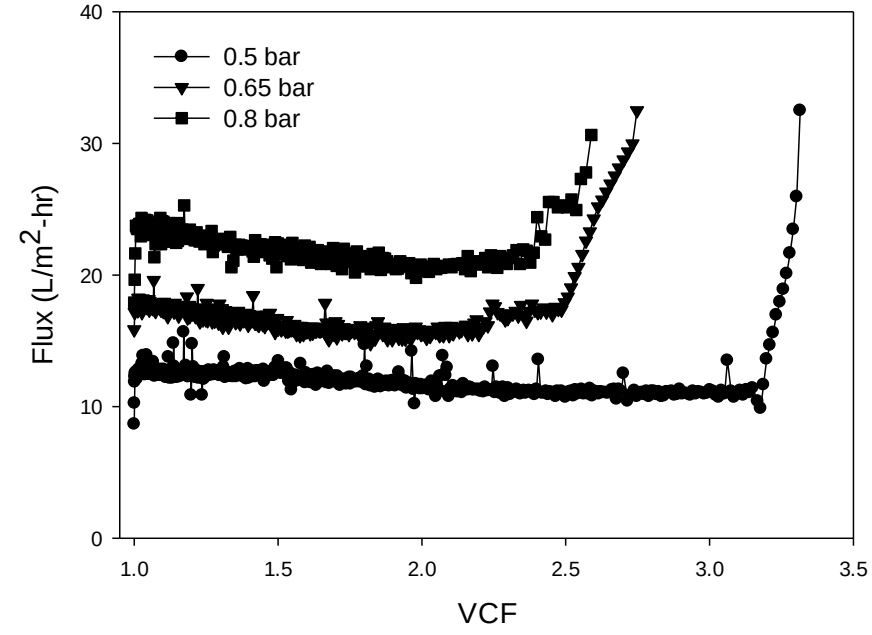
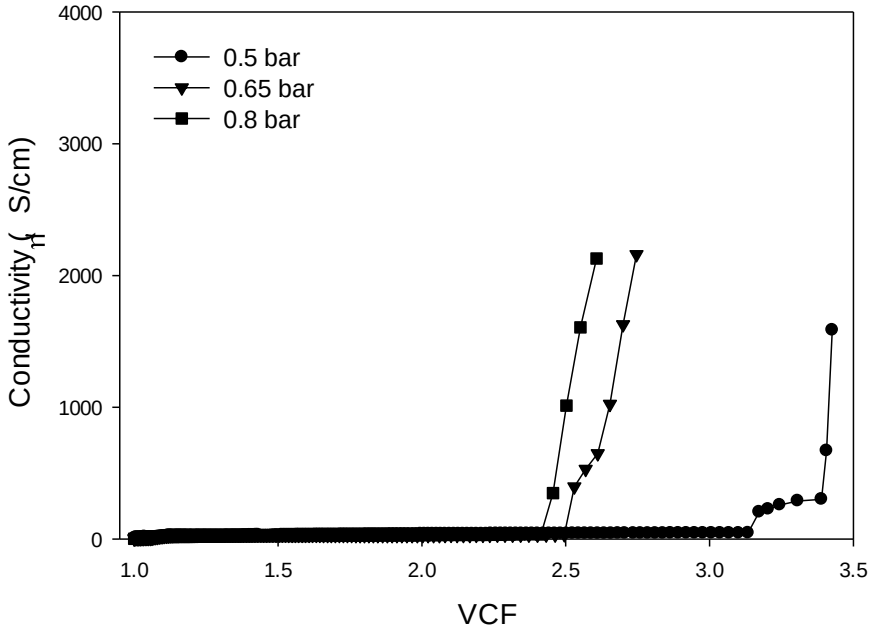


(a)



(b)

Fig. S1. Dependence of flux and permeate conductivity on VCF in V-AGMD process with PAC adsorption under different vacuum pressures. (Conditions: feed temperature; 60^{o}C; coolant temperature; 20^{o}C, feed flow rate; 600 mL/min; vacuum pressure, 0.5 ~ 0.8 bar; feed solution: NaCl 50,000 mg/L and SDS 3 mg/L; PAC dose, 0.6 g). (a) flux (b) permeate conductivity.

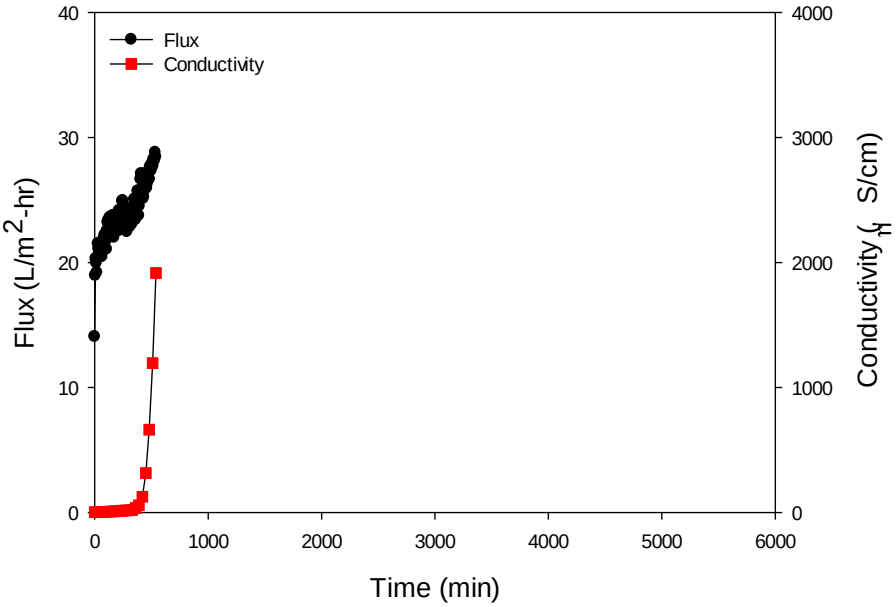
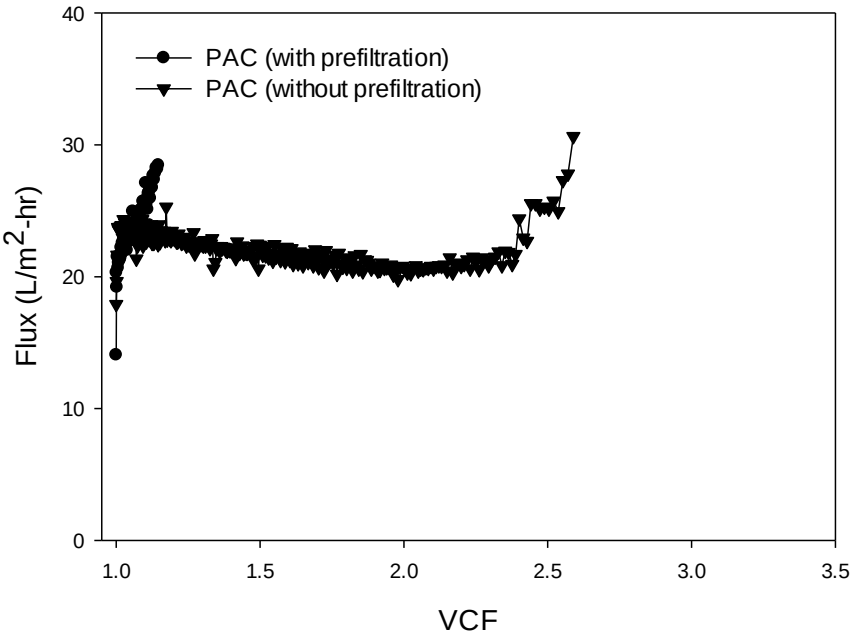
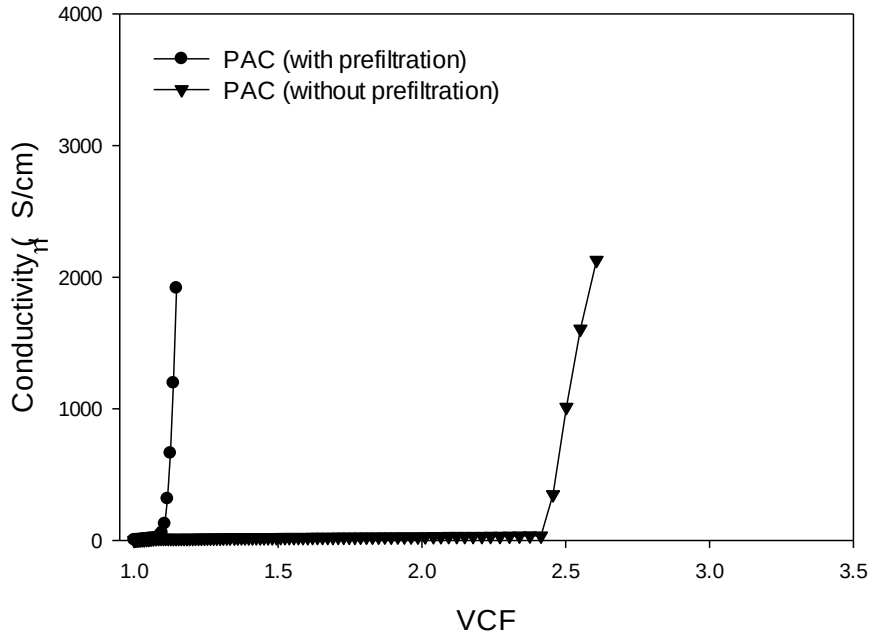


Fig. S2. Dependence of flux and permeate conductivity on time in V-AGMD process with PAC adsorption and prefiltration (Conditions: feed temperature; 60°C; coolant temperature; 20°C, feed flow rate; 600 mL/min; vacuum pressure, 0.8 bar; feed solution: NaCl 50,000 mg/L and SDS 3 mg/L;

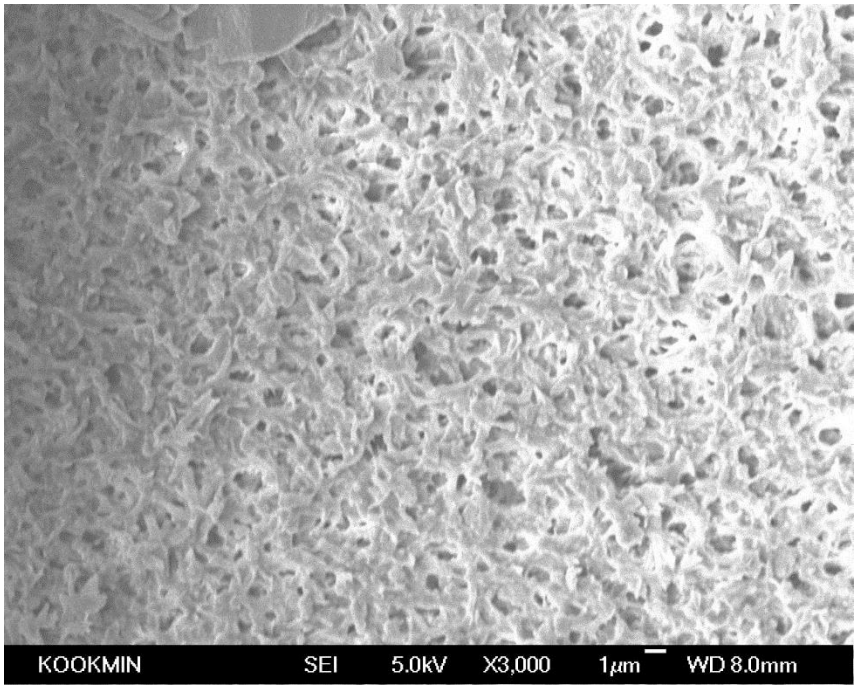


(a)

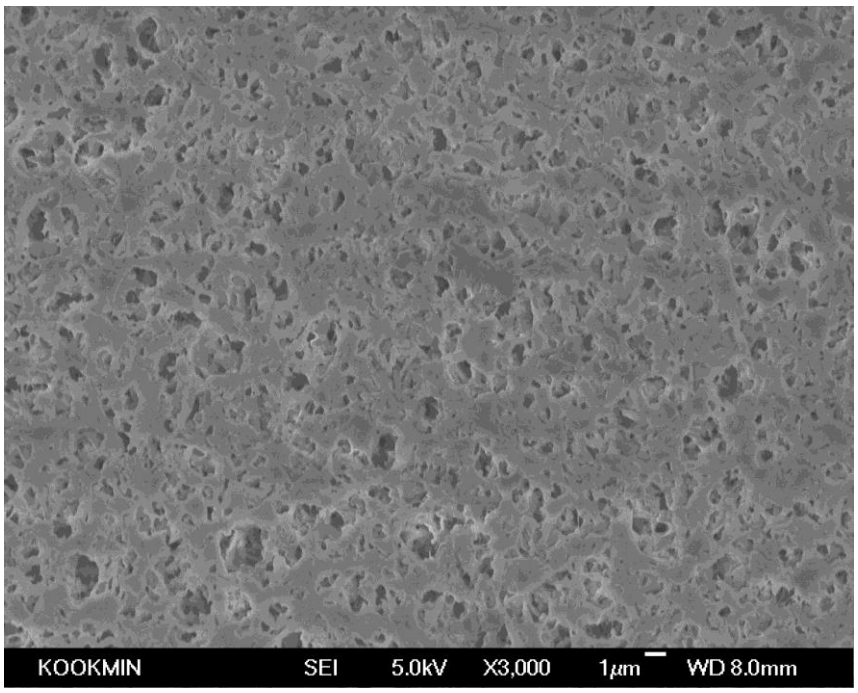


(b)

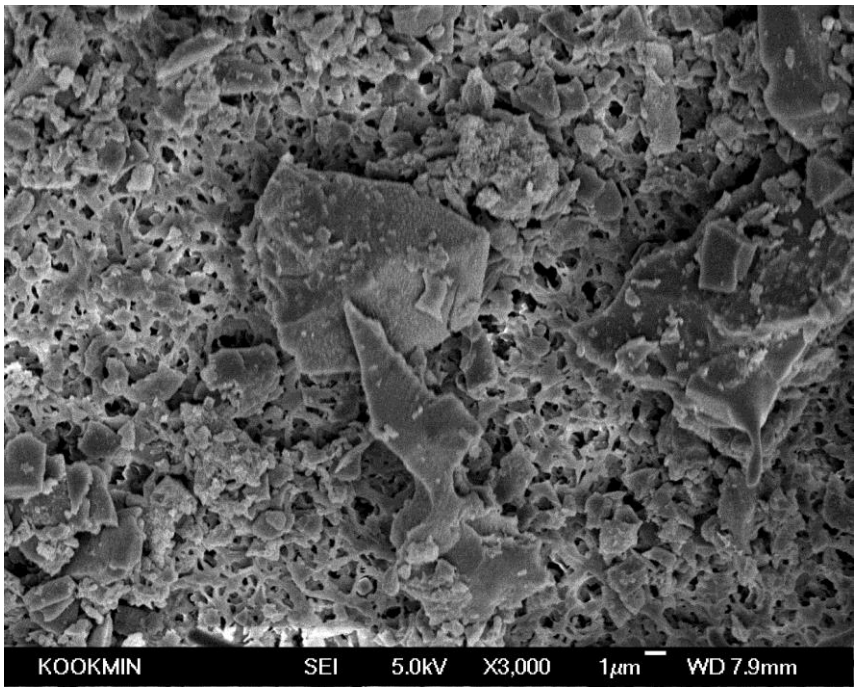
Fig. S3. Dependence of flux and permeate conductivity on VCF in V-AGMD process with different PAC adsorption methods. (Conditions: feed temperature; 60^{o}C; coolant temperature; 20^{o}C, feed flow rate; 600 mL/min; vacuum pressure, 0.5 bar; feed solution: NaCl 50,000 mg/L and SDS 3 mg/L; PAC dose, 0.6 g). (a) flux (b) permeate conductivity.



(a)

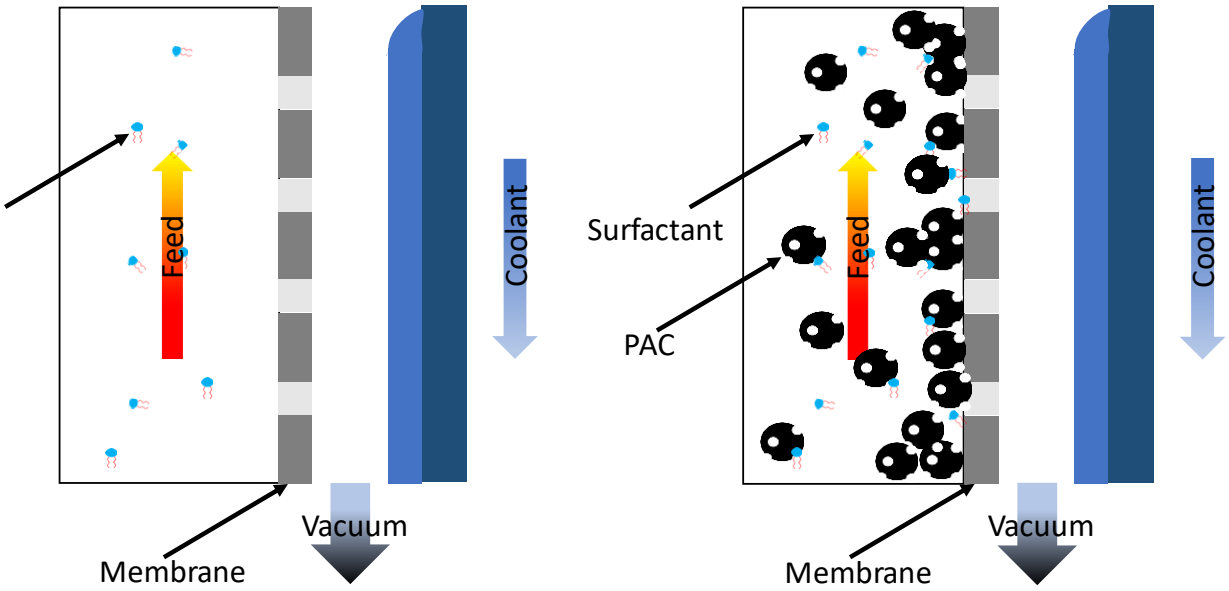


(b)



(c)

Fig. S4. SEM images of (a) intact membrane, (b) membrane used in V-AGMD operation with the prefiltration of PAC (c) membrane used in V-AGMD operation without PAC prefiltration.



(a) (b)

Fig. S5. Mechanisms of wetting control by PAC addition in V-AGMD process (a) V-AGMD without PAC, (b) V-AGMD with the PAC addition (no prefiltration).