

A New Superior Competitor for Exceptional Propylene/Propane Separations: ZIF-67  
Containing Mixed Matrix Membranes

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Recently, the ZIF-67 molecular sieve has emerged as an excellent substitute for the ZIF-8 counterpart due to its potentially high propylene/propane separation performance. Here, for the first time, we investigated the effect of ZIF-67 molecular sieves in mixed matrix membranes (MMMs) for propylene/propane separations by integrating them into 6FDA-DAM polymeric matrix. A thorough investigation on gas transports elucidated that size-based energetic selectivity is a major contributor for the high propylene/propane diffusivity in ZIF-67 containing MMMs. Lastly, the defect-free incorporation of ZIF-67 nanoparticles into 6FDA-DAM polymer matrix effectively retarded physical aging process compared to bare 6FDA-DAM membrane.