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Abstract

Polymer hollow fibers have great potential as cost-effective scalable substrates for the practical applications of highly propylene-selective ZIF-8 membranes. We report ultrathin ZIF-8 membranes supported on porous Matrimid® polymer hollow fibers via microwave-assisted seeding and microfluidic secondary growth. Densely-packed ZIF-8 seed layers were rapidly prepared on polymeric hollow fibers under microwave heating. The seed layers were then secondarily grown into well-intergrown ZIF-8 membranes under the continuous flow of the growth solution. The effects of synthesis parameters on the microstructures of ZIF-8 seed crystals were systematically studied. The resulting ZIF-8 membranes were characterized with XRD and SEM, showing well-intergrown ZIF-8 films formed on the bore of hollow fibers. The