

Review article: applications of nanocomposites in industrial systems

ABSTRACT

A nanocomposite is a multiphase solid material in which one of the phases has one, two, or three dimensions smaller than 100 nanometres, or structures having nano-scale repeat distances between the different phases that make up the material. Nano inorganic or organic powders or films with special physical properties are combined with polymers to form polymer nanocomposites whose physical properties and mechanical performance significantly differ from those of the component materials. A primary purpose of producing polymer nanocomposites is to impart the composites with multifunctional properties. There has been rapid development of multifunctional polymer nanocomposites and a number of achievements have been reported. Due to their novel properties, multifunctional polymer nanocomposites can be used in a broad range of applications from outer space to automobiles, and to address challenges in organic solar cells, and biological technologies.

Keyword: Nanocomposite; Nanometres; Nano-scale