Desalination and Water Treatment
www.deswater.com
14 (2010) 47–51
February
1944-3994 / 1944-3986 © 2010 Desalination Publications. All rights reserved.
doi: 10.5004/dwt.2010.1010

Coupling effect during vapour permeation of organic mixtures through polymeric membranes

K. Friess*, M. Kuboňová-Hendrichová, O. Vopička, V. Hynek, M. Zgažar, M. Šípek

Institute of Chemical Technology Prague, Department of Physical Chemistry, Technická 5, Prague 6 – Dejvice, 166 28, Czech Republic
Tel. +420 220444029; Fax +420 220444333; email: karel.friess@vscht.cz

Received 24 July 2009; Accepted 5 November 2009

ABSTRACT

A mass transport of organic compounds (benzene, hexane, cyclohexane and methanol) and their binary mixtures at wide activity range through dense semicrystalline low density polyethylene membranes is presented. Single and binary vapour permeation measurements were performed at 25°C and at 35°C by the differential flow permeation apparatus method connected with GCMS device. Determined values of steady-state molar fluxes revealed the differences between single and binary permeation as well as the mutual coupling effect of second component in mixture on permeation flux of the first one.

Keywords: Vapour permeation; Binary mixtures; Coupling effect

* Corresponding author.