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Synthesis and oxygen permeation of novel well-defined homopoly(phenylacetylene)s with different sizes and shapes of oligosiloxanyl side groups

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Abstract

Six new silicon-containing phenylacetylenes having short oligosiloxane substituents with different sizes and shapes have been synthesized. Homopolymerization of the monomers yielded the corresponding homopoly(substituted phenylacetylene)s with high molecular weights and good solubility. These comb-shaped homopolymers gave self-standing membranes whose P_{O_2} and P_{O_2}/P_{N_2} could be measured. We discuss the effect of the chemical structures on their membrane performances together with the other