



Título: STUDY OF A UREA-BASED PHASE CHANGE MATERIAL FOR THERMAL ENERGY STORAGE.

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Descriptores:

- > CAMBIO DE FASE
- > ENSAYO DE MATERIALES

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Resumen: This work presents a contribution to the LHTES technology by working on both PCM materials and storage systems that are technically and economically viable for their integration in buildings. The previously identified urea-sodium nitrate eutectic mixture was studied to determine technical aspects regarding the material hygroscopic behavior handling, thermal degradation, supercooling and phase segregation. The characterization of these parameters serve to evaluate feasibility of the mixture as a PCM, because they can jeopardize the long-term use of the PCM and the efficiency of the heat storage. The study of the material include the development of methodologies that are more practical and representative of the operation in the final application than the traditionally used in PCM characterization. In addition, the thermal behavior of an existent industrial shell and tubes heat exchanger, modified for its use as latent heat thermal energy storage device, was studied to understand the thermal behavior of such systems with the objective of reducing costs.

