

Supporting information

Unexpected Multi-walled Carbon Nanotubes Behaviour on “*in situ*” Radical Polymerization Process : When CarbonNanoTubes act as Initiator & Chemical Motor for Controlled Radical Polymerization

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Table TI-1. Influence of MWCNT presence on polymers synthesis regarding the molar mass (M_n) and weight conversion (C_w)

polymer	MWCNT [*] (wt%)	M_n (g.mol ⁻¹)	variation M_n	C_w ^{**} (%)	variation C_w
PMMA	0	20 000		25	
MWNT-PMMA	4.4	17 000	- 15%	44	+ 75%
PAA- <i>b</i> -PMMA	0	60 000		40	
MWNT-PAA- <i>b</i> -PMMA	2.25	50 000	- 17%	59	+ 50%
PS- <i>b</i> -PMMA	0	13 000		11	
MWNT-PS- <i>b</i> -PMMA	3	5 500	- 58%	13	+ 20%

$$^* \%MWCNT = m_{MWNT} / m_{monomer} , \quad ^{**} C_w = m_{polymer} / m_{monomer}$$

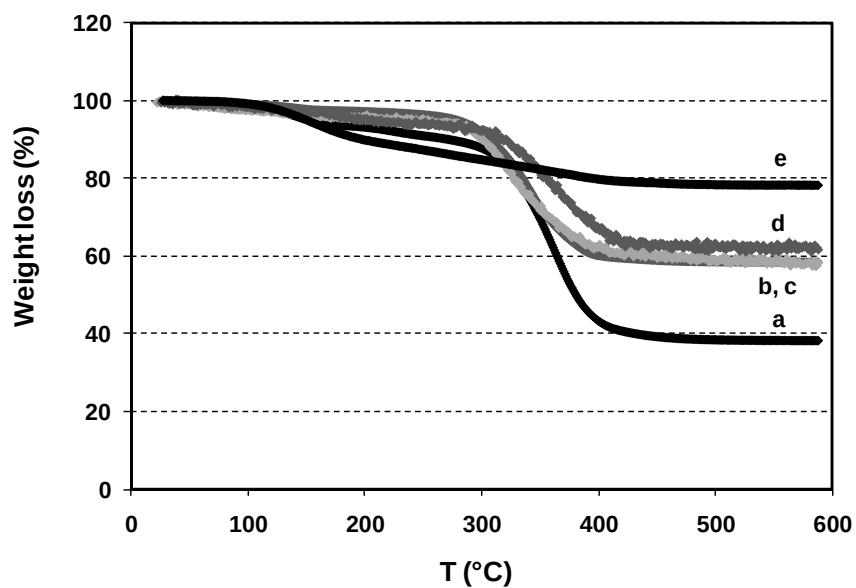


Figure SI-1. TGA Thermograms ($10\text{ }^{\circ}\text{C}.\text{min}^{-1}$) of PAA-*b*-PMMA-*g*-MWNT nanocomposites synthesized in absence of radical initiator with different SG1 contents (Table 1 entries *a* to *e*).

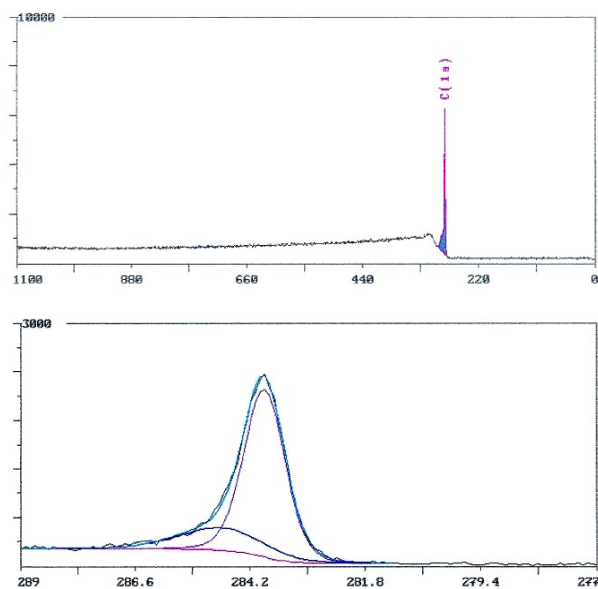


Figure SI-2. Total XPS spectra of the MWCNT and deconvolution of the associated C(1s) peak.