

Thermally Rearranged (TR) Polybenzoxazole Hollow Fiber Membranes for CO₂ Capture

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Since the global warming has been worsening, many researchers have developed carbon dioxide capture and storage (CCS) technology to reduce carbon dioxide emission. Carbon dioxide capture using polymeric membrane is one of potential technology because of its advantages such as environmental friendliness and low cost operation with small footprint. Recently, thermally rearranged (TR) polymer membranes have received attention due to its extraordinary gas separation properties resulting from thermal rearrangement of polyimide with ortho-hydroxy polyimide (HPI). In this study, TR-polybenzoxazole hollow fiber membranes were fabricated from polyamic acid hollow fiber membranes which were made by dry-wet spinning by non-solvent induced phase inversion and subsequent thermal treatment. TR-polybenzoxazole hollow fiber membranes were characterized by single gas permeation test using laboratory scale hollow fiber membrane modules and tested for actual flu gases.