

## Heteroepitaxially-grown Zeolitic Imidazolate Framework Membranes with High-Resolution Propylene/Propane Separation Performance

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We report the first well-intergrown membranes of ZIF-67 (Co-substituted ZIF-8) by heteroepitaxially growing ZIF-67 on ZIF-8 seed layers. The ZIF-67 membranes exhibited record-high propylene/propane separation factors of  $\sim 200$ , which is better than all reported ZIF-8 (isostructural to ZIF-67) membranes. Spectroscopic evidences combined with computational study support our hypothesis that the high-resolution propylene/propane separation originates from intrinsically better kinetic selectivity of ZIF-67 for propylene/propane molecules than ZIF-8 due to smaller pore aperture.