Mirabilite phase change energy storage system

Is mirabilite a good energy storage material?
Volume 16, article number 220619, (2022) As a kind of essential hydrated salt phase change energy storage materials, mirabilite with high energy storage density and mild phase-transition temperature has excellent application potential in the problems of solar time and space mismatch.

What is mirabilite used for?
Mirabilite,commonly known as Glauber's salt,is a typical inorganic hydrated salt used as phase change material. Its natural abundance,high latent heat and convenient phase change temperature (32?) make it an attractive material for storing low grade solar heat and building heating applications .

Can biobased phase change materials revolutionise thermal energy storage?
Low,medium-low,medium,and high temperature applications. An upcoming focus should be life cycle analyses of biobased phase change materials. Harnessing the potential of phase change materials can revolutionise thermal energy storage,addressing the discrepancy between energy generation and consumption.

What is the latent heat of crystallization of CGCA-supported mirabilite phase change materials?
The latent heats of melting and crystallization of CGCA-supported mirabilite phase change materials (CGCA-PCMs) are 157.1 and 114.8 J·g -1,respectively. Furthermore,after 1500 solid--liquid cycles,there is no leakage,and the retention rate of crystallization latent heat is 45.32%,exhibiting remarkable thermal cycling stability.

Are phase change materials effective latent heat storage?
In particular,latent heat storage through phase change materials has attracted extensive attention for its large storage capacity ,. Phase change materials (PCM's) are effective latent heat thermal storage materialsbecause they store and release thermal energy during the process of melting and freezing .

How do hydrophilic aerogels support mirabilite phase change materials (CGCA-PCMS)?
The hydrophilic aerogels supported MPCMs decrease mirabilite leakingand reduce supercooling to around 0.7-1 °C. The latent heats of melting and crystallization of CGCA-supported mirabilite phase change materials (CGCA-PCMs) are 157.1 and 114.8 J·g -1,respectively.

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???: ?????, ??, ???, ??????, ??? Abstract: Sodium sulfate decahydrate is a popular inorganic hydrated salt phase change material because of its suitable phase change ...

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Download scientific diagram | T-X phase diagram of the binary system sodium sulfate-water at room pressure showing stable phase boundaries (solid) and metastable phase boundaries ...

Super-cooling phenomenon and phase separation of mirabilite have been verified by adding various additives. Proportion of additives was tested repeatedly. Supercooling degree was ...

Hierarchically porous CMC/rGO/CNFs aerogels for leakage-proof mirabilite phase change materials with superior energy thermal storage (2022) Fenglan Chen, Xin Liu, Zhengya Wang, ...

In this study, nitrogen-doped porous carbon is used as the carrier, and the mirabilite phase-change energy storage material is compounded with nitrogen-doped porous carbon to solve ...

Caron-Soupart A, Fourmigué JF, Marty P, Couturier R (2016) Performance analysis of thermal energy storage systems using phase change material. Appl Therm Eng 98:1286-1296 ...

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Phase change materials (PCMs) are a class of thermo-responsive materials that can be utilized to trigger a phase transition which gives them thermal energy storage capacity.