

Preparation and characterization of sandwich-structure polyethersulfone membrane with pH sensitivity

Jialiang Xie, Qiang Wei, Baihai Su, Bosi Qian, Qiyao Ling, Changsheng Zhao*

College of Polymer Science and Engineering, State Key Laboratory of Polymer Materials Engineering, Sichuan University, Chengdu 610065, China

Tel. +86 28 85400453; Fax +86 28-85405402; email: zhaochsh70@scu.edu.cn, zhaochsh70@163.com

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ABSTRACT

In this paper, a novel sandwich-structure polyethersulfone (PES) membrane with pH-sensitivity was developed. The membrane was composed of three layers. The top and bottom layers were made of PES; while the middle layer was prepared by a mixture of cross-linked poly(acrylic acid) (PAA) microgels and PES. The sandwich-structure PES membrane showed evident pH sensitivity and pH reversibility as the pH value changed between 1.0 and 8.8. With the increase of the PAA gel amount added into the membrane, the pH sensitivity increased. The Cu²⁺ ion exchange experiment indicated that the membrane could bind metal ions and could be used to purified water.

Keywords: Polyethersulfone; Poly(acrylic acid); Sub-microgels; Sandwich-structure; Ion exchange; Permeability

* Corresponding author.