

Supporting Information

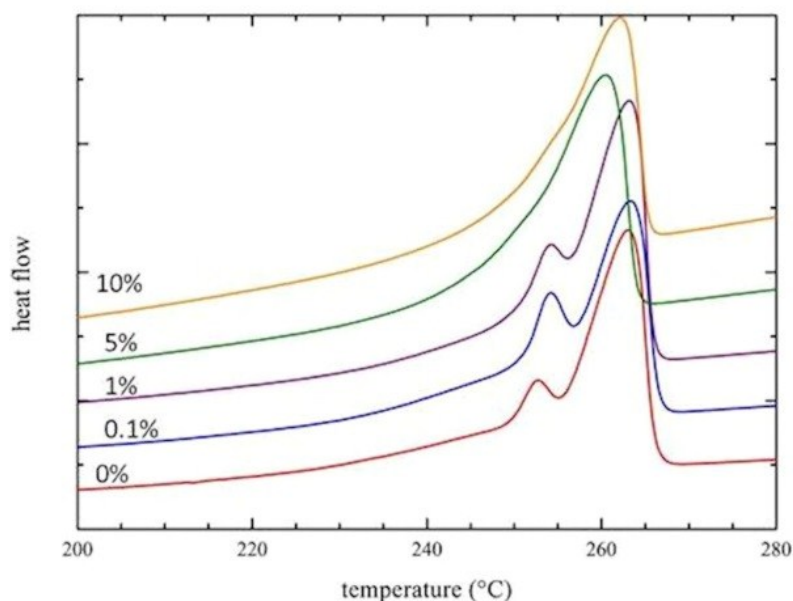
Nylon 6,6/graphite nanoplate composite films obtained from a new solvent

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Figure S1: DSC melting thermograms of the nylon 6,6/GnP composites.



The DSC thermograms of the samples of bare nylon 6,6 and with different GnP loadings are shown in Figure S1. The dissolution of nylon 6,6 in the TFA-acetone solvent gives rise to two melting peaks at 253 °C (T_{m1}) and 262 °C (T_{m2}). T_{m1} is generally attributed to less stable crystalline lamellae formed during re-crystallization, while T_{m2} is due to the highly crystalline lamellae of nylon 6,6 [1], [2], [3]. Upon the GnP addition in the nylon 6,6 matrix T_{m1} is gradually merged into

T_{m2} , with increasing GnPs load. At the two higher loads the different crystalline domains give rise to one broader melting peak at around 261°C, indicating that the thickening of the more crystalline lamellae is probably unaffected by the re-crystallization.

References:

- [1] J.P. Bell, P.E. Slade, J.H. Dumbleton, Multiple melting in nylon 66, Journal of Polymer Science Part A-2: Polymer Physics 6 (1968) 1773-1781.
- [2] L. Li, C.Y. Li, C. Ni, L. Rong, B. Hsiao, Structure and crystallization behavior of Nylon 66/multi-walled carbon nanotube nanocomposites at low carbon nanotube contents, Polymer 48 (2007) 3452-3460.
- [3] G. Zhang, T. Watanabe, H. Yoshida, T. Kawai, Phase Transition Behavior of Nylon-66, Nylon-48, and Blends, Polym J 35 (2003) 173-177.