

The Preparation and Characterization of Silver-loaded on Cellulose Nanofibers Film

신은애, 김계현, 이상봉, 정제영, 이창기[†]
한국생산기술연구원 패키징기술센터
(withs@kitech.re.kr[†])

Cellulose nanofibers (CNFs), a natural biopolymer synthesized from wood pulp displays lightness, mechanically strong and flexible properties. In this study, we report the method to prepare the electric-conductive modules of electronic devices using CNFs. Because CNFs have relatively low electric conductivity, silver nanoparticles (AgNPs) were applied on CNFs in order to contribute electric conductivity to CNFs. AgNPs were synthesized in-situ from silver nitrate in CNFs. In order to synthesize AgNPs on CNFs, 0.01M of silver nitrate was incorporated into CNFs solution and stirred for the reduction of silver nitrate. After reaction, the Ag/CNFs solution was washed with centrifugation and sonication more than 5 times to remove unreacted materials. AgNP/CNF casting film showed under 100 ohm/sq of surface resistance.