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Toxicological Evaluation of Clay Nanomaterials and Polymer-Clay Nanocomposites

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Abstract

© The Royal Society of Chemistry 2017. Clay nanoparticles are widely used as additives for the fabrication of polymer nanocomposites in industry. The nanoclay dopants effectively attenuate mechanical and functional properties of nanocomposites thus expanding their practical applications. This implies an increased risk of human exposure to nanoclays and\or nanoclay-doped polymer composites. Consequently, the evaluation of the toxicity of nanoclays and nanoclay-doped polymer composites is deemed to be of crucial importance, since the expanding use of nanoclays increases the risk of human exposure. Recent studies report the evaluation of toxicity of various nanoclays employing both in vitro and in vivo models, based on microorganisms, cell cultures, invertebrates and mammals. In this chapter, we overview the toxicity evaluation and biocompatibility studies of clay nanoparticles and nanoclay-doped nanocomposite polymer materials.

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