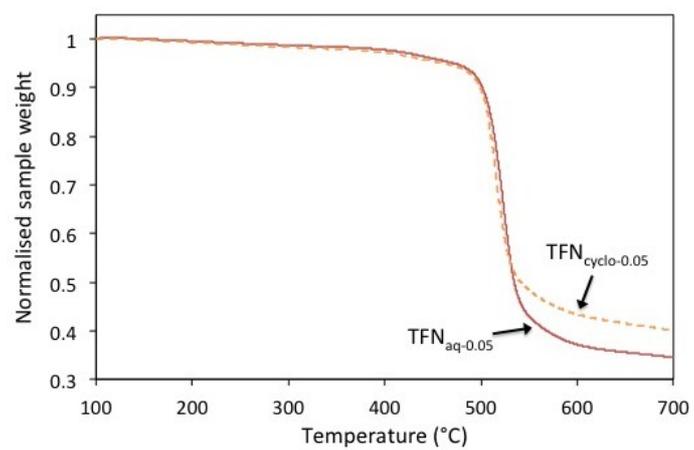


Figure S4. TGA curves of TFN<sub>cyclo-</sub> and TFN<sub>aq-</sub> membrane

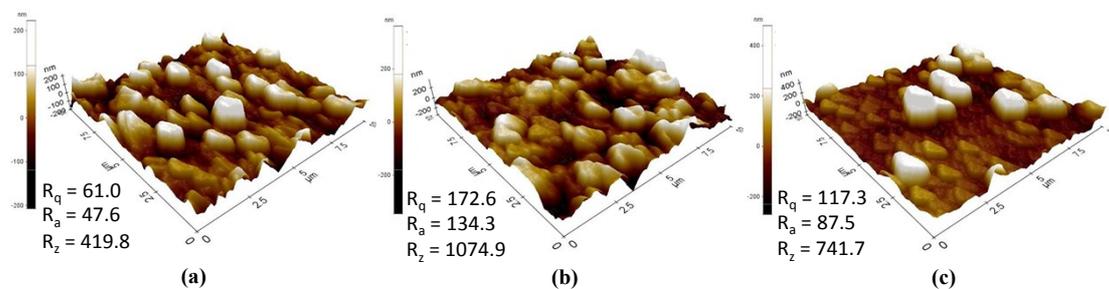


Figure S5. 3D AFM images of the membrane top surface together with surface roughness values,  $R_q$  (root mean square of  $z$  data),  $R_a$  (mean roughness) and  $R_z$  (mean difference in the height between the five highest peaks and the five lowest peaks), (a) TFC, (b) TFN<sub>aq-0.05</sub> and (c) TFN<sub>cyclo-0.05</sub>. All surface roughness values are in nm.