

World Congress and Expo on Recycling

July 20-22, 2015 Barcelona, Spain

Recovery of valuable metals from waste printed circuit boards

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Research works have been performed to recover valuable metals from the waste printed circuit boards (PCBs) via. mechanical processing, hydro- and pyro-metallurgical processing. The PCBs contain resin, glass-wool and metals such as Au, Ag, Cu, Ni, Sn, etc. Recycling the PCBs is significant in relation to the recovery of valuable metals extracted from PCBs via. wet chemical processes and dry processes, i.e. the extraction of copper and precious metals such as gold, silver, and palladium. As a result of these works, it has been demonstrated that processes applied in these works are most pertinent to a separation of metal fractions from polymers and ceramics. The resin separated from the PCBs via. the mechanical treatment can be recycled as Polyol. In order to reduce the environmental load caused by the wasted acid, the waste acid recycling experiment was conducted. A recycling of wasted acid can reduce an amount of wasted acid which is being generated from processes as well as an amount of acid which is being used for processes. About 80% of waste acid was recycled. The recovery rate and the purity of a metal were over than 90% and 99.9%, respectively.

Biography

Joonchul Choi has completed his Doctorate in a metallurgical engineering from Hanyang University. He is now the vice president of ER Metal Co. Ltd., which is a company of recycling E-scrap. He has published more than 10 papers in well-reputed journals and has served "The Korean Institute of Resources Recycling" as an Editorial Board Member.

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