Chapter 2
Relevance of Chemically Functionalized Nano-Fillers and Modified Nanocomposite in Energy Systems

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ABSTRACT

Reliable energy systems and advances in nanotechnology together will play key role in channeling future cutting edge inventions and developments in all spheres. In this review article, the pertinence of functionalizing nanofillers and modifying nanocomposites for improved performance in various energy applications such as energy conversion, energy efficiency, energy storage, alternative energy and energy saving are expounded. This article also presents structures and unique properties of commonly used nanofillers; advances, improvement potentials and characterization of nanocomposites used in energy systems. Theoretical and experimental literature reviewed revealed that nanofillers engender improved properties in polymeric matrices. Functionalization is applicable to all types of nanofillers in use today, a number of functionalized nanofillers are already commercially available; and more extensive research is needed to achieve optimal improved results with the use of nanofillers and nanocomposites in various fields of applications.

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