

Abstract Submitted  
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**New type of Reverse Osmosis Membrane via Layer-by-Layer Assembly Process** JUNWOO PARK, JOONA BANG, JEONGJU PARK, JINHAN CHO, DEPARTMENT OF CHEMICAL & BIOLOGICAL ENGINEERING TEAM, SCHOOL OF ADVANCED MATERIALS ENGINEERING TEAM — As to the commercial RO membranes for desalination, the polyamide (PA) based membranes have been widely used so far. However, they still have limitations, such as low permeability, bio-fouling, etc. In this work, we propose new types of polyelectrolyte-membranes which can overcome such problems. The membranes were designed by layer-by-layer (LbL) method using polyelectrolytes, including poly(allylamine hydrochloride), poly(styrene sulfonate), poly(acrylic acid), etc. Individual layers were adjusted by pH condition and number of deposition. The resulting multi-layered membranes were crosslinked by heat to provide the good durability. The morphologies were characterized by FE-SEM and AFM and the salt rejection was monitored by ion chromatography. By optimizing the membrane structures, we found that the water permeability was enhanced, while the salt rejection was as efficient as RO membranes. We believe that these results can provide the new protocol to design the advanced RO membrane.

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