

탄소자원화를 위한 가지형 공중합체 합성 및  
기체분리막 응용

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Carbonization is a new technology that utilizes not only conventional fossil fuels but also by-product gases from industrial and organic wastes, carbon monoxide, carbon dioxide, and methane contained in post-combustion exhaust gases as new carbon resources. In particular, membrane technology has gained recognition due to various advantages such as easy manufacture, low energy consumption, low operating costs, environmental safety, and facile application of functionalized nanomaterials. Our group synthesized various amphiphilic graft copolymers using a low-cost radical polymerization and applied to gas separation membranes. For example, the graft copolymer consisting of poly(vinyl chloride)-graft-poly(oxyethylene methacrylate) (PVC-g-POEM) was synthesized via atom transfer radical polymerization (ATRP) with a copper/ligand complex that functions as a reaction catalyst. Mesoporous perovskite with a high porosity and interfacial properties were synthesized via a solvothermal reaction using PVC-g-POEM as a structure-directing agent.