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Biochar as Sustainable Reinforcement for Polymer Composites (Book Chapter)

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Abstract

Carbon materials that belong to micron, sub micron and nano domains have been extensively explored as the filler/reinforcement for the fabrication of various composite materials using thermoset, thermoplastic and elastomeric matrixes. Traditionally these carbon materials were synthesized by using petroleum based feedstocks as the source of carbon. As the demand for sustainable materials for various technological applications increased in recent years, there is a drive for finding new alternate carbon materials that are fabricated using renewable precursors. Hence, an increasing interest has been found in the field of renewable resource based carbon materials for various potential applications including composite fabrication. Among them, the biochar, a carbonaceous material obtained through pyrolysis of various renewable precursors has received increasing interest for composite fabrication as reinforcement. This article is focusing the recent advances and emerging opportunities of biochar based composite materials towards the enhancement of sustainable manufacturing. © 2020 Elsevier Inc. All rights reserved

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