

Table 1. Anionicity, weight-average molar mass (M_w) and polydispersity index (PDI) obtained by SEC and SLS, average effective electrophoretic mobility in free-solution ($\bar{\mu}_0$) and in entangled polymer solution ($\bar{\mu}$), mobility ratio $\bar{\mu}/\bar{\mu}_0$, weight-average molar mass and polydispersity index obtained by CGE of the APAM and IPAM samples. **Error bars are \pm one SD ($n=3$ repetitions).**

Sample	Anionicity ^a	M_w (10^6 g/mol)	PDI ^b	$\bar{\mu}_0$ ^d	$\bar{\mu}$ ^e in HEC	$\bar{\mu}/\bar{\mu}_0$	M_w CGE ^e (10^6 g/mol)	PDI CGE ^e
APAM1	26%	0.22 ± 0.02^b	1.1 ± 0.1	- 22.7 \pm 0.1	-20.5 \pm 0.1	0.91 ± 0.01		1.3 ± 0.1
APAM5	25%	0.80 ± 0.1^b	1.2 ± 0.2	- 21.9 \pm 0.2	-17.5 \pm 0.1	0.81 ± 0.01		1.3 ± 0.1
APAM10	29%	1.92 ± 0.3^b	2.5 ± 0.1	- 22.8 \pm 0.1	-16.5 \pm 0.3	0.72 ± 0.02		1.4 ± 0.2
APAM30	25%	3.93 ± 0.5^b	1.4 ± 0.2	- 22.3 \pm 0.1	-15.3 \pm 0.4	0.68 ± 0.02		1.3 ± 0.1
APAM50	30%	4.18 ± 0.4^b	3.0 ± 0.2	- 23.4 \pm 0.1	-15.3 \pm 0.2	0.63 ± 0.03		1.5 ± 0.3
APAM60	26%	7.34 ± 0.7^b	1.5 ± 0.2	- 23.1 \pm 0.1	-14.3 \pm 0.1	0.62 ± 0.02		1.2 ± 0.2
IPAM1	27%	4.3 ± 0.5^b 6.5 ± 0.7^c		- 19.3 \pm 0.1	-12.8 \pm 0.2	0.66 ± 0.03	4.3 ± 0.5	2.4 ± 0.3
IPAM2	28%	8 ± 0.8^c		- 20.2 \pm 0.1	-12.8 \pm 0.2	0.63 ± 0.03	6.5 ± 0.8	2.9 ± 0.3
IPAM3	29%	10.5 ± 1.1^c		- 20.8 \pm 0.2	-12.5 \pm 0.3	0.60 ± 0.03	10.1 ± 1.5	(1.7) ^f
IPAM4	33%	15 ± 1.5^c		- 24.0 \pm 0.2	-14.1 \pm 0.3	0.58 ± 0.03	14.9 ± 1.8	(1.4) ^f

^a: by NMR (given by the provider)

^b: SEC-MALS [11] (see section 2.5).

^c: SLS (see section 2.6.)

^d: $\ln 10^{-9} \frac{m}{V} \frac{V}{s}$, free solution CE at 96.5 mM ionic strength (other experimental conditions as in Fig. 1)

^e: $\ln 10^{-9} \frac{m}{V} \frac{V}{s}$, CGE in HEC 0.8 g/L at 96.5 mM ionic strength (other experimental conditions as in Fig. 2)

^f: PDI values impacted by aggregation phenomenon in CGE.