Processing Aspects and Biomedical and Environmental Applications of Sustainable Nanocomposites Containing Nanofillers

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1 Introduction

Polymer matrices such as rubber, plastic, acrylic, ethylene are commonly available in the market. These materials have advantages due to their lightweight, straightforward processing, and low cost [1], with outstanding corrosion stability and ductility. The major disadvantages of the polymer components are the low thermal and environmental stability (against UV), low acid resistance, and conductivity [2]. To overcome the problems, the polymer matrices are reinforced with fillers (particles, fibers, or platelets, synthetic or natural, organic or inorganic) at macro, micro, or nanoscale [3–5]. The resultant composite materials have characteristics different from the individual constituent. The composites consisting of two or more constituents may have significantly different physical or chemical properties, but the

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