

Waste materials as the potential phase change material substitute in thermal energy storage system: A review

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ABSTRACT

Phase change material (PCM) has been recognized as one of the important element in the energy storage and conservation management. PCM and its combination has been widely used in many applications and significant number of literatures has been published to highlight the potential use of PCM as thermal energy storage (TES) material. However, although the information is quantitatively enormous and the application of waste has becoming a trending subject nowadays, documented researches on PCM material derived from waste material are still very scarce. Therefore, in this paper, in-depth reviews on the implementation of potential waste materials in PCM considering its purposes in improving the TES performance, economic values and environment were reviewed and elaborated. Overall, this review shows potential utilization of waste materials as a new material substitute to produce an efficient, cost-effective and environmentally friendly PCM in the future TES system.

KEYWORDS

Composte; Energy; Matrix filler; Phase change material; Thermal energy storage; Waste materials

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