碳酸铅作为正极活性物质的性能

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摘要：通过循环伏安曲线、交流阻抗、恒流放电、热重分析、扫描电镜等方法对自制碳酸铅与购买碳酸铅的性能进行了研究。研究发现：自制碳酸铅的反应活性明显高于购买碳酸铅的反应活性。存在性能差别的原因为：①自制碳酸铅中含有羟基即化学结构水，而购买碳酸铅中不含羟基。②购买碳酸铅粉末中的主要物相为斜方晶系的碳酸铅，自制碳酸铅中主要以六角晶系的碱式碳酸铅［$2PbCO_3$-$Pb(OH)_2$］为主。③自制碳酸铅颗粒比购买碳酸铅的颗粒细。

关键词：阀控铅酸电池；碳酸铅；正极活性物质；循环伏安；交流阻抗；扫描电镜；化学结构水

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Performance of lead carbonate as positive active mass of VRLA battery

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Abstract：The differences between the purchased lead carbonate and the prepared lead carbonate were studied by methods of cycle voltammogram, electrochemical impedance spectroscope (EIS), constant current discharge, thermogravimetric analysis and scan electron microscope (SEM)　It was showed that the reacting activity of the prepared lead carbonate was higher than that of the purchased lead carbonate. The reasons for the differences were：①The prepared lead carbonate contained chemical structure water, but the purchased lead carbonate didn't. ②The main chemical substance in the purchased lead carbonate powder was $PbCO_3$, while in the prepared lead carbonate powder was $2PbCO_3 \cdot Pb(OH)_2$. ③The particle size of the prepared lead carbonate was smaller than that of the purchased lead carbonate.

Key words：VRLA battery；lead carbonate；PAM；cycle voltammogram；EIS；SEM；chemical structure water