

## Continuous Solid Carbonation using PIM-1 Hollow Fiber Membrane Module

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PIM-1(Polymer of Intrinsic Microporosity), which has very high gas permeability originated from its nature, was fabricated to hollow fiber membrane for application to the continuous carbon dioxide mineralization. PIM-1 was synthesized via low temperature method. PIM-1 hollow fiber membrane was fabricated via dry-jet-wet-quench spinning method. With the aid of second outer sheath layer composed of various compositions represented by 1-butanol and Tetrahydrofuran, asymmetric defect-free membrane was obtained. The dense layer thickness was characterized by Scanning electron microscope. Permeability and selectivity for CO<sub>2</sub>/N<sub>2</sub> gas mixture was measured. By flowing calcium-containing solution and CO<sub>2</sub> gas into the PIM-1 hollow fiber module, calcium carbonate was synthesized. The effects of calcium ion concentration, flow rate of solution, CO<sub>2</sub> pressure were also studied.