

CNT/ PMMA electromagnetic coating: effect of carbon nanotube diameter

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In the present communication we focus on the comparative study of the electromagnetic response properties provided by polymethylmetacrylate (PMMA) filled with well purified CVD multi-walled carbon nanotubes of two different mean diameters (9nm and 12-14nm). The effect of smaller diameter together with higher electromagnetic shielding effectiveness has been observed experimentally in Ka-band and interpreted theoretically. Geometry and polarizability of individual filler constituents – the constitutive parameters of nanocarbon assemblies – is addressed here to be pointed out as controllable factors for producing effective electromagnetic coating.

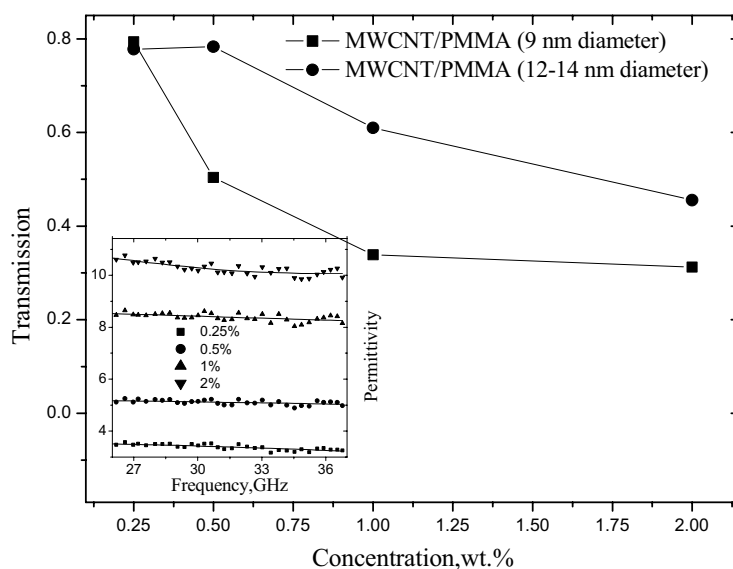


Figure: MWCNT/PMMA EM transmittance versus concentration of MWCNT. The inset figures: frequency dependence of real parts of the permittivity in Ka-band for MWCNT (9 nm diameter)/PMMA samples.

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