

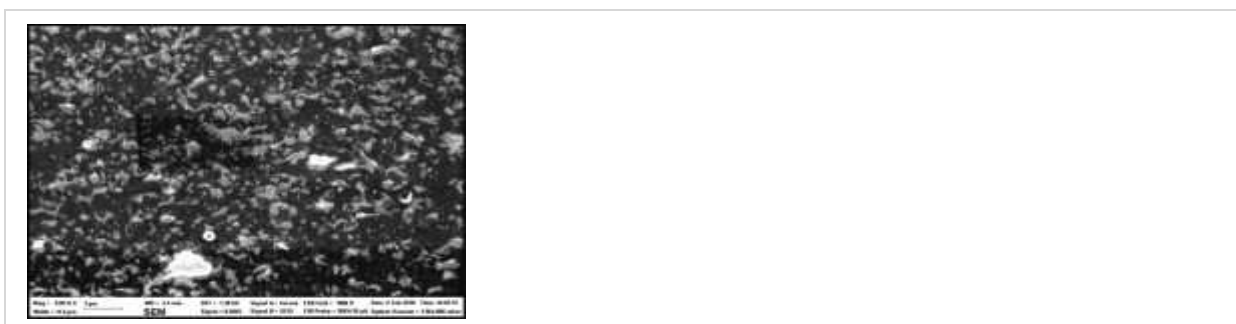
Unique morphology of dispersed clay particles in a polymer nanocomposite

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Abstract

This communication reports a unique morphology of dispersed clay particles in a polymer nanocomposite. A nanocomposite of poly[butylene succinate)-co-adipate] (PBSA) with 3 wt% of organically modified montmorillonite was prepared by melt-blending in a batch mixer. The focused-ion beam cross-sectioning at 36° to the sample surface, followed by delineation etching with water revealed a unique dispersed morphology of the clay particles in PBSA nanocomposite. The scanning electron microscopy image showed a unique structure, where the vertically embedded stacked silicate layers fall down to the PBSA matrix, forming a corn-flake like structure. This unique structured was called as “nano-flake”.

Graphical abstract



Keywords

- Polymer nanocomposite;
- Morphology of dispersed clay particles;
- Focused-ion beam