

Facilitated transport membranes for isoprene/n-pentane separation

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The composite membranes containing sulfonated poly(ether ether)ketone (SPEEK)-AgNO₃ layers on top of polyester supports were prepared and tested for the separation of isoprene/n-pentane mixtures. The SPEEK-AgNO₃ membranes showed good selectivity for isoprene over n-pentane and long-term stability. The performances of the SPEEK-AgNO₃ membranes were significantly affected by the degree of sulfonation (DS) of SPEEK. The selectivity for isoprene over n-pentane increased with increasing DS of SPEEK. The separation of isoprene from n-pentane mixtures was also carried out using hollow fiber membranes containing SPEEK layers on top of PAN supports in a liquid-liquid membranecontactor system. The SPEEK-coated hollow fiber membranes was also effective the separation of real C₅ mixture consisting of about 20 different components.