

Development of Recycling Process for Recovery of Copper from Wasted Sludge

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Recovery of copper from wasted sludge containing copper has been conducted through various processes. The sludge was analyzed by XRD (X-ray diffraction) and it was found to be amorphous phase. The specimen was oxidized in air for 24 hours to transform crystalline phases that are CuO, Cu(SO)₄, Ca(SO)₄, Fe₃O₄ and Fe₂(H₂O)₄((SO₄)₂O)(H₂O)₄. The specimen was placed into alumina crucible and it was placed in reactor. Reduction reaction was conducted by introducing hydrogen gas at 500°C for 2 hours. When reduction was done, the sample was examined by XRD and it was found to be Cu, Fe, Cu(SO)₄, Fe₂O₃, Cu₂FeS₄. In the long run, copper content in the sludge was increased from 54.30 wt.% to 70.68 wt.%.

Biography:

Based on his knowledge and experience he is now working at Department of Metallurgical Engineering in Pukyong National University as an Associate Professor. He worked at LS-Nikko Copper Smelting company for one year as a researcher and did various projects including copper smelting, recovery of nickel from smelting dust, and refining of tellurium and selenium etc. Now he is also doing many projects related with fabrication of nanosized metallic powder, recycling process, composite material, corrosion engineering, powder metallurgy, and extractive process.