High-Temperature Resistant Energy Storage Containers for Latin American Cement Plants

Can calcium aluminate based cement be used as thermal energy storage?
Alonso, M.C.; Vera-Agullo, J.; Guerreiro, L.; Flor-Laguna, V.; Sanchez, M.; Collares-Pereira, M. Calcium aluminate based cement for concrete to be used as thermal energy storage in solar thermal electricity plants. Cem. Concr. Res. 2016, 82, 74-86. [Google Scholar] [CrossRef]

What is high-temperature thermal storage (HTTs)?
High-temperature thermal storage (HTTS), particularly when integrated with steam-driven power plants, offers a solution to balance temporal mismatches between the energy supply and demand. However,...

Are sorbent materials a barrier to thermal energy storage?
Provided by the Springer Nature SharedIt content-sharing initiative The lack of robust and low-cost sorbent materials still represents a formidable technological barrierfor long-term storage of (renewable) thermal energy and more generally for Adsorptive Heat Transformations--AHT.

Can TES based on concrete be used for high temperature applications?
One of the first concepts for TES based on concrete for high temperature applicationswas developed and studied by DLR. Laing et al. [12]built a prototype with high-temperature concrete and a storage capacity of approximately 280 kWh.

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Thermal energy storage (TES) allows the existing mismatch between supply and demand in energy systems to be overcome. Considering temperatures above 150 °C, there ...

The economic performance of diferent energy storage materials is investigated for materials selection. The proposed manufacturing process with a few high-temperature energy ...

Compared to traditional 20/40-foot metal energy storage containers, our single-unit modular design offers greater space flexibility, enhances space utilization efficiency, and ...

This study seeks to make a significant impact by developing an advanced concrete tailored for high-temperature applications, including critical uses in thermal energy storage for ...

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Rondo's thermal storage solution enables cement facilities to repower with renewable, high-temperature heat without costly infrastructure changes. Provides consistent high-temperature ...

In order to enhance flexibility in scaling up a high temperature TES, EnergyNest developed and tested a 2 500 kWth thermal energy storage system based on a modular design with ...

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Six supplementary cementitious materials (SCMs) were identified to be incorporated in concrete exposed to high-temperature cycling conditions within the thermal energy storage literature.

These tests have focused on understanding the thermal properties and resistance to fatigue of var-ious concrete mixtures at high temperatures, experiments to enhance the energy ...

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