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 WILEY-VCH

Nanocomposite Science and Technology



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Nanocomposite. Nanocomposites can be defined as multicomponent materials comprising multiple different (nongaseous) phase domains in which at least one type of phase domain is a continuous phase and in which at least one of the phases has at least one dimension of the order of nanometers (Chen et al., 2007). From: Wound Healing Biomaterials, 2016. Nanocomposites are heterogeneous materials—thus their properties are determined by the same factors as in traditional composites, i.e., component properties, composition, structure, and interfacial interactions. On the other hand, their structure is usually more complicated than that of microcomposites, and that is especially valid for polymer/layered silicate nanocomposites. Nanocomposite; Science and Technology. Book · May 2012 with 232 Reads. How we measure 'reads'. Nanocomposites are produced by the addition of fillers (and other reactants) into polymer melts under mechanical action and high temperature (above the glass transition temperature of the polymer). The viscosity of the polymer -nanoparticles melts can impact this processing method: the addition of nanoparticles can rapidly and strongly increases the viscosity of the melt making the process not possible anymore (Schadler 2004). Moreover due to the tendency of nanoparticles to agglomerate this method leads to random particle dispersion in the polymer matrix (Caseri 2007).