Coated Phase Change Materials (PCM) Particles for Light-to-Heat Conversion and Heat Storage

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The conversion of sunlight into heat is an effective way to utilize solar energy. PCM's, such as waxes or fatty acids, are able to store heat at high temperatures and release heat at lower temperatures. The aim of this project is to prepare particles of PCM with a photothermal layer (for the extended purpose of capturing and storing heat generated from solar radiation). The experiment was successful; the particles can convert infrared light to heat whilst also increasing the temperature of the particles to above the melting point of the PCM without leaking. It is expected that this type of novel particle can be employed in various applications, e.g. improving the heat insulation of rooftops, and the construction of ice-free pavement, etc.

Awards Won: