

LITHIUM-ION-BATTERY RECYCLING FROM EV USING PYROMETALLURGICAL AND HYDROMETALLURGICAL PROCESS COMBINATIONS

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ABSTRACT

With the popularization of electric vehicles, resource recycling from secondary Lithium-Ion-Batteries (LIB) is a pressing issue in the world. Currently, the EU issued the Battery Directive & New Batteries Regulation and promotes battery to battery recycling. As a result, development competition for LIB recycling, including new entrants, are accelerating on a global scale.

Generally, a hydrometallurgical method is used to recover valuable materials from LIB. However, many separation and purification processes are required to purify to the battery grade, and its unit cost may be also high.

SMM has developed a pyrometallurgical and hydrometallurgical process combination for recycling. Our hydrometallurgical process could be simplified, and we have succeeded in manufacturing battery-grade cathode materials. This paper introduces the treatment for metal collection and its impurities distribution in the pyrometallurgical process.

Keywords: Lithium-Ion-Batteries, recycle, nickel, cobalt, automotive Batteries