

Supporting information

Influence of Lamellar Thickness on the Transformation in Isotactic Polybutylene-1/ Carbon Nanotube Nanocomposites

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SI.1. Isothermal crystallization kinetics for neat PB-1 and PB-1/CNT nanocomposites.

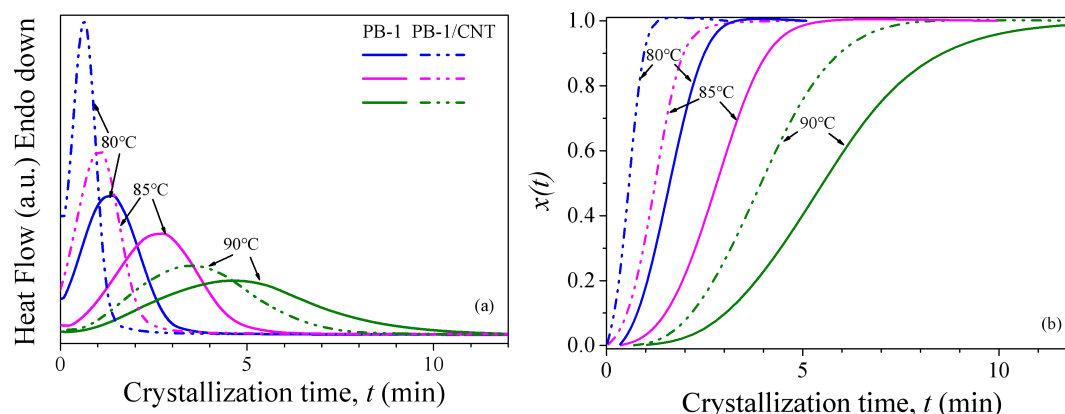


Fig. S1 (a) DSC heat flow curves and (b) changes of relative crystallinity ($x(t)$) as functions of crystallization time during isothermal crystallization at $T_c = 90, 85, 80^\circ\text{C}$ for neat PB-1 (solid lines) and PB-1/CNT nanocomposites (dashed lines).

SI.2. Isothermal crystallization POM pictures of samples at 80°C.

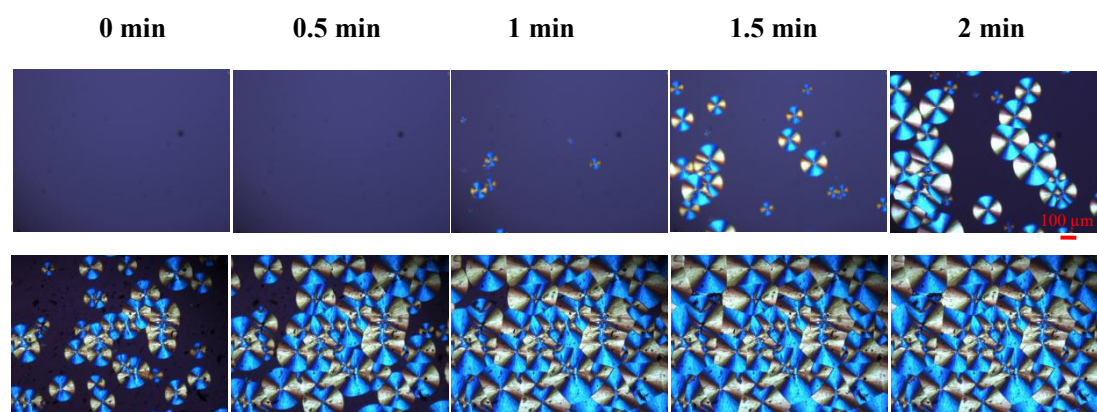


Fig. S2 Selected POM pictures of neat PB-1 (top) and PB-1/CNT nanocomposites (bottom) during isothermal crystallization for different time at 80°C (the scale bar is 100 μm).

SI.3. The transition mechanisms for neat PB-1 and PB-1/CNT nanocomposites.

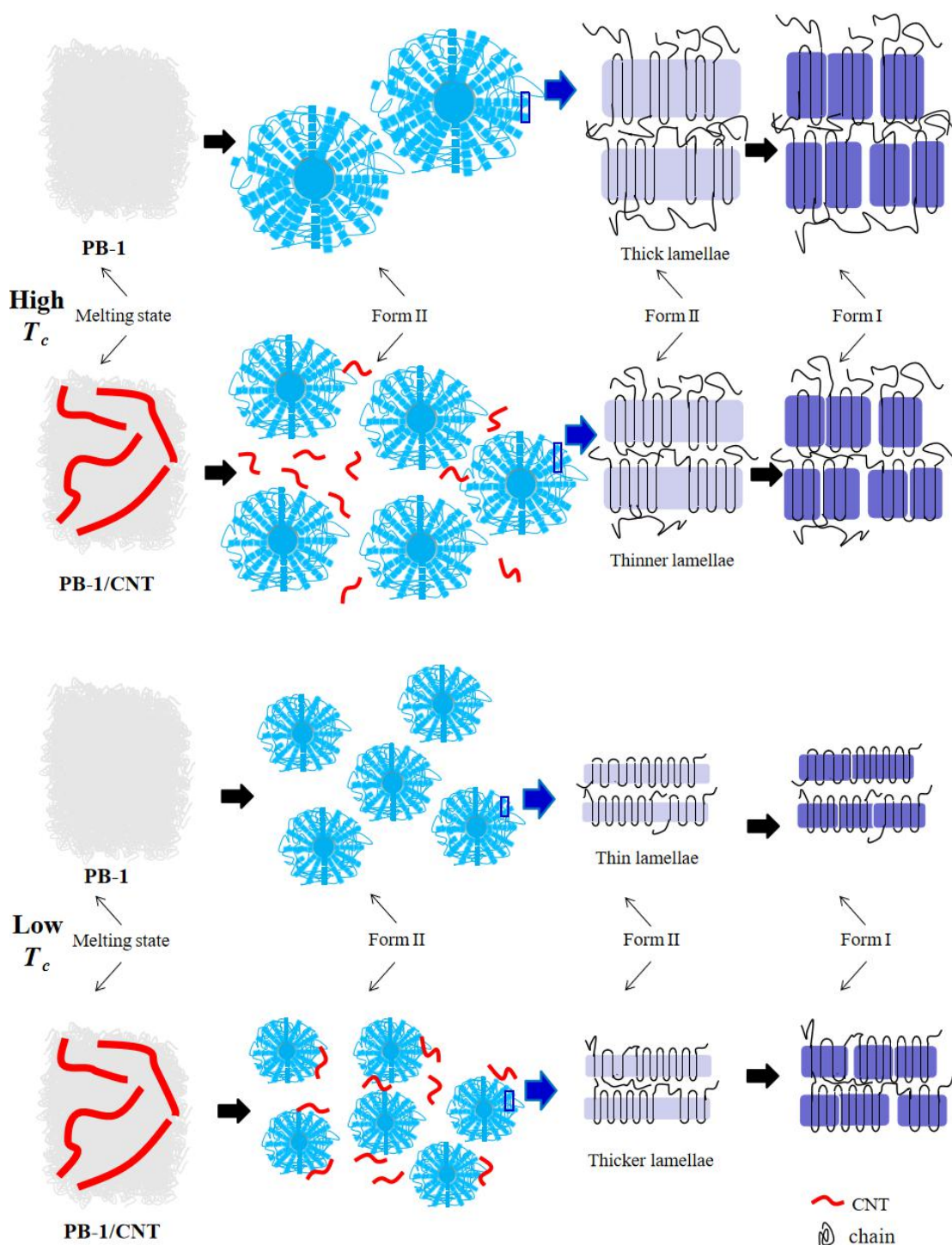


Fig. S3 Schematic representation of transition for neat PB-1 and PB-1/CNT nanocomposites at high T_c (top) and low T_c (bottom).

Figure S3 shows the transition mechanisms at different T_c . The lamellar thickness in PB-1/CNT nanocomposites is thinner than that in neat PB-1 when T_c is higher than $\sim 88^\circ\text{C}$, while it is thicker when T_c is lower than $\sim 88^\circ\text{C}$.

Moreover, the spherulites of form II in PB-1/CNT nanocomposites are relatively denser and smaller in contrast with neat PB-1 at the same T_c . Besides, the number of chain folding decreases and the density of chain ends increases for thicker lamellae.