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**Retarded Crystallization in Polyamide/Layered Silicates Nanocomposites caused by an Immobilized Interphase** ANDREAS WURM, MOHAMED ISMAIL, CHRISTOPH SCHICK, University of Rostock, BERND KRETZSCHMAR, DORIS POSPIECH, Leibniz Institute of Polymer Research Dresden — For semicrystalline polymers the concept of rigid amorphous fraction (RAF) at the interface between crystalline and amorphous material is well established. On the other hand, it was found that polymer composites based on inorganic nano-sized fillers distributed in an amorphous polymer matrix show a rigid amorphous fraction, too. In this contribution we will discuss rigid amorphous fractions in semicrystalline polymer nanocomposites. The rigid amorphous material in this class of polymers originates simultaneously from two different interaction mechanisms: (i) rigid amorphous due to interaction of the polymer with the crystals and (ii) rigid amorphous due to interaction of the polymer with the nanofillers. We present heat capacity data which allow determining fractions of different mobility for different filler contents quantitatively by analyzing the step at glass transition as well as the melting peak. A retarded crystallization behavior due to immobilized polymer segments at the surface of the nanofiller was observed. The remaining mobile amorphous fraction in polyamide-6.6/Nanofil 9 nanocomposites was independent on the filler content as well as the total rigid fraction. Only the distribution of crystalline and RAF changes as a function of filler content.

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