# 碱性固态 $Zn/MnO_2$ 电池研究

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摘要：解决碱性锌锰电池体系存在的电解液易泄露、加工封闭难等问题，利用溶剂浇铸法制备了 PVA-KOH-H2O 碱性固态聚合物电解质(ASPE)，通过 XRD、循环伏安及交流阻抗测试对 ASPE 样品进行表征。结果表明：ASPE 具有良好的导电性(室温电导率达 $10^{-2}$S/cm)及较宽的电化学稳定窗口(相对于不锈钢电极，其电压稳定窗口为 2.0 V)。Zn丨ASPE丨$MnO_2$模拟电池以 1 mA 恒电流放电至 0.9 V，放电容量达 210 mAh/g。

关键词：碱性固体聚合物电解质；$Zn/MnO_2$ 电池；放电容量

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# Studies on alkaline solid-state $Zn/MnO_2$ battery

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**Abstract:** In order to solve the problems such as easy to leak out the electrolyte, hard to seal in alkaline $Zn/MnO_2$ batteries, alkaline solid-state polymer electrolyte (ASPE) PVA-KOH-$H_2O$ was prepared by solvent-casting technique and characterized by XRD, CV and AC impedance techniques. Results showed that the ASPE had good conductivity ($10^{-2}$ S/cm at room temperature) and good electrochemical stability [voltage stability window was 2.0 V for SS/ASPE/SS (SS for stainless steel)]. The Zn丨ASPE丨$MnO_2$ experimental battery presented discharge capacity of 210 mAh/g at 1 mA constant current discharge to 0.9 V.

**Key words:** alkaline solid-state polymer electrolyte (ASPE); $Zn/MnO_2$ battery; discharge capacity