Ceramic-polymer composites for heat dissipation materials

김덕천, 김정현†
서울시립대학교
(jhkimad@uos.ac.kr†)

Heat dissipation is a critical issue in electronics such as smart phone, CPU, and light emitting diode (LED). This is because the electronics become more compact and higher power which cause to increase inner temperature of devices. The high inner temperature have adverse effects on the life span and reliability. In order to solve heat problems of electronics, various methods are used ranging from coating materials to thermal conductive adhesives. Among them, thermal conductive adhesive is a secure way to enhance the heat dissipation. The thermal conductive adhesives are composites of polymer matrix and conductive particle, and it is used between heat sink and printed circuit board. Therefore, thermal conductive adhesives have not only high thermal conductivity but also enough adhesion. Furthermore, thermal conductive particle used in adhesive should be electrical insulation due to electrical short. We fabricated thermal conductive adhesive using acrylic monomer and conductive filler. The polymer was synthesized through solution polymerization and particle was added at initial composition.