



Comparison of transport properties of hyperbranched and linear polyimides

Karel Friess^{a*}, Petr Sysel^b, Evgenia Minko^b, Michal Hauf^b, Ondřej Vopička^a,
Vladimír Hýnek^a, Kryštof Pilnáček^a, Milan Šípek^a

^aDepartment of Physical Chemistry, ^bDepartment of Polymers, Institute of Chemical Technology,
Technická 5, 166 28 Prague 6, Czech Republic
Tel. +420 22044 4029; Fax +420 22044 3175; email: Karel.Friess@vscht.cz

Received 24 June 2009; Accepted 2 November 2009

ABSTRACT

The non-porous, flat membranes were prepared from the novel hyperbranched polyimide based on 4,4,4-triaminotriphenylmethane (MTA) and 4,4'-oxydiphthalic anhydride (ODPA) and also from the linear polyimide (LPI) based on 4,4'-methylenedianiline (MDA) and ODPA. The permeability coefficients of hydrogen, carbon dioxide, oxygen, nitrogen and methane in the membrane prepared from hyperbranched polyimide were 2–3.7 times higher than those in the membrane from LPI at comparable selectivities.

Keywords: Gas permeation; Non-porous flat membrane; Hyperbranched polyimide

* Corresponding author.