

Facilitated transport membranes with SPEEK-AgNO₃ for the separation of isoprene/*n*-pentane mixtures

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The facilitated transport membranes, sulfonated poly(ether ether)ketone (SPEEK)-AgNO₃, were prepared and tested for separation of the isoprene/*n*-pentane mixtures. The SPEEK-AgNO₃ membranes showed good selectivity for isoprene over *n*-pentane and long-term stability. The degree of sulfonation (DS) of SPEEK was measured by ¹H NMR spectroscopy. The performances of the SPEEK-AgNO₃ membranes were significantly affected by the degree of sulfonation (DS) of PEEK. The selectivity for isoprene over *n*-pentane increased with the increasing DS of PEEK. In a liquid-liquid membrane contactor system using a hollow fiber membrane module, it was found that the performance of the membrane was influenced by the concentration and the flow rate of Ag solution used as an absorption solution and the flow rate of isoprene/*n*-pentane mixtures.