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铅粉粒径分布对阀控铅酸电池性能的影响

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摘要：通过粒度分布仪测量、BET 孔隙度及比表面积分析、微电极线性扫描及成品电池实验，研究了不同粒径的铅粉对活性物质和阀控铅酸电池性能的影响。结果表明：铅粉粒径对极板的孔隙度、成品电池的初始容量、充电接受性和循环寿命有较大影响。铅粉平均粒径为 15.846 μm 的铅粉 B 具有较理想的初始容量和循环寿命，3C 测试结果分别为 369Ah 和 327 次。

关键词：铅粉； 粒径分布； 铅酸蓄电池； 初始容量； 循环寿命

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Effects of particle size distribution of lead powder on the performance of VRLA battery

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Abstract：The influence of particle size distribution of lead powder on the performance of VRLA battery was studied by surface area and porosity measurement，linear potential sweep of powder microelectrode，and finished battery charging and discharging. It was shown that the particle size distribution of lead powder played an important role in plate porosity，initial capacity and cycle life of the battery. Lead powder B with average particle size 15.846 μm was proposed，which was favorable to better initial capacity and cycle life of VRLA battery，reached to 369Ah and 327 cycles respectivily at 3*C* rate.

Key words：lead powder； particle size distribution； lead-acid battery； initial capacity； cycle life