

ABSTRACT

This disclosure relates to a method for multi-component recycling of spent lithium-ion battery. The method includes the following steps: Step S1, obtaining a fine-fraction positive and negative electrode mixture, a medium-fraction copper-aluminum current collector A, and a coarse-fraction mixture of a case and a separator after mechanical crushing and screening; step S2, performing oxygen-free roasting treatment to achieve reduction and magnetization of the positive electrode material, and performing water leaching for lithium extraction after the oxygen-free roasting treatment, filtering to obtain a lithium-containing aqueous solution and lithium extraction residue, and using magnetic separation to achieve separation and purification of the positive electrode material in the lithium extraction residue; step S3, performing froth flotation treatment on the non-magnetic mixture obtained after the magnetic separation to obtain graphite and a copper-aluminum current collector B; step S4, using an air table to separate and purify the copper-aluminum current collector A and the copper-aluminum current collector B based on density differences to obtain copper foil and aluminum foil respectively. This disclosure effectively achieves the efficient recovery of multiple components from spent lithium-ion battery. The process is simple, easy to operate, safe, and reliable.

[Fig. 1]