Zirconium-Based UiO-66 Membrane for CO2/N2 binary gas separation

김동휘, 권혁택[1], 김진수[2,†]

경희대학교; [1]부경대학교 화학공학과; [2]경희대학교 화학공학과

(jkim21@khu.ac.kr[†])

Zirconium based UiO-66, a sub-class of metal-organic frameworks (MOFs), has attracted attention for its outstanding performance of high thermal and chemical stability. Especially, it is an appropriate candidate for CO2/N2 separation which is necessary to cope with the climate change. However, only a small number of papers have been reported because synthesizing defect-free and well-intergrown UiO-66 membrane is a challenging work. In this work, UiO-66 membranes were synthesized on alumina support by in situ growth. To enhance the interaction between UiO-66 and support, ɣ-alumina layer was coated on α-alumina discs. XRD, SEM and CO2/N2 mixture gas separation tests were carried out for the characterization. Gas separation result shows that UiO-66 membrane is a promising candidate for CO2/N2 separation.