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硫酸铜杂质脱除工艺

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摘 要：采用中和沉淀法,以Na_2CO_3作脱杂剂一次性脱除农用硫酸铜中Pb,Zn,Co,Ca,Ni杂质,使之达到电镀用硫酸铜的质量要求.讨论了pH值、溶液起始浓度、溶液浓缩密度和过滤速度对除杂的影响.结果表明:控制pH值为4.0,溶液$CuSO_4$起始质量分数为30%,浓缩液密度为1.320 g/cm^{3}和慢速过滤的条件下,可使产品中的w(Pb)≤0.000 5%,w(Zn)≤0.000 5%,w(Co)≤0.000 5%,w(Ca)≤0.001 0%,w(Ni)≤0.002 0%.同时采用与小试验相同的工艺流程与条件进行了现场工业试验,产品质量达到小试验产品指标,产品为蓝色有光泽晶体,结晶颗粒均匀,符合电镀用硫酸铜要求,证明该脱杂工艺路线是合理可行的,操作方便,容易实现工业生产.

关键字：电镀;硫酸铜;杂质

Removing process of copper sulfate

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Abstract: Sodium carbonate as remover, lead, zinc, cobalt, calcium, nickel from agricultural copper sulfate are removed by neutralization and precipitation method, and the result meets the quality requirements of copper sulfate for electroplating .The effect of solution pH value, initial concentration, concentrated density and filtration rate on removing process is investigated. It is shown that copper sulfate for electroplating containing w(Pb)≤0.000 5%,w(Zn)≤0.000 5%w(Co)≤0.000 5%w(Ca)≤0.001 0%,w(Ni)≤0.002 5% can be obtained by controlling the condition
of solution pH4.0, initial mass fraction 30%, concentrated density 1.320 g/cm3and lowfiltration rate. Moreover, spot industry experiment is also carried out with the same process and condition as in small scale experiments. Product quality shows agreement with that of small scale experiments, and meets quality requirements of copper sulfate for electroplating.The product is blue crystal with gloss, and particles are well-distributed. The results show that the removing process is
reasonable, feasible, convenient and easy to realize in industrial production.

Key words:electroplating; copper sulfate; impurity

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