

Fabrication of heat storage polymer nanofiber via electrospinning with embedded phase change material nanoparticles

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