**A Simple Fabrication Method for Mixed Matrix Membranes using *In-situ* MOF Growth**

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Keywords: Metal Organic Framework, Mixed Matrix Membrane, In-situ Growth, $CO_2/N_2$ Separation, UiO-66.

Metal organic framework (MOF)/polymer composite membranes are of interest for gas separations as they often have performance that exceeds the neat polymer. However, traditional composite membranes, known as mixed matrix membranes (MMMs), can have complex preparation procedures as the MOF and polymer are traditionally prepared separately and then require priming and mixing to ensure uniform distribution of particles and compatibility of the polymer/particle inter-face. In this study, we reduce the number of steps using an in-situ MOF growth strategy. Herein, MMMs are prepared by simultaneously growing MOF (UiO66-Zr) in-situ within a Matrimid® polymeric matrix while curing the matrix as shown in the Figure below. The gas separation performance for MMMs prepared using this approach was evaluated for $CO_2/N_2$ separation and compared to MMMs that were prepared using traditional means. It was found that MMMs prepared using both the in-situ MOF growth strategy and by a traditional casting technique are equivalent in performance. However, using in-situ MOF growth allows for a simpler, faster, and potentially more economical fabrication alternative to traditional MMM fabrication.

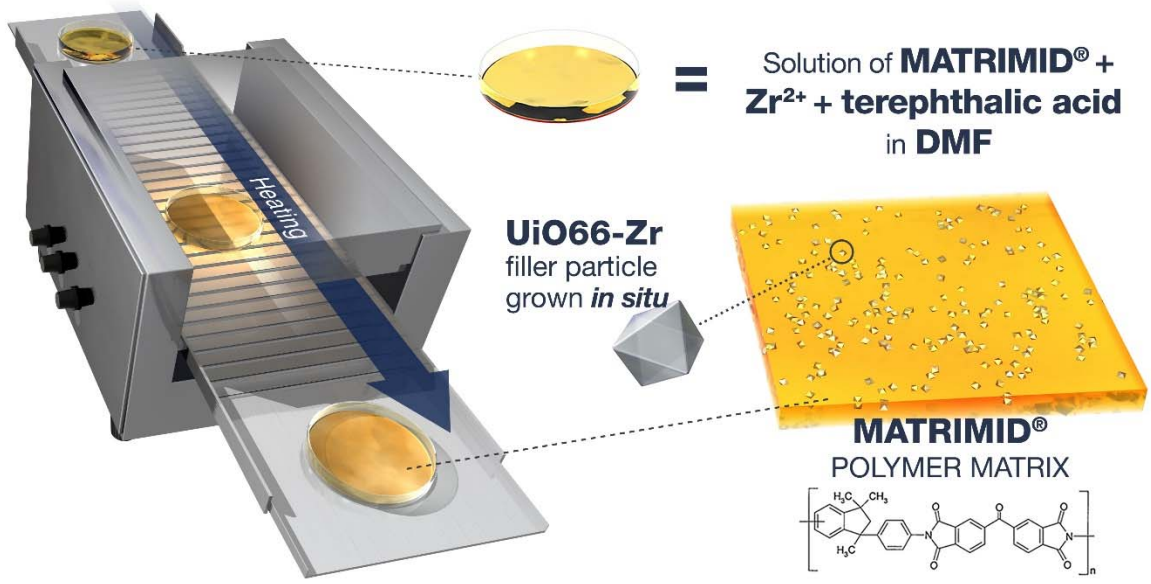



**Figure 1:** Simple mixed matrix membrane fabrication using *insitu* MOF growth method