

A review on thermal performance of hybrid natural fiber/nanoclay polymer composites

ABSTRACT

This chapter review on the thermal analysis on the performance of hybrid natural fiber/nanoclay in polymer composite. During the last decade, there has been an interest in using natural fiber as an alternative to synthetic fiber such as glass fiber. The major attraction in using natural fiber as part of reinforcing materials in nanocomposite are renewable materials, biodegradable, low material price, and weight saving. Some efforts have been made on improving the thermal properties of natural fiber reinforced polymer (NFRP) composite by inclusion of thermally stable layered silicate of nanoclay. The layered silicate structure of nanoclay can act as a barrier towards heat by forming layer of char residue after burn at high temperature. This characteristic delays the degradation process and further improves the thermal stability of the composite. In addition, the flammability of the hybrid natural fiber/nanoclays polymer composite was found to decrease with presence of exfoliated layered structure of nanoclay.

Keywords: Nanoclay; Natural fiber; Thermal stability; Flammability; Crystallization temperature