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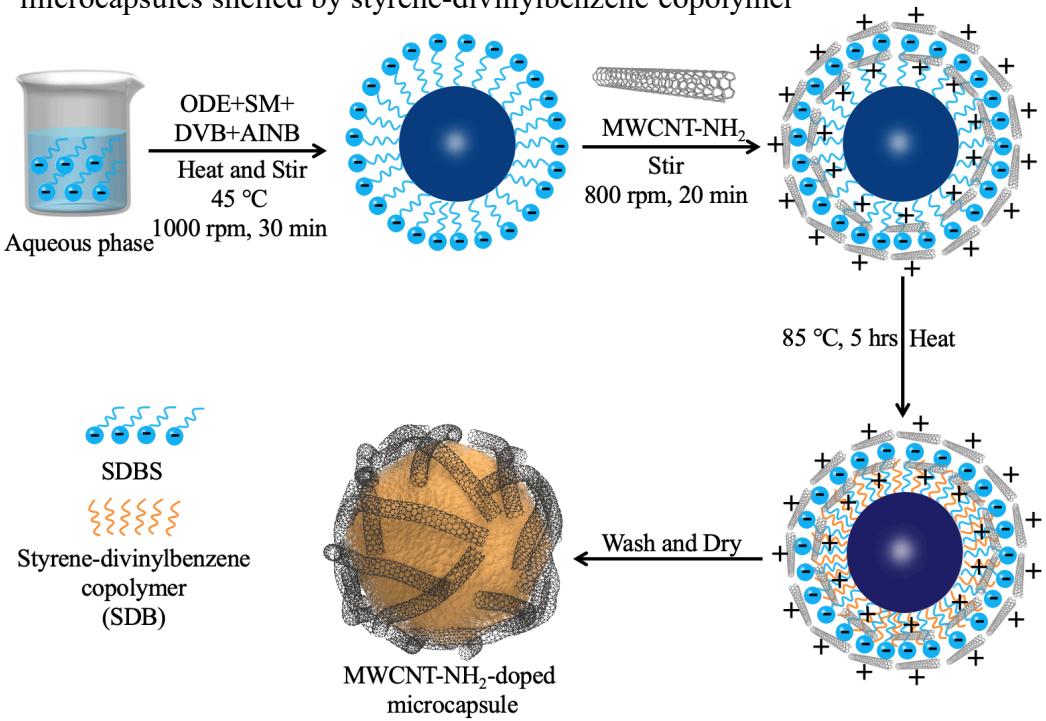
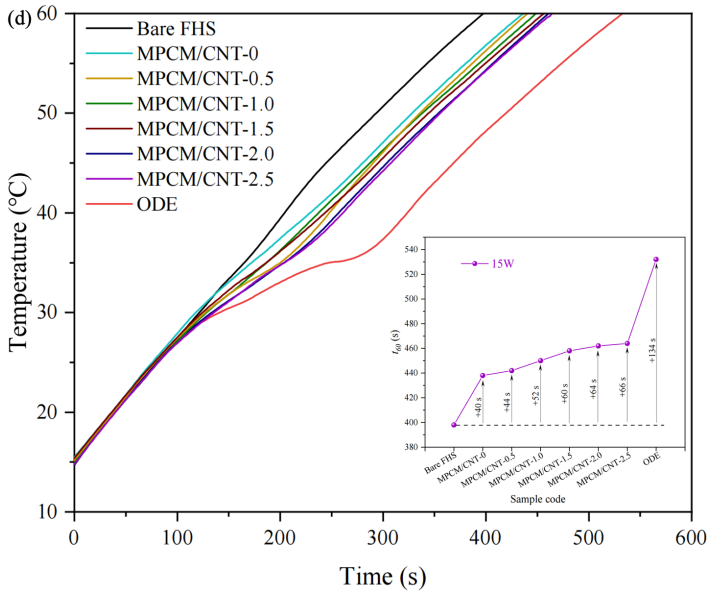
Microcapsulated and Doped Phase-Change Materials for Energy Storage and Related Applications

Synthetic route for the aminated MWCNT doped n-Octadecane microcapsules shelled by styrene-divinylbenzene copolymer



Test of the microcapsules in fined heat sink showed time delay in temperature rise.



- Energy storage is an important component of renewable energies. To use energy efficiently is to store and manage it. Energy storage also reduces the discrepancy between energy supply and demand as well as plays a vital role in saving of energy by converting it into other reliable forms.
- Disadvantages such as low thermal conductivity, low thermal stability, and leakage may prevent phase-change materials in practical applications. Encapsulation and additives could resolve these issues.
- Doping 2.5% MWCNT in the shell could enhance the thermal conductivity by 229%.