

Abstract Submitted
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Crystallization effects of carbon nanotubes on semicrystalline isotactic polypropylene¹ GEORGI GEORGIEV, Assumption College, SCOTT SCHOEN, DEVIN IVY, PEGGY CEBE, Tufts University, ASSUMPTION / TUFTS TEAM — When carbon nanotubes are introduced in isotactic polypropylene (iPP) materials the iPP crystals assemble in a fibrillar instead of spherulitic arrangement. We study the effects of concentration and isothermal vs nonisothermal treatments on the rate of crystal formation. Those nanocomposites provide means of controlling the crystal orientation in polymer materials by aligning the nanotubes and creating materials with novel properties. We used Differential Scanning Calorimetry (DSC) as our primary method of investigation due to its ability to give detailed data on the phase transitions of iPP nanocomposites with low concentrations of CNTs (0-5 percent). We analyzed the crystallization of each sample in the DSC at a range of cooling rates (10-20C/minute). We found that increased concentrations of CNTs speed up the nanocomposites' crystallization and decrease the crystal size distribution.

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