

Sodium-sulfur battery energy storage container in Lagos Nigeria





Overview

What is a sodium-sulfur battery?

Sodium-sulfur (NaS) batteries are a promising energy storage technology for a number of applications, particularly those requiring high-power responses [11,21]. It is composed of a sodium-negative electrode, a sulfur cathode, and a beta-alumina solid electrolyte that produces sodium pentasulfide during the discharge reaction .

Are sodium-sulfur batteries harmful to health?

The substances used in the structure of this battery are harmful to health. Sodium-sulfur batteries provide high energy density of 110 Wh/kg and power density of 150 W/kg . Parts and general appearance of a typical sodium-sulfur battery are given in Fig. 5.12.

Who makes sodium sulfur batteries?

Utility-scale sodium-sulfur batteries are manufactured by only one company, NGK Insulators Limited (Nagoya, Japan), which currently has an annual production capacity of 90 MW . The sodium sulfur battery is a high-temperature battery. It operates at 300°C and utilizes a solid electrolyte, making it unique among the common secondary cells.

How long does a sodium sulfur battery last?

Lifetime is claimed to be 15 year or 4500 cycles and the efficiency is around 85%. Sodium sulfur batteries have one of the fastest response times, with a startup speed of 1 ms. The sodium sulfur battery has a high energy density and long cycle life. There are programmes underway to develop lower temperature sodium sulfur batteries.



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Sodium Sulfur Battery

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