

Preparation and reactivity of copper powders coated with silver via spray pyrolysis process

정대수^{1,2}, 임지나¹, 강윤찬³, 박승빈^{1,2,*}

¹한국과학기술원; ²초미세화학공정시스템연구센터;

³건국대학교

(SeungBinPark@kasit.ac.kr*)

Silver powders as conducting paste for integrated circuits and other electronic devices have been used, because it has low resistivity, high thermal conductivity, and resistance to oxidation in air. However, the silver powders have some limitation of wide industrial application due to their high cost. Recently, copper powders are considered as an alternative conducting materials, which is cheaper than silver powders and has high conductivity (only 6% less than that of silver). However, to utilize Cu powder, it requires anti-oxidative treatment. Although copper is inert in air, fine copper powders are susceptible to oxidation, resulting in the degradation of desirable properties such as quality and stability. In this work, silver is adopted to form non-oxidizable shell, which prevents air-oxidation, and enhances electrical property. Precursor solution of mixed silver nitrate and copper nitrate were ultrasonically atomized and pyrolyzed to form composite powder with core-shell structure consisted of silver and copper.