Preparation of high purity silicon for Silicon ingots by cutting process waste slurry silicon recycling process

박동민, 이진우, 모드샤흐르아크탈, 양오봉*
전북대학교
(obyang@jbnu.ac.kr*)

In this paper, high purity silicon for solar silicon ingots was prepared from cutting process waste slurry silicon recycling process for the semiconductor industry. The process includes silicon carbide and a number of value-added products were recycled the entire used waste slurry silicon. The high-purity silicon could be easily recycled by the adopted cutting process waste slurry for silicon solar cell manufacturing companies. The main goal of this work is to develop a recycling process for purifying the silicon waste slurry purified to high purity (99.9%) silicon. After the recycling process, the silicon and silicon carbide were separated by heavy-fluid separation which is the high power centrifugation process. The density of Silicon, Silicon carbide and sodium salt were estimated to be 2.33g/cm3, 3.21g/cm 3 and 2.7 g/cm3 respectively. The recycled silicon powder were characterized by X-ray diffraction (XRD), Fourier transform infra red (FTIR), electron dispersive X-ray spectroscopy (EDS) and X-ray photoelectron spectroscopy (XPS).