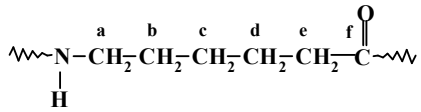
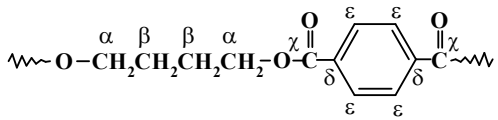
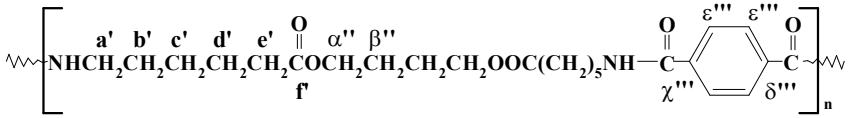
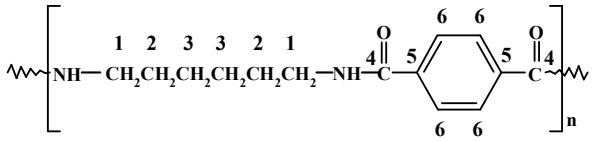
Table 1S: **^{1}H and ^{13}C-NMR assignments of Nylon 6 (Ny6), poly(1,4-butileneterephthalate) (PBT), poly(hexamethylene terephthalate) (Ny$_{6T}$), *alt*-copolyesteramide (CL-B-CL-T) and model A.**

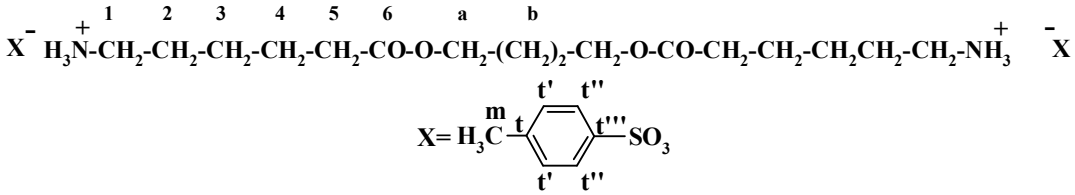
Sample	Structures		Shift (ppm) Proton	Carbon
Ny6 [a]		**a**	3.76	44.95
		b	*1.72*	28.71
		c	1.40	24.14
		d	*1.72*	25.94
		e	2.87	38.39
		f	-	178.28
PBT		α	4.54	66.47
		β	2.07	25.26
		χ	-	168.32
		δ	-	133.94
		ε	8.16	130.14
***Alt*-copolyesteramide** [a] (CL-B-CL-T)		**a'**	3.84	47.46
		b'		28.23
		c'	1.75	24.90
		d'	-	25.91
		e'	2.44	34.24
		f'	-	177.85
		α''	4.20	65.56
		β''	1.36	24.25
		δ'''	-	137.06
		ε'''	7.85	129.77
		χ'''	-	172.4

Ny$_{6T}$ [a]



1	3.82	47.61
2	1.69	28.38
3	1.34	25.91
4	-	172.50
5	-	137.07
6	7.85	129.80

Model A



1	3.23	40.96
2	1.78	26.65
3		24.90
4	2.52	25.35
5		33.98
6	-	177.57
a	4.20	65.77
b	1.47	23.94
m	2.41	21.15
t	-	137.16
t'	8.0-7.5	125.79
t''		129.82
t''		143.87

a Amine protons in Ny6 and Ny6-a*lt*-PBTcopolyesteramide samples appear as trifluoroacetylated in NMR spectra, due to deuterated trifluoroacetic acid used as solvent.

Table 2S: Fraction of triads centered on the terephthalic units (T), average sequence lengths and degree of randomness calculated from ^{13}C-NMR spectra of Ny6/PBT-COOH blends.

Temperature (°C)	Time (min)	Molar Fraction of Triads[a]			Average sequence lengths[b]			B[c]
		$F_{B\text{-}T\text{-}B}$	$F_{CL\text{-}T\text{-}B}$	$F_{CL\text{-}T\text{-}CL}$		B-T-B	CL-T-B	
270	60	0.840	0.116	0.044	6.25	1.14	1.05	0.33
280	30	0.660	0.283	0.056	2.9	1.42	1.08	0.66
280	60	0.575	0.350	0.075	2.4	1.61	1.13	0.83
280	120	0.601	0.340	0.080	2.4	1.56	1.13	0.83

a) $F_{B\text{-}T\text{-}B} = A_{\varepsilon}/A_{\varepsilon}+A_{\varepsilon'}+A_{\varepsilon''}+A_{\varepsilon'''}$; $F_{CL\text{-}T\text{-}B} = A_{\varepsilon'}+A_{\varepsilon''}/A_{\varepsilon}+A_{\varepsilon'}+A_{\varepsilon''}+A_{\varepsilon'''}$; $F_{CL\text{-}T\text{-}CL} = A_{\varepsilon'''}/A_{\varepsilon}+A_{\varepsilon'}+A_{\varepsilon''}+A_{\varepsilon'''}$; where A_{ε}, $A_{\varepsilon'}$, $A_{\varepsilon''}$ and $A_{\varepsilon'''}$ indicate the area of the peaks ε, ε', ε'' and ε''', respectively, in the ^{13}C-NMR spectra.

b) $B\text{-}T\text{-}B = F_{B\text{-}T\text{-}B}/(F_{CL\text{-}T\text{-}B} + F_{CL\text{-}T\text{-}CL}) + 1$; $CL\text{-}T\text{-}B = F_{CL\text{-}T\text{-}B}/F_{B\text{-}T\text{-}B} + 1$; $CL\text{-}T\text{-}CL = F_{CL\text{-}T\text{-}CL}/F_{B\text{-}T\text{-}B} + 1$

c) $B = (F_{CL\text{-}T\text{-}B} + F_{CL\text{-}T\text{-}CL}) / C_{PBT}$

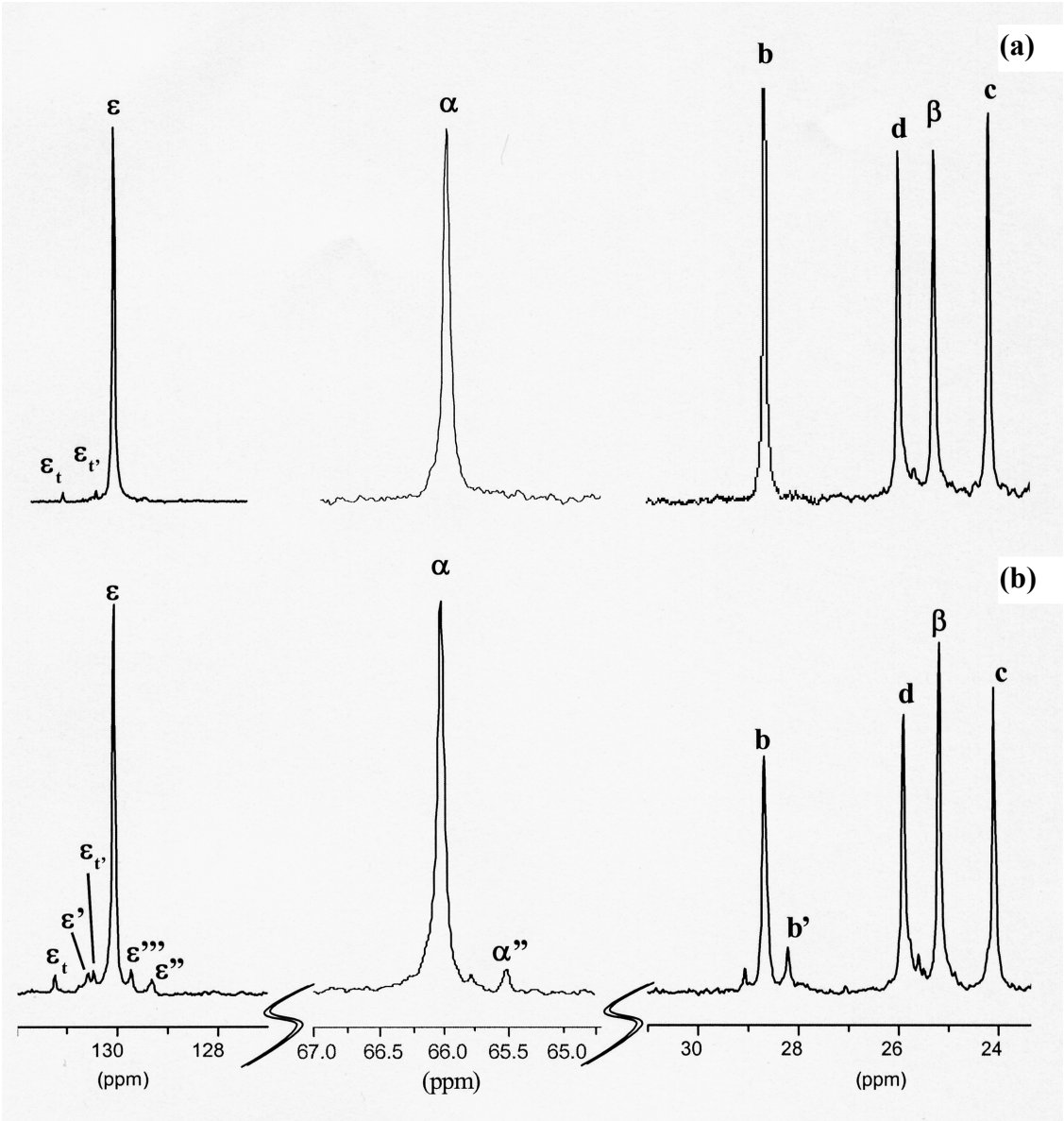
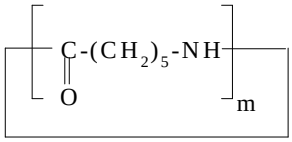
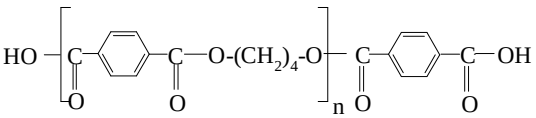
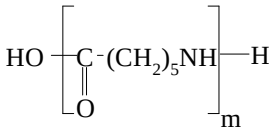


Figure 1S: ^{13}C-NMR spectra of high molar mass Ny6/PBT blends heated for 1h at: a) room temperature and b) 290°C.

A = 

B = 

C = 

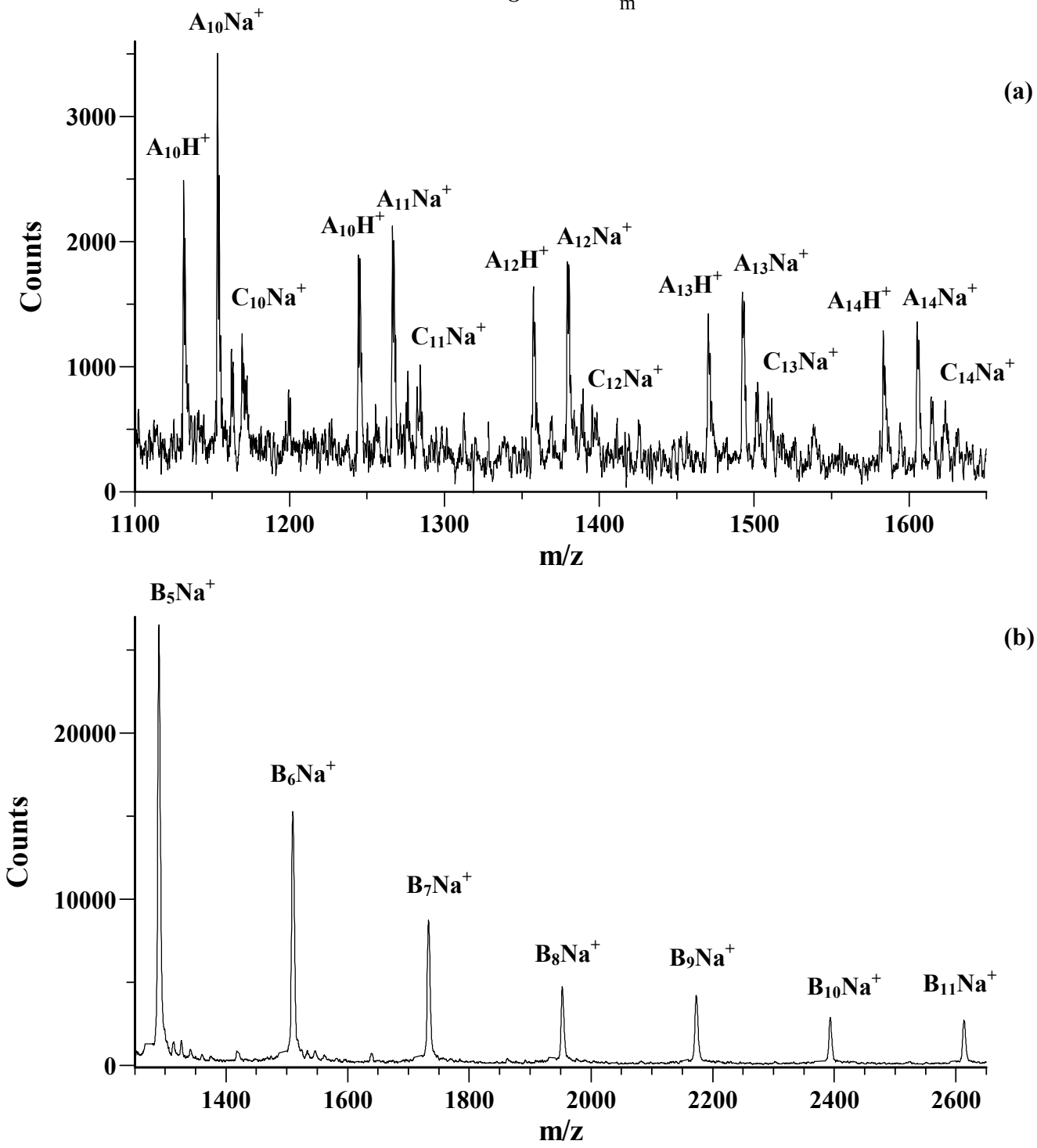


Figure 2S – Enlarged section of MALDI spectra of a) Ny6 and b) PBT-COOH samples. Peaks assignments are reported in Table 3.