

Supporting Information

for

Investigation of pH-induced conformational change and hydration of poly(methacrylic acid) by analytical ultracentrifugation

Xiaoyan Wang,¹ Xiaodong Ye,^{1,*} Guangzhao Zhang²

- 1) Hefei National Laboratory for Physical Sciences at the Microscale, Department of Chemical Physics, University of Science and Technology of China, Hefei, Anhui 230026, China;
- 2) Faculty of Materials Science and Engineering, South China University of Technology, Guangzhou, P. R. China 510640

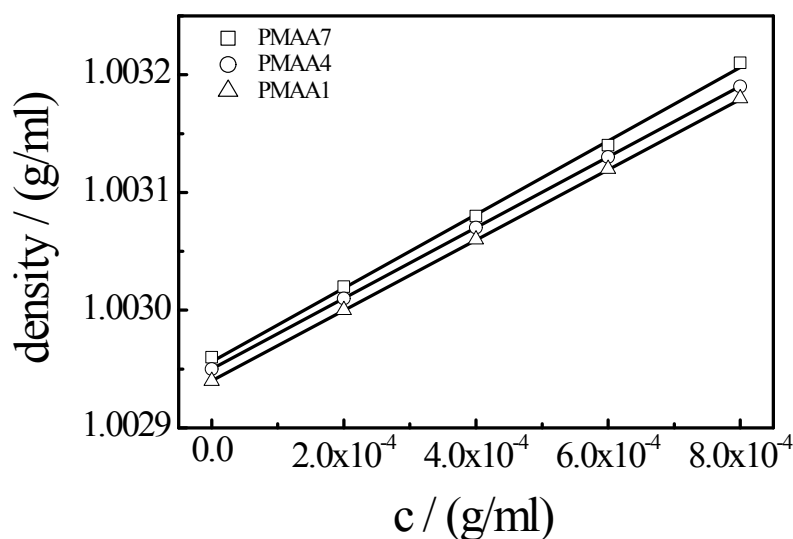


Figure S1. Concentration dependence of the density of PMAA1, PMAA4 and PMAA7 aqueous solutions at pH = 8.5.

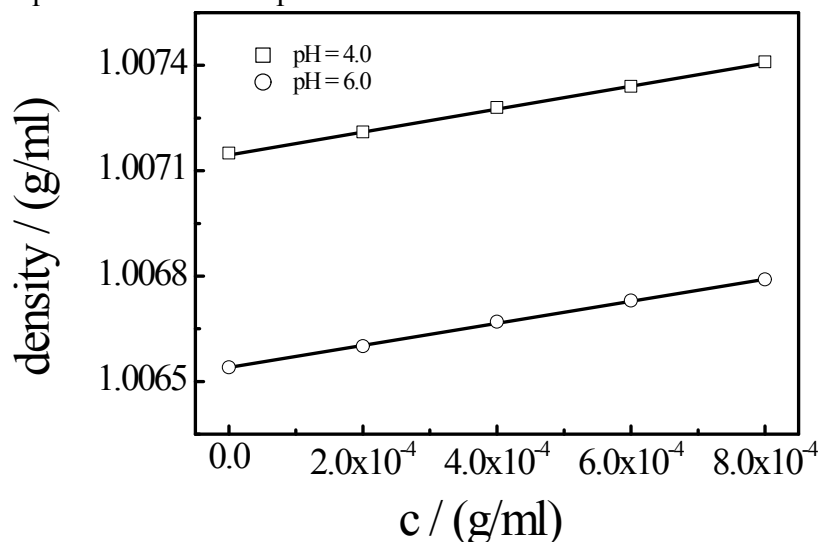


Figure S2. Concentration dependence of the density of PMAA4 aqueous solutions at

pH = 4.0 and 6.0.

Table S1: $\frac{\Delta\rho}{\Delta C}$ and v of PMAA samples at different pH values.

Sample	pH	$\frac{\Delta\rho}{\Delta C}$	v (ml/g)
PMAA7	8.5	0.310	0.688
PMAA1	8.5	0.300	0.698
PMAA4	8.5	0.300	0.698
PMAA4	6.0	0.315	0.681
PMAA4	4.0	0.325	0.670

Measurements of the Partial Specific Volume (v).

The pretreatment of PMAA samples and the preparation of phosphate buffered saline (PBS) solutions with different pH values were described in detail in the experimental section in the main text. In order to clarify the effect of molar mass on the partial specific volume, the densities of PMAA1, PMAA4 and PMAA7 solutions at pH 8.5 were measured by the use of DMA4500 densitometer (Anton Paar). The concentrations of each sample were 0.2, 0.4, 0.6 and 0.8 mg/ml and the measurements were taken at 20 °C. The results were shown in Figure S1. The partial specific volume of PMAA was determined according to eq.4 in the main text. Table S1 shows that molar mass of PMAA has little influence on partial specific volume. We also measured the density of PMAA4 aqueous solutions at other pH values, i.e., pH = 4.0 and 6.0, as shown in Figure S2. The partial specific volumes of PMAA4 at three different pH values were summarized in Table S1, indicating that v is almost independent on the pH value.