

Supplementary File

Experimental:

A Nicolet 5700 Fourier transform infrared spectrometer with a scan range of 4000 cm^{-1} to 400 cm^{-1} and a resolution of 0.09 cm^{-1} was used to obtain the Fourier transform infrared (FT-IR) spectra of the Pebax/PEGDME selective layer.

Results:

The FT-IR spectrum of the Pebax/PEGDME selective layer is presented in Fig. 1. The characteristic peaks at 1733 cm^{-1} represent the stretching vibration of C=O. The N-H group is represented by the peak at 3300 cm^{-1} . These two bonds are all contained in Pebax, and the shapes of the corresponding three peaks in the FT-IR spectrum of the Pebax/PEGDME layer are similar to those of pristine Pebax ¹. This result indicates the chemical stability of Pebax. The peaks at 2867 and 1102 cm^{-1} , which correspond for C-H and C-O stretching, are very strong because of the existence of 50% PEGDME ². The selective layer shows no new absorbance peaks, which indicates the physical blending feature of Pebax and PEGDME.

References:

1. H. Rabiee, M. Soltanieh, S. A. Mousavi and A. Ghadimi, *J Membrane Sci*, 2014, **469**, 43-58.
2. S. F. Wang, Y. Liu, S. X. Huang, H. Wu, Y. F. Li, Z. Z. Tian and Z. Y. Jiang, *J Membrane Sci*, 2014, **460**, 62-70.

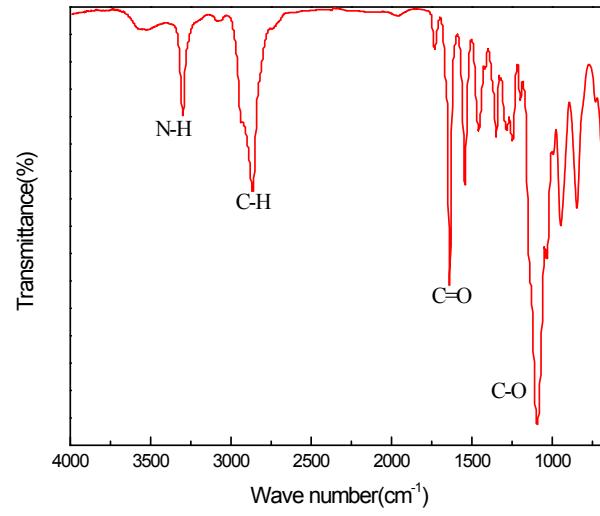


Fig. 1 FT-IR spectra of Pebax/PEGDME selective layer