

Embedded Phase Change Material Nanoparticles With Polymer Nanofibers Via Electrospinning

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Phase change material-polyurea (PCM-PU) nanocapsules were prepared by interfacial polycondensation¹. Morphology and inner structure of nanocapsules were observed by SEM and TEM method. Particle size distribution and heat storage of nanocapsules were analyzed by differential scanning calorimetry. PCM-Polymer nanofibers from poly(vinyl alcohol) were fabricated using electrospinning(ES) for heat storage nanofiber mats. PCM-PU-PVA nanofibers were characterized by scanning and transmission electron microscopy to confirm their surface morphology and coated layer structure². Heat storage ability and thermal stability of nanofibers were analyzed by differential scanning calorimetry (DSC) and thermogravimetric analysis(TGA) . PCM-polymer nanofibers were demonstrated good heat storage properties and expected to be excellent candidates for heat storage applications.