

Prospects of needle coke for new energy batteries

Recently, potassium-ion batteries (PIBs) have attracted much attention for their development prospects in the field of large-scale energy storage [1, 2], due to the relatively higher potassium reserves of 2.09 wt% in the earth's crust and lower redox potential $K/K^+ (-2.93 \text{ V vs. SHE})$, which makes PIBs a potential high-voltage and high-energy energy storage device.

With the merits like small resistivity, excellent resistance to impact and good anti-oxidation property, needle coke has been widely used in ultra-high power graphite electrodes, nuclear reactor deceleration materials, and lithium battery anode ...

different types of petroleum coke, which depend on the temperature, time process and quality of raw material.²³ Among the main petcoke types obtained are sponge coke, needle coke and shot coke (Fig. 3). Sponge coke is the most common petroleum coke type, which has an opaque black color and amorphous appearance. Visibly, it is easily identi ...

According to industry estimates, the demand for needle coke for lithium-ion batteries is expected to grow at a CAGR of over 12% from 2021 to 2028. This growth is driven by the increasing demand for high-performance batteries, which require needle coke as a critical component.

This growth is largely driven by the increasing production of electric vehicles (EVs) and the subsequent demand for lithium-ion batteries, which utilize graphite electrodes made from Needle Coke. Furthermore, the rising investments in the steel industry, particularly in emerging economies, are propelling the market forward.

The growing demand for electric vehicles (EVs) and portable electronic devices has fueled the need for high-quality needle coke in lithium-ion battery manufacturing. As EV adoption continues...

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7.7.1 Shandong Yida New Materials Needle Coke for EV Batteries Corporation Information 7.7.2 Shandong Yida New Materials Needle Coke for EV Batteries Product Portfolio 7.7.3 Shandong Yida New Materials Needle Coke for EV Batteries Production, Value, Price and Gross Margin (2018-2023) 7.7.4 Shandong Yida New Materials Main Business and Markets ...

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