Discharge current of zinc-air battery

Discharge curves for the four different runs and the repeated experiment for each run: (a) electrolyte flow rate 60 ml/min and discharge current 175 mA (b) electrolyte flow rate 80 ml/min and ...

OverviewMaterialsHistoryReaction formulasStorage densityStorage and operating lifeDischarge propertiesCell typesCobalt oxide/carbon nanotube hybrid oxygen reduction catalyst and nickel-iron layered double hydroxide oxygen evolution cathode catalysts exhibited higher catalytic activity and durability in concentrated alkaline electrolytes than precious metal platinum and iridium catalysts. The resulting primary zinc-air battery showed peak power density of ~265 mW/cm, current density of ~200 mA/cm at 1 V and energy density >700 Wh/kg.

In order to alleviate the hydrogen evolution corrosion, passivation, and zinc dendrite growth during the charging and discharging of the zinc-bismuth negative electrode of zinc-air battery...

3 ???· Rechargeable zinc-air batteries (RZABs), with their superior theoretical energy density (about 1370 Wh kg-1 without oxygen), ... Figure 5 d and Table S1 show the discharge current density gradient under light and dark conditions. Regardless of the lighting conditions, the battery exhibited reliable reversibility, with the charge-discharge gap under illumination being ...

This study investigates the role of electrolyte flow in enhancing zinc electrodeposition and overall performance in zinc-air flow batteries (ZAFBs) at high current densities. We explore the interplay between current density, flow rate, and their influence on electrode surface morphology and the removal of the passivating zinc oxide layer to ...

Discharge data involved forty experiments with discharge current in the range of 100-200 mA, and electrolyte flow rates in the range of 0-140 ml/min. Such data are crucial for the modelling...

DOI: 10.1038/s41597-020-0539-y Corpus ID: 219958973; Discharge profile of a zinc-air flow battery at various electrolyte flow rates and discharge currents @article{Abbasi2020DischargePO, title={Discharge profile of a zinc-air flow battery at various electrolyte flow rates and discharge currents}, author={Ali Abbasi and Soraya Hosseini and ...

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Zinc-air batteries are a promising technology for large-scale electricity storage. However, their practical deployment has been hindered by some issues related to corrosion and passivation of the ...

Discharge current of zinc-air battery

Fig. 7 (b and c) show the discharge curves of sandwich-type near-neutral flexible zinc-air batteries at different current densities. The battery voltage rapidly drops during discharge in both environments but gradually returns to near initial values as the current decreases. As shown in Fig. 7 (d), the cycle voltage differences of near-neutral flexible zinc-air ...

In this paper, a method to increase the output power of a button zinc-air battery by applying acoustofluidics induced by ultrasonic excitation to the battery is proposed and demonstrated. In the structural design of the device, a flat piezoelectric ring was bonded onto the top of the outer surface of the cathode shell to excite an ultrasonic field in the battery. The ...

The discharge process of a rechargeable zinc-air battery based upon these electrocatalysts were first analyzed using CV in N 2 - and O 2 - flux in 0.1 molL-1 KOH solution. All of the prepared catalysts exhibited flat CV curves in N 2 - concentrated solution whereas a prominent irreversible cathodic peak was found in O 2 -concentrated solution (Fig. 9) ...

A zinc-air battery (ZAB) having the NiFeCo-NC2 catalyst performs better than the batteries using other catalysts. The NiFeCo-NC2 catalyst also exhibits excellent methanol tolerance, revealing...

This study investigates the role of electrolyte flow in enhancing zinc electrodeposition and overall performance in zinc-air flow batteries (ZAFBs) at high current densities. We explore the interplay between current density, flow rate, and their influence on electrode surface morphology and the removal of the passivating zinc oxide layer to improve ...

This study investigates the role of electrolyte flow in enhancing zinc electrodeposition and overall performance in zinc-air flow batteries (ZAFBs) at high current ...

Due to the limitation of cost and safety issues of traditional lithium-ion batteries, aqueous metal-air batteries have become the choice of the next-generation (Chen et al., 2022), among which Rechargeable zinc-air battery (ZAB) are most noteworthy (Wu et al., 2022) due to high energy density of 820 mA h/g which is about 5 times higher than the current lithium-ion ...

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