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Investigating Thermal Properties of Using Nano-Tubular ZnO Powder in Paraffin as Phase Change Material Composite for Thermal Energy Storage

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Abstract

The thermal energy storage (TES) in phase change materials (PCMs) plays an important role in energy management systems. Paraffin has found wide range of applications as a PCM due to its unique thermal and physical properties. In this study, nano zinc oxide in tubular shape and powder form is synthesized for the first time in literature. The nano tubular- zinc oxide is used as an additive with 10%wt composition to paraffin to prepare a nanocomposite. The variations in thermo physical properties of paraffin in composite form were subjected to investigate by experimentally.

Key words: Phase change materials; thermal energy storage; paraffin; nano-tubular zinc oxide.