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(methyl methacrylate) PMMA carbon nanoparticles CNP cast composites were prepared via in–situ polymerization of methyl methacrylate monomer with different ratios of carbon nanoparticle CNP (viz., 0.25, 0.5, 1, 1.5, 2, 2.5 wt%) in the presence of azobisisobutyro nitrile AIBN as an initiator.The PMMA/CNP Nano composite samples displayed higher thermal resistance with a lower weight loss than pure PMMA and its filled CB cast samples.This investigated led to the conclusions that all the mechanical properties were improved by increasing CNP content up to 2wt% loading in comparison with 20wt% CB. The PMMA/CNP (2wt%) samples showed a more regular dispersion of CNP filler inside the PMMA matrix as compared with samples PMMA/CB (20%) with a coarse morphology.On the other hand, the addition of CNP by concentration up to 2wt% increased the electrical conductivity to be of the order of 10–4 S/cm, which highly recommended such composites to be used in electronic and electrical ? field.The dielectric properties (i.e., permittivity