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反应与分离

Study on Metals Recovery from –0.074 mm Printed Circuit Boards by Enhanced Gravity Separation

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摘要 Nowadays study on discarded printed circuit boards (PCBs) reutilization has great significance for achieving secondary resources recycling and preventing environmental pollution. Physical methods show great potential and advantages on discarded PCBs reutilization, comparing with chemical and biological methods. However for the particles of -0.074 mm PCBs, little work has been done in the past because of lower separation efficiency and recovery. In this paper, the conundrum of -0.074 mm PCBs reutilization was resolved successfully with the help of Falcon concentrator. Separation mechanism for fine particles with different mass densities in a Falcon centrifugal concentrator was analyzed. The main factors such as magnitude of rotation frequency (centrifugal acceleration), anti-charge water pressure and feeding concentration were studied, and interaction of different factors was analyzed using Design-Expert software. The experimental results show that metals grade of -0.074 mm PCBs and integration efficiency were obtained as 76.89% and 80.77% respectively when feeding concentration was 40 g/L with water pressure of 0.01 MPa and rotation frequency of 50 Hz.

关键词 Discarded printed circuit boards,enhanced gravity separation,metals recovery,Falcon concentrator

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