

Thermal and EMI shielding properties of PDMS composites

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Composite materials which have electromagnetic interference (EMI) shielding and thermal conductive property have been needed to apply to self-control automobiles and other electronic parts. When dielectrics, magnetic bodies, and diamagnets are exposed to certain electromagnetic fields, fine electric dipoles and magnetic dipoles which are dispersed in disorder in the materials are rearranged to directions of electromagnetic fields. Especially, the rearrangements of them can't catch changes in electromagnetic fields, in a case of ultrahigh frequency. Time delay of dipoles movements occurs in the process. Partial energy of electromagnetic wave on hysteresis phenomena is ceased to exist or absorbed as form of thermal energy. In this back ground, there have been findings for proper fillers incorporated in polymer matrix.

Cu alloy, Cu, Fe, Iron oxide, Ferrite(Ni-Zn), graphite were employed to the candidates of the fillers incorporated in polydimethylsiloxane (PDMS) for satisfying the purposes. At the same time, they were compared with BN, Alumina in aspects of thermal conductive property and mechanical property.