

[NP-06]

Electromagnetic interference shielding effectiveness of conductive polyvinylacetate composite films loaded with carbon nanotubes

김해식, 우자희*, 송수호, 송혜경, 지종기
경북대학교 화학과, *경북대학교 나노과학기술과

Electromagnetic interference (EMI) shielding characteristics of polyvinylacetate (PVAc) and carbon nanotube composite films was measured by using a commercial vector network analyzer (VNA), where carbon nanotube fillers were prepared by thermal CVD and those were treated with acid mixture. The shielding effectiveness (SE) was carried out in frequency ranges of 2.5 GHz-13.5 GHz. The reflection loss and absorption loss were also evaluated as a function of frequency in the same range. It was observed that their SE was dependent on conductivity and uniformity of composite films and incident frequency. The EMI SE was also increased with the weight percentage of carbon nanotube fillers loaded in PVAc. The electrical conductivity of carbon nanotube/PVAc composites ranged from 0.05 to 26.6 S/cm and the EMI SE was in the range of 72 dB. The results indicated that the composites having high carbon nanotube loading (70 wt.%) could be used for the purpose of EMI shielding as well as for various microwave applications.