Electronic Supplementary Material (ESI) for Soft Matter.

Supporting Information

NMR Investigation on the thermogelation of Partially Hydrolysed Polyacrylamide/Polyethylenimine mixtures

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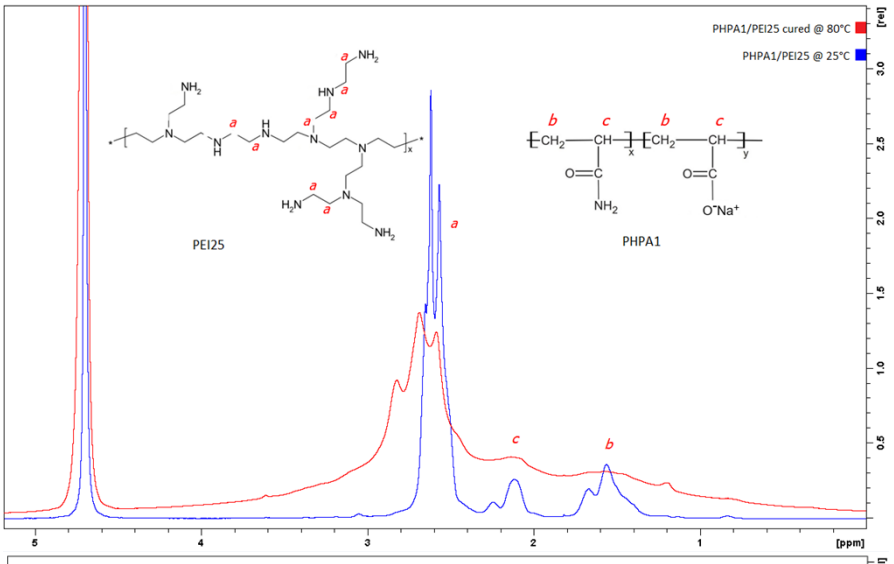
(a)



(b)

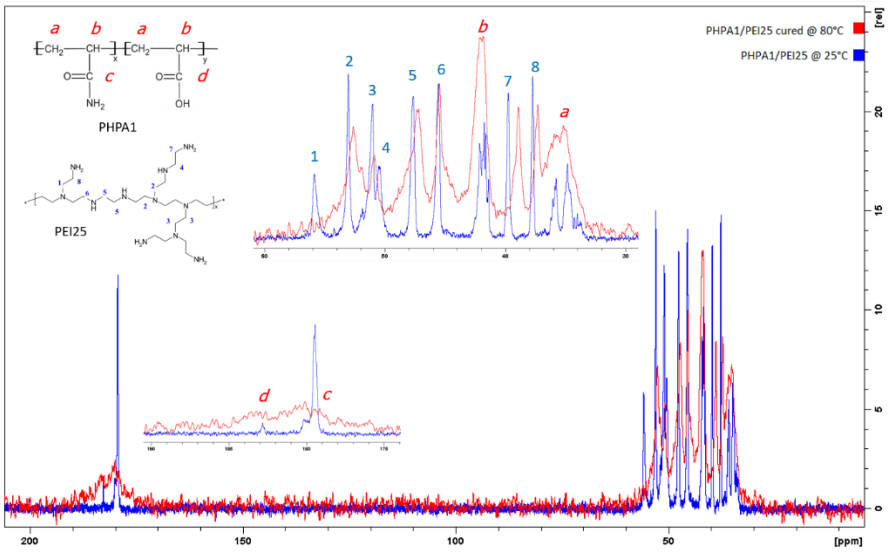
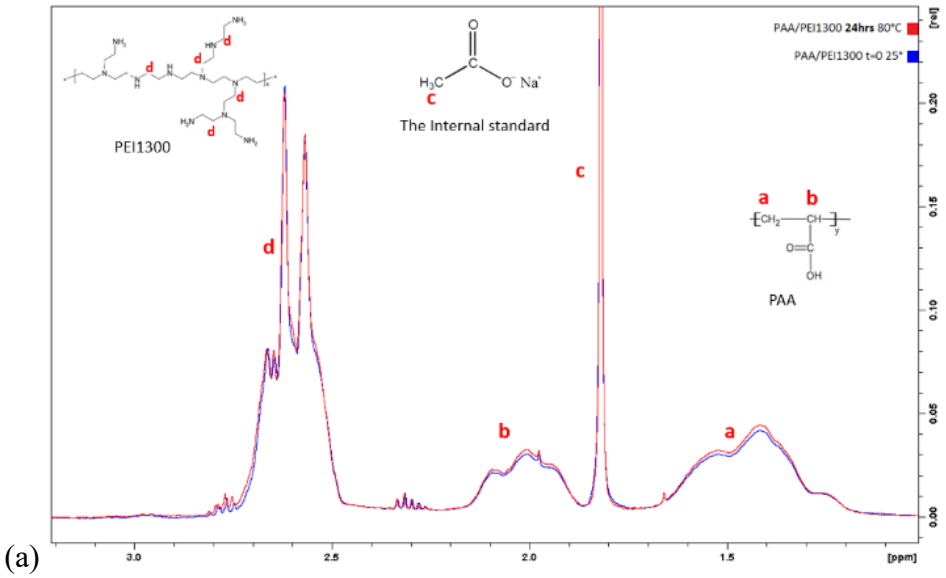
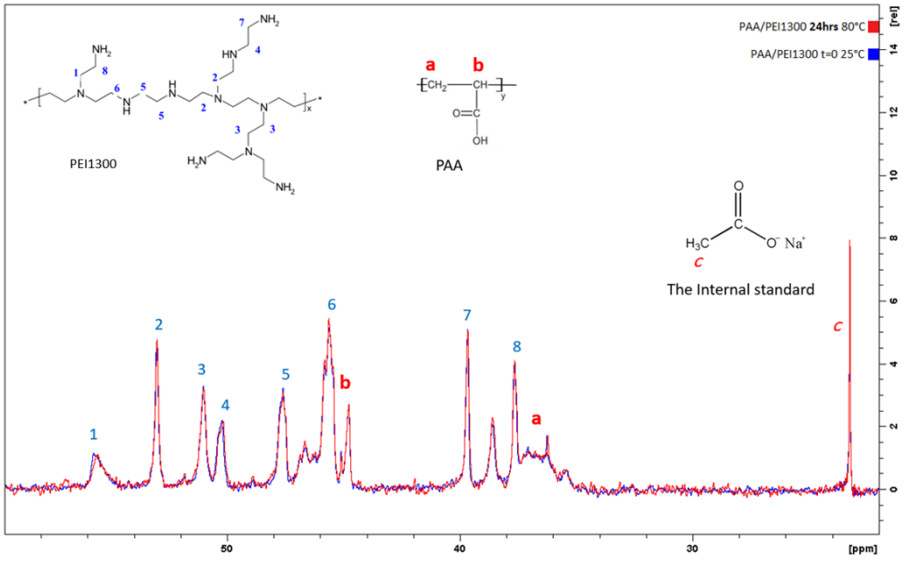


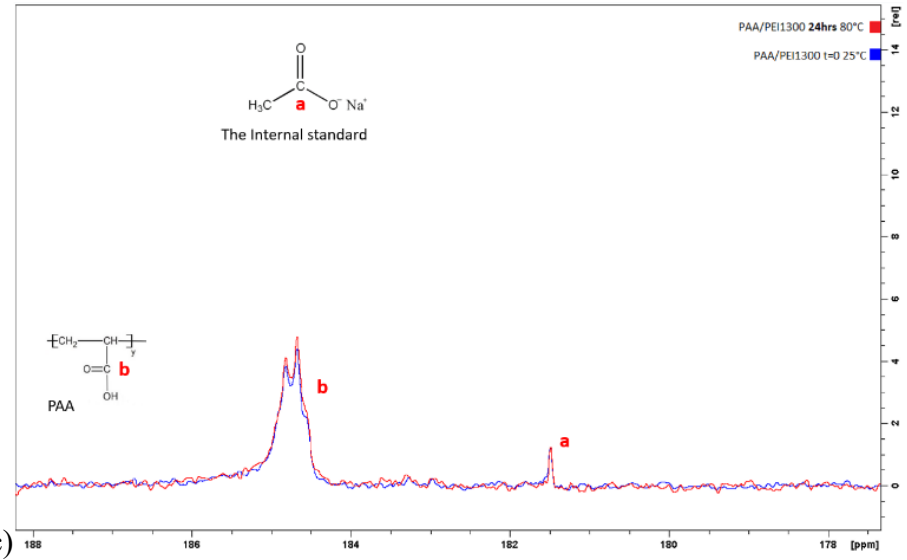
Figure S1: (a) the proton "^{1}H" and (b) carbon "^{13}C" NMR spectra of PHPA1/PEI25 mixture at 25°C at an initial time (t=0) and after curing at 80°C for one hour.


PAA/PEI1300 24hrs 80°C
PAA/PEI1300 t=0 25°
PEI1300
The Internal standard
PAA
a
b
c
d
3.0
2.5
2.0
1.5
[ppm]

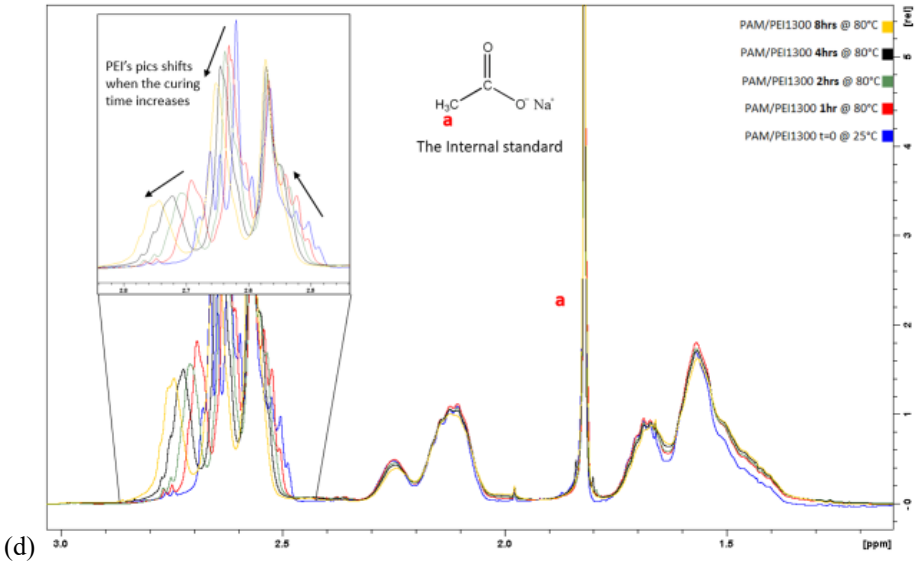
(a)


PAA/PEI1300 24hrs 80°C
PAA/PEI1300 t=0 25°C
PEI1300
PAA
The Internal standard
1
2
3
4
5
6
7
8
a
b
c
50
40
30
[ppm]

(b)

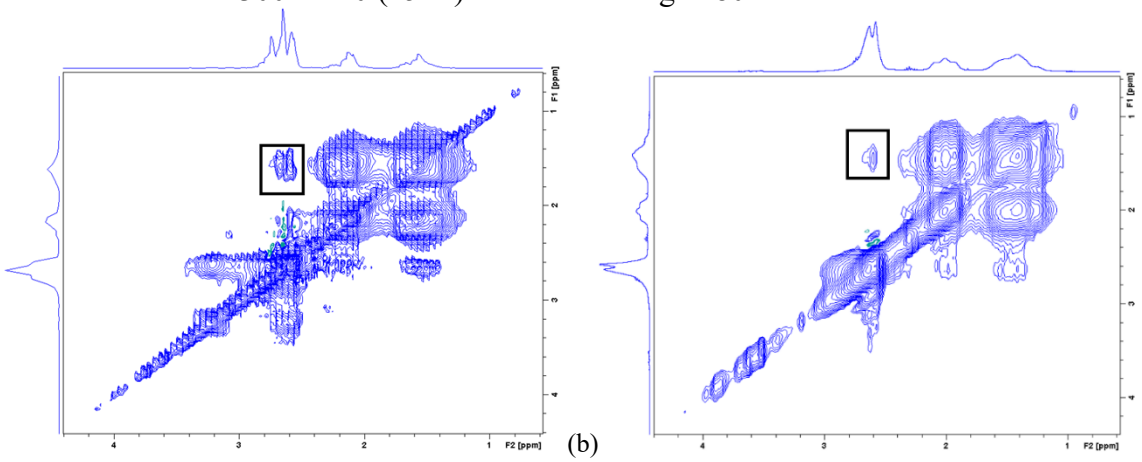

PAA/PEI1300 24hrs 80°C
PAA/PEI1300 t=0 25°C
The Internal standard
PAA
a
b
188
186
184
182
180
178
[ppm]

(c)



(d)

Figure S2: (a) Proton "^{1}H" and (b-c) Carbon "^{13}C" NMR spectra of PAA/PEI1300 mixture recorded at t=0 (25°C) and at 24 hours (after curing at 80 °C), (d)) Proton "^{1}H" NMR spectra of PAM/PEI1300 at t=0 (25°C) and after curing at 80 °C for different times.



(a) (b)

Figure S3: NMR NOESY spectra of (a) PAM/PEI1300 and (b) PAA/PEI1300 at 25°C.

Table S1: the acquisition parameters of the ^{1}H-RMN and ^{13}C-RMN spectra.

Parameter	^{1}H-RMN	^{13}C-RMN
Frequency (MHz)	400.13	100.61
Acquisition time AQ (s)	1.98	0.68
Spectral width SWH (Hz)	8250	24038
Fid size	32768	32768
Number of scans	32	20480

Hydrolysis degree (HD) and Branching degree (BD) equations:

$$HD = \frac{Y}{Y + X}$$ Equation SI.1

Where Y is the molar concentration of the carboxylate groups in (mol/l) and X is the molar concentration of the amide groups in (mol/l).

$$\mathrm{BD} = \frac{2\mathrm{D}}{2\mathrm{D} + \mathrm{L}}$$ Equation SI.2

where: D are the dendritic units and L are the secondary amine linear units.