

Nitroxide-Mediated Polymerization of 2-(diethyl) aminoethyl methacrylate (DEAEMA) in Water

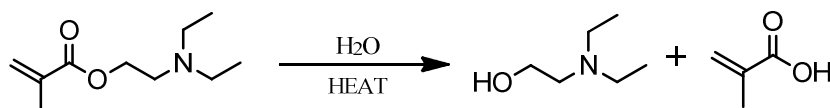
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SUPPORTING INFORMATION

Hydrolysis of DEAEMA: Due to hydrolysis, DEAEMA is decomposed to methacrylic acid and dimethylaminoethanol (Scheme S1).



Scheme S1. Hydrolysis of 2-(diethyl amino) ethyl methacrylate (DEAEMA).

For investigating the effect of pH on the hydrolysis of DEAEMA, three samples were prepared with the same concentration of DEAEMA in water (1.0 mol.L⁻¹). The pH of the samples was adjusted to 9, 8, and 7, respectively. The samples were placed into a preheated oil bath at 90 °C for 2 h. The same experiment was repeated at 80 °C. ¹H NMR spectra were recorded every 15 min during and also at the start the experiment. Figure S1 shows the effect of pH and temperature on the rate of DEAEMA hydrolysis.

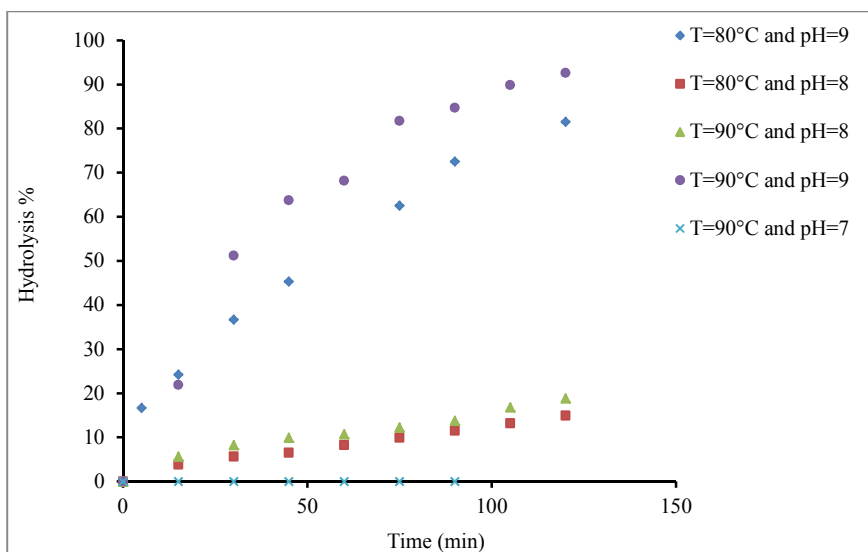


Figure S1. DEAEMA hydrolysis in water (1 M solution) with varying pH and temperature.

By knowing the initial concentration of DEAEMA and the ratio of characteristic peaks of DEAEMA and methacrylic acid, the hydrolysis percentage can be calculated. Figures S2 and S3 show ^1H NMR of DEAEMA in D_2O at 90 °C at pH 7 and 9, respectively.

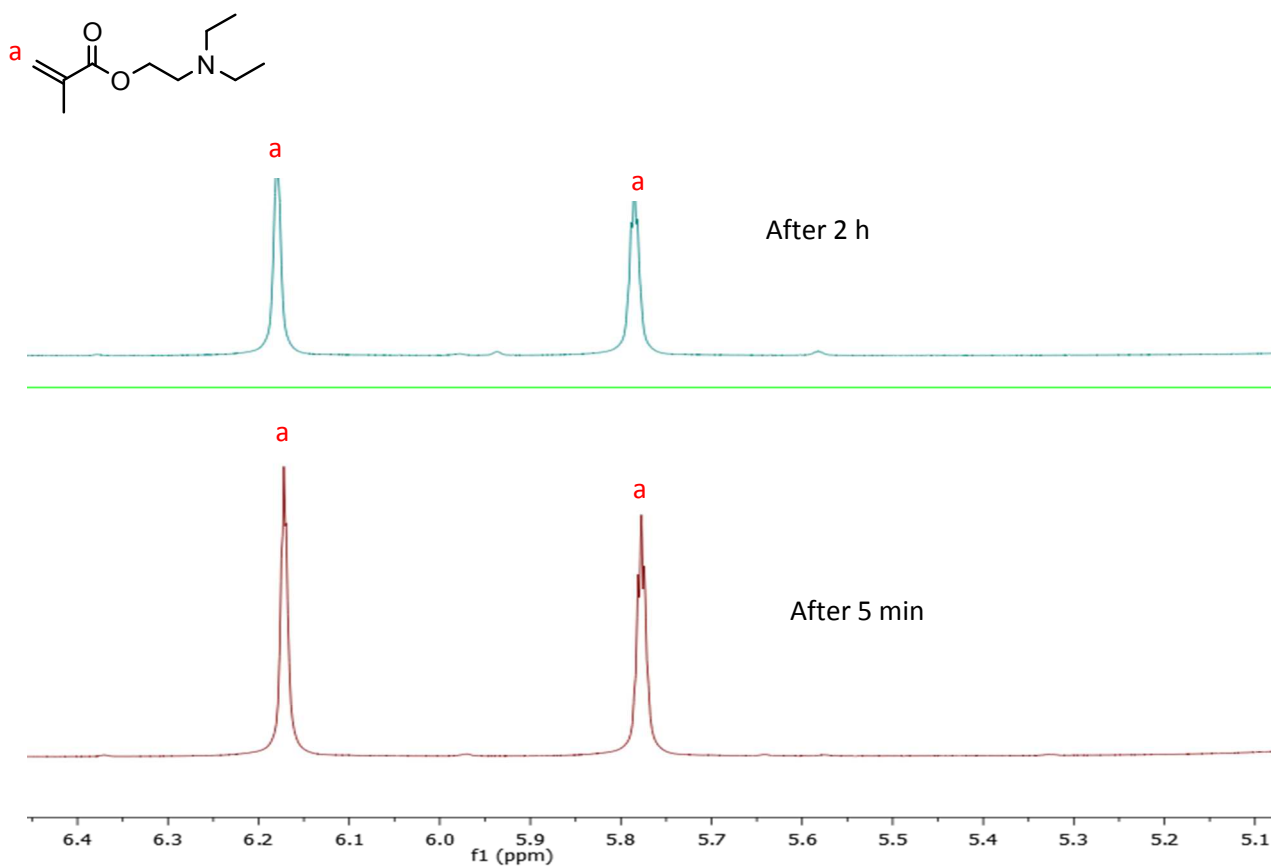


Figure S2. Selected view of the ^1H NMR spectra of DEAEMA in D_2O at $\text{pH}=7$ and $T=90$ $^\circ\text{C}$.

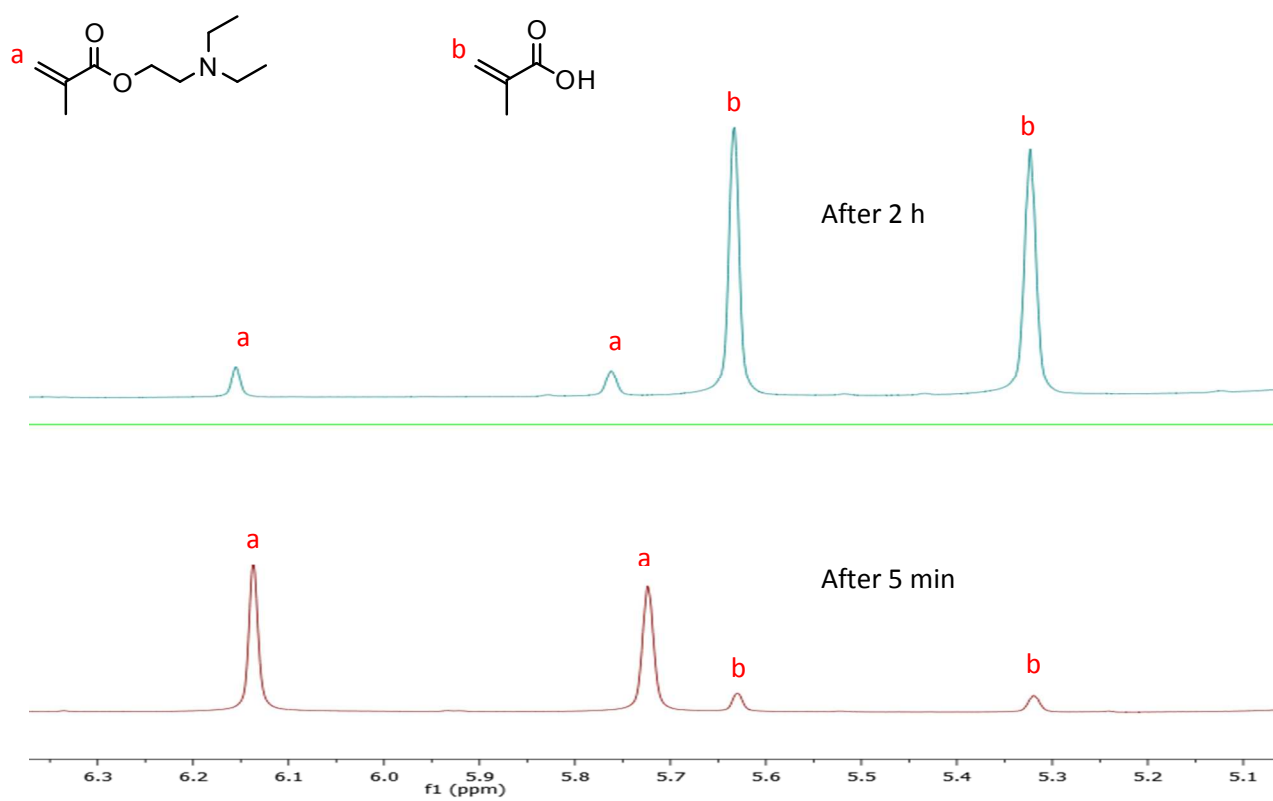


Figure S3. Selected view of the ^1H NMR spectra of DEAEMA in D_2O at pH=9 and $T=90^\circ\text{C}$.