锌空电池氧还原电极催化剂的研究

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摘要：用共沉淀法合成不同 x 值的尖晶石型化合物 $Ni_xAl_{1-x}Mn_2O_4(0\leq x\leq 1)$作为锌空电池氧还原电极催化剂，用红外光谱（IR）、X 射线衍射（XRD）和扫描电镜（SEM）对催化剂进行了研究，发现其具有良好的尖晶石结构，粒径随 x 值增加而变化；电化学研究发现：当 $x\leq 0.35$ 时，$Ni_xAl_{1-x}Mn_2O_4$ 对氧还原电极具有较好催化活性，电极中催化剂最佳含量为 15%。

关键词：锂离子电池；正极材料；$Li[Li_{1/9}Ni_{1/3}Mn_{5/9}]O_2$；层状结构；循环性能

中图分类号：TM911.41　　文献标识码：A　　文章编号：1001-1579(2004)02-0087-03

Studies of the catalyst of oxygen reduction electrode for Zn-air battery

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Abstract：Spinel-type $Ni_xAl_{1-x}Mn_2O_4(0\leq x\leq 1)$ compounds as the positive catalysts for Zn-air battery were prepared by co-precipitation route. It was found by IR, XRD and SEM that the catalysts showed a good spinel structure, and the size of the particles changed with x values. The results of electrochemical measurement showed that the catalysts exhibited excellent electrocatalytic properties for the oxygen reduction reaction when the $x\leq 0.35$. Besides, the positive electrode which was composed of 15% the catalyst based on the total quality of the positive materials, exhibited preferable electrocatalytic properties.

Key words：Zn-air battery；catalyst；spinel-type；performance of battery

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