Components of molten salt for solar thermal storage

Overview

Material aspects of Solar Salt for sensible heat storageHighlights Thermophysical data of Solar Salt reviewed and consistent data identified. Abstract For sensible thermal energy storage (TES) in liquids in the temperature range from 250 °C to 550 °C, a mixture of 60 wt% sodium nitrate (NaNO 3) and 40 wt% potassium nitrate (KNO 3), known as Solar Salt, is commonly utilized. Keywords Molten salt .

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At the end of 2019 the worldwide power generation capacity from molten salt storage in concentrating solar power (CSP) plants was 21 GWh el. This article gives an overview of molten salt storage in CSP and new potential fields for decarbonization such as industrial processes, conventional power plants and electrical energy storage.

High order carbonate - fluoride molten salt systems have been developed using thermodynamic modeling method. Experimental determination of melting points of higher order carbonate-fluoride systems was completed. Experimental determination of heat capacities of higher order carbonate-fluoride systems was completed.

Nitrate molten salts are extensively used for sensible heat storage in Concentrated Solar Power (CSP) plants and thermal energy storage (TES) systems. They are the most promising materials for .

This review presents potential applications of molten salts in solar and nuclear TES and the factors influencing their performance. Ternary salts (Hitec salt, Hitec XL) are found to be best suited for concentrated solar plants due to their lower melting point and higher efficiency.

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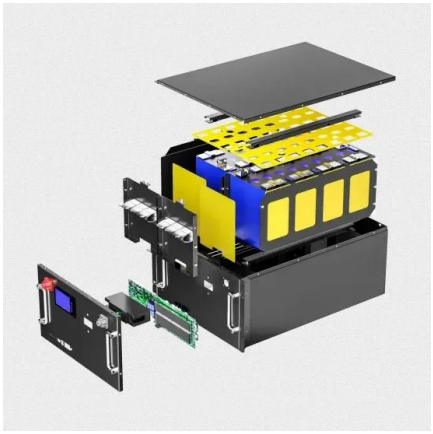

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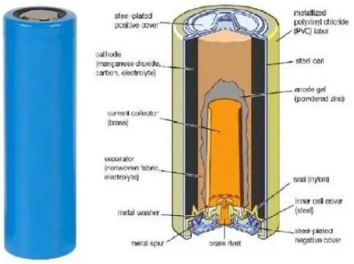

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