



## Enhancing antifouling property of commercial polyamide reverse osmosis membrane by surface coating using a brush-like polymer containing poly (ethylene glycol) chains

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### ABSTRACT

To enhance fouling resistance, the commercial polyamide reverse osmosis (RO) membrane was coated using a brush-like polymer containing poly (ethylene glycol) chains. The membrane properties, including hydrophilicity, charge and roughness, were improved after surface modification. The coated and uncoated RO membranes were characterized by attenuated total reflectance fourier transform infrared spectroscopy (ATR-FTIR), scanning electron microscopy (SEM), atomic force microscopy (AFM), static contact angle (CA) and streaming potential. The pure water flux and salt rejection of RO membranes before and after surface coating were measured. Moreover, the fouling experiments were performed using simulated foulants including protein, cationic surfactant and colloidal solution. The results indicated that the coated RO membrane exhibited better resistance compared to that of uncoated membrane.

*Keywords:* Reverse osmosis membrane; Surface coating; Poly (ethylene glycol); Antifouling; Hydrophilicity; Charge property; Surface roughness

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