Fabrication of heat storage nanofibers via electrospinning method with phase change material-polymer nanocapsules

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Phase change material-polyurea (PCM-PU) nanocapsules were prepared by interfacial polycondensation1. Morphology and inner structure of nanocapsules were proved by SEM and TEM method. Particle size distribution and heat storage of nanocapsules were analyzed by differential scanning calorimetry. PCM-Polymer nanofibers from poly (ethylene oxide) were fabricated using electrospinning(ES) for heat storage nanofiber mats. PCM-PU-PEO 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.