

Analysis of the Behavior of Phase Change Material in Solar Energy Storage Using Computational Tools

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Abstract

In this study, the temperature profile of the sodium nitrate phase change material NaNO_3 is characterized, using a spherical macro encapsulation technique to increase the heat transfer properties, simulating through computer tools the behavior of this material when it is used as an alternative source of energy for heat exchange processes, where the primary energy source has interruptions in the heat supply, the data obtained show for the proposed model that the system is capable of maintaining the outlet temperature for at least 20s and a temperature drop of 50K for 60s, being promising data for the use of these materials in heat exchange processes as is the energy support of solar collectors.

Keywords

Solar Energy; Computational Tools; Macro encapsulation