Supporting Information

Preparation, stability and rheology of polyacrylamide / pristine layered double hydroxide nanocomposites

Pingjun Fu, Kongli Xu, Hongzan Song, Guangming Chen, Jiping Yang and Yanhua Niu

Beijing National Laboratory for Molecular Sciences (BNLMS), Laboratory of New Materials, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, P. R. China. E-mail: chengm@iccas.ac.cn.

School of Material Science and Engineering, Beihang University, Beijing 100191, P. R. China.

Beijing National Laboratory for Molecular Sciences (BNLMS), CAS Key Laboratory of Engineering Plastics, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, P. R. China.

Graduate School of Chinese Academy of Sciences, Beijing 100049, P. R. China

The intrinsic viscosity, $[\eta]$, of the prepared PAM was measured at 30.00 ± 0.05 °C, according to the standard of GB 12005.1-89. The average molecular weight was calculated by the standard GB/T 12005.10-92. The relative viscosity ($\eta_r$) is described as below:

$$\eta_r = \frac{t}{t_0}$$  (1)

wherein $t_0$ and $t$ stand for the flow time for pure solvent of aqueous sodium chloride (NaCl) solution with concentration of 1.00 mol/L and the measured PAM solution through Ullman viscometer, respectively. The $[\eta]$ was determined by dilution method. And the viscosity average molecular weight (M) was calculated by equation (2).

$$M = 802 [\eta]^{1.25}$$  (2)
Figure 1S shows the dependence of specific viscosity ($\eta_{sp}$) or $\ln\eta_r$ on the ratio (Cr) of the diluted concentration to the initial PAM solution concentration (C0), where $\eta_{sp} = \eta_r - 1$. According to the two intercepts of the fitting lines, the average value (H) can be obtained. Then, $[\eta]$ is determined to be 567.5 mL/g, since $[\eta]$ equals H/C0. The corresponding average molecular weight can be calculated to be $2.22 \times 10^6$, according to equation (2).