Fabrication and performances of microencapsulated phase change materials based on n-octadecane core and conducting polymers shell

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Phase change material (PCM, octadecane) have been coated with overlayers of polypyrrole from aqueous solution which is prepared by Fe3+ -catalyzed oxidative polymerization in miniemulsion system.
PCM-PPy core-shell nanoparticles were confirmed by scanning electron microscope (SEM) and Transmission Electron Microscope (TEM). Amount of heat storage and thermal behavior of PCM-PPy nanoparticles were analyzed by differential scanning calorimetry (DSC). Electrical conductivity PCM-PPy nanoparticle was analyzed by 4-probe conductivity meter.