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## DRIVING POLYSTYRENE MODIFIED CNTS TO THE INTERFACE OF IMMISCIBLE POLYMER BLENDS

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In literature, both theoretical studies and experimental data reveal that a relatively strong noncovalent interaction exists between polystyrene (PS) and Multiwalled Carbon Nanotubes (CNTs)<sup>1, 2</sup>.

In this work, CNTs nanocomposite materials are prepared by melt-blending PS-grafted CNTs (PS-g-CNTs) or PS melt-coated CNTs (PS-c-CNTs) with polyamide 12 (PA12) first then melt-blending with ethylene acrylate copolymer (EA). A part of the PS-g-CNTs and PS-c-CNTs, respectively, migrate from the PA12 phase to the interface of the PA12/EA blend. This behaviour is different from that of unfunctionalized CNTs, which migrate to the interface of the same blend only when they are first mixed with EA and then with PA12. On the other hand if first mixed with PA12 then with EA, the CNTs stay inside PA12 phase.

PS-c-CNTs migrate from PA12 to the interface of PA12/EA, which suggests that the interaction between CNTs and PS chains is sufficient for PS chains to cover at the surface of CNTs and "shield" them.

In addition, we find that PS with longer chain ( $M_w=2,890,000$  g/mol) are better able to drive CNTs to the interface than short chains ( $M_w=2,980$  g/mol).