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Chapter 13 - Development of PVDF-based polymer nanocomposites for energy applications

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Abstract

The unreliable existence of energy resources always prompt researchers to develop new energy harvesting and storage devices. From decades, polymers and their nanocomposites gained the attention of scientists due to their excellent physicochemical properties. Generally, polymers and their nanocomposites are used as separators, electrolytes, and piezoelectric generator in the production of energy storage devices. PVDF is one such potential electroactive polymer used in the fabrication of energy storage and harvesting devices due to its excellent piezo-, pyro- and ferroelectric properties, moreover flexibility, adhesion strength, resistance toward chemicals and temperature. The fabrication of PVDF based energy devices mostly depended on the synthesis part. This chapter concisely giving an outline of the synthesis methods used in preparation PVDF based nanocomposites for energy-related applications.

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Keywords

Energy harvesting devices; Energy storage devices; Nanocomposites; Polyvinylidene fluoride; Synthesis methods