

Energy Related Zeolite Membrane

Weishen Yang, Yanshuo Li

State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics,
Chinese Academy of Sciences, Dalian 116023, China
E-mail: yangws@dicp.ac.cn; URL: <http://yanggroup.dicp.ac.cn>

Since the mid of 1990s, owing to the potential molecular sieving action, controlled host-sorbate interactions and high thermal and chemical stability, the preparations, characterizations and applications of membranes, films and coatings of zeolite and zeolite-like materials (in present chapter, in short called “zeolite membranes”) have been extensively investigated. Some excellent reviews (1-8) and book chapters (9) on the preparation and characterization of zeolite membranes appeared during the last several years. This presentation attempts to emphasize on the zeolite membrane application for both the production of tomorrow’s clean fuels and the establishment of energy-efficient process. For more general information on the subjects of preparations, characterizations and otherwise applications of zeolite membranes, the above cited reviews and book chapters are recommended.

References

1. Caro, J.; Noack, M.; Kolsch, P.; Schafer, R. *Micropor. Mesopor. Mater.* **2000**, *38*, 3-24.
2. Tavolaro, A.; Drioli, E. *Adv. Mater.* **1999**, *11*, 975-996.
3. Chiang, A. S. T.; Chao, K. *J. Phy. Chem. Solids*, **2001**, *62*, 1899-1910.
4. Jansen, J.; Koegler, J.H.; Bekkum, H.; Calis, H.P.A.; Bleek, C.M.; Kapteijn, F.; Moulijn, J.A.; Geus, E.R.; Puil, N. *Micropor. Mesopor. Mater.* **1998**, *21*, 213-226.
5. Matsukata, M.; Kikuchi, E. *Bull. Chem. Soc. Jpn.* **1997**, *70*, 2341-2356.
6. Bein, T. *Chem. Mater.* **1998**, *8*, 1636-1653.
7. Noack, M.; Kolsch, P.; Schafer, R.; Toussaint, P.; Caro, J. *Chem. Eng. Technol.* **2002**, *25*, 221-230.
8. Lin, Y.S.; Kumakiri, I.; Nair, B.N.; Alsyouri, H. *Separ. Purif. Method.* **2002**, *31*, 229-379.
9. Nair, S.; Tsapatsis, M. In *Handbook of Zeolite Science & Technology*; Auerbach, S.M.; Carrado, K.A.; Dutta, P.K., Eds.; Marcel Dekker: New York, **2003**; pp 867-919.