

**Aggregation Behaviors of PEO-PPO-ph-PPO-PEO and
PPO-PEO-ph-PEO-PPO at an Air/ Water Interface: Experimental
Study and Molecular Dynamics Simulation**

Houjian Gong^{1,2}, Guiying Xu^{1*}, Teng Liu¹, Long Xu¹, Xueru Zhai¹

¹Key Laboratory of Colloid and Interface Chemistry (Shandong University), Ministry
of Education, Jinan 250100, P. R. China

²College of Petroleum Engineering, China University of Petroleum (East China),
Qingdao 266580, P.R. China

Jian Zhang, Xin Lv

Technology Research Dept. CNOOC Research Center, State Key Laboratory of
Offshore Oil Exploitation, Beijing 100027

* Corresponding author: Tel.: +86-531-88365436. Fax: +86-531-88564750.

Email-address: xuguiling@sdu.edu.cn (G. Y. XU).

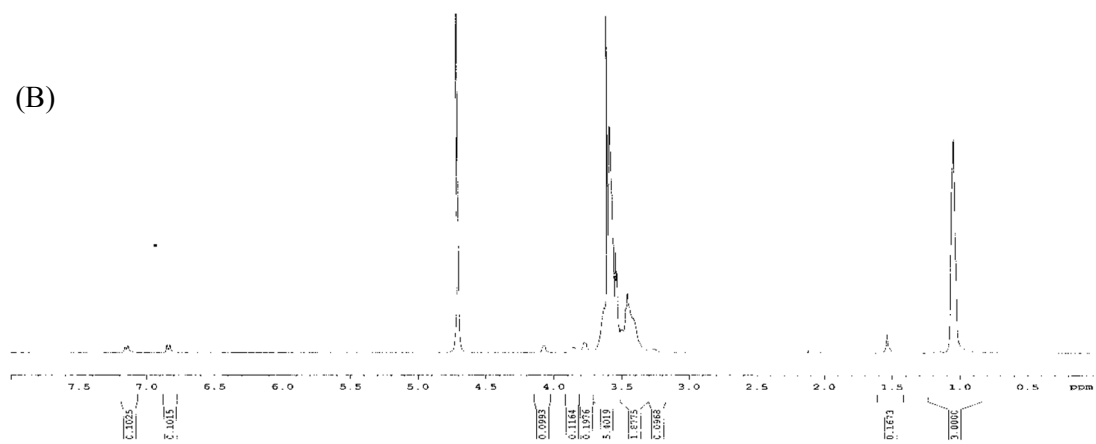
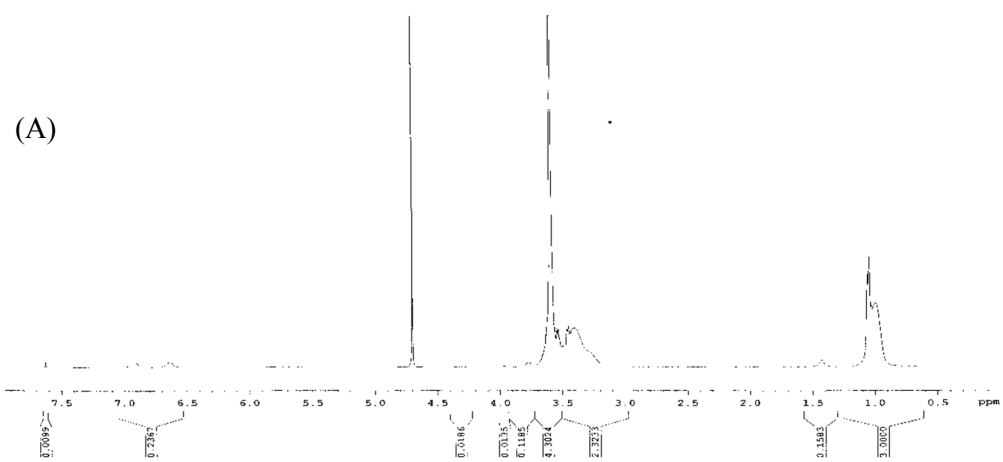
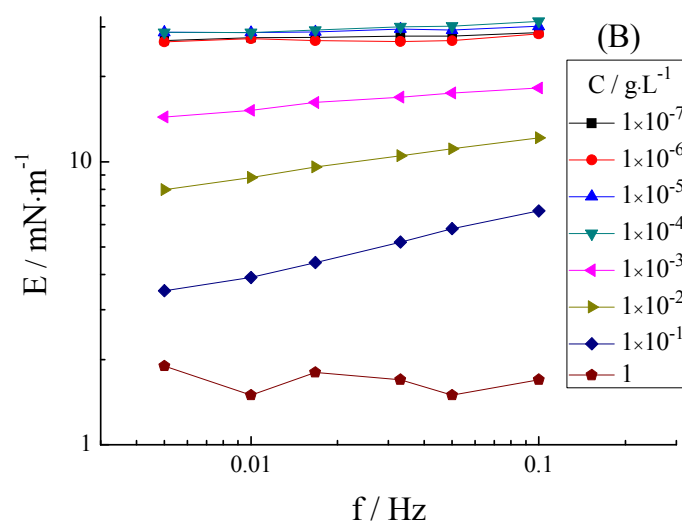
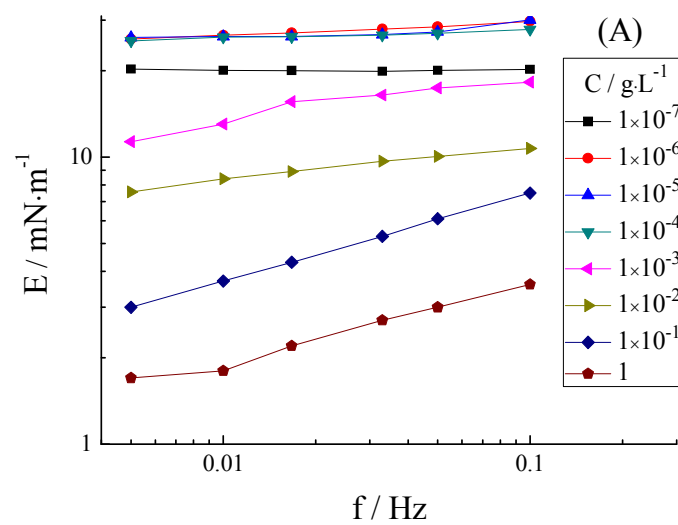


Figure S1. The ^1H NMR spectra of the both copolymer in D_2O at 298K.



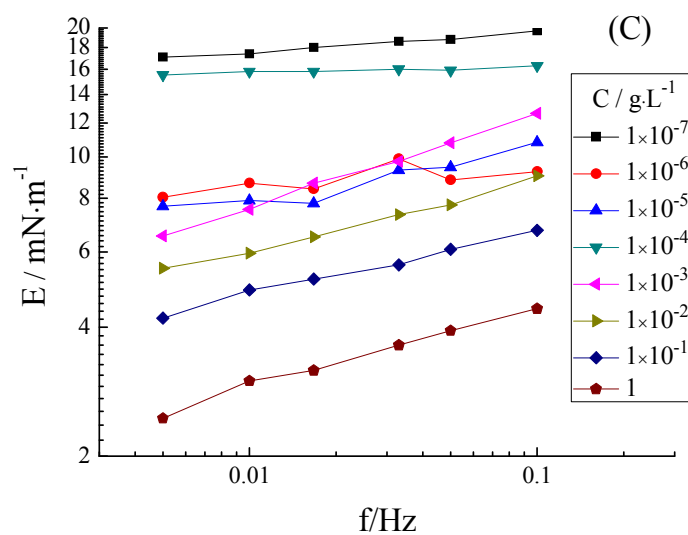


图 1

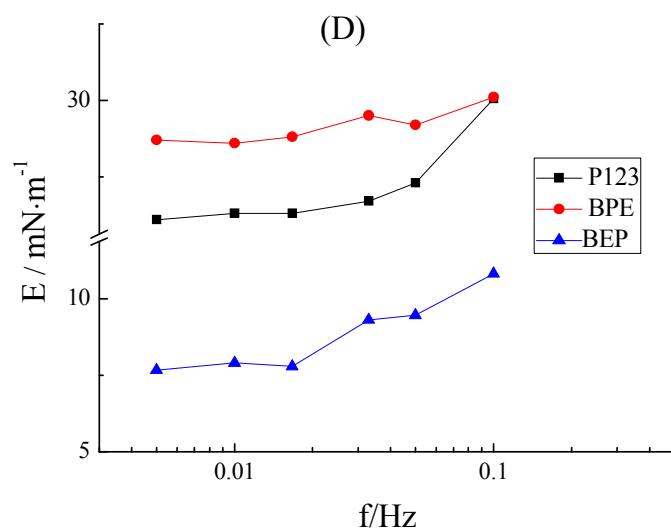


Figure S2. Effect of frequency on the dilational modulus of block polyethers at different concentration; (A) P123; (B) BPE; (C) BEP; (D) Effect of frequency on the dilational modulus of block polyethers at the concentration of $1 \times 10^{-5} \text{ g} \cdot \text{L}^{-1}$.