

프로필렌/프로판 분리를 위한 하이브리드 분리막
분자 구조 제어

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Polymeric membranes incorporated with homogeneously distributed nanoparticles, referred to as mixed matrix membranes (MMMs), are an attractive platform for olefin/paraffin separations due to the dual advantages of processability and molecular size/shape-sieving ability. Such beneficial properties of MMMs, however, can be realized by highly delicate engineering of molecular structures. Also, a better understanding of gas transport properties in nanofillers, polymers, and their combined environment is vital for enhanced separation performance. In this talk, I will present the current progress in engineering molecular structures of MMMs for the desired separation performance. More specifically, different combinations of metal-ligand in zeolitic imidazolate frameworks (ZIFs) enable the fine tuning of pore structures. Also, improving the interfacial interaction between nanofillers and polymer is critical for the enhanced molecular sieving behavior. Lastly, we proposed a simple, but effective defect engineering strategy for a facile and highly scalable synthesis of ZIF-8s with high dispersibility and rigid network.