

Abstract :

The subject of composite materials with reinforced filler has been studied recently. This study to improve both the dielectric and structural characteristics of diglycidyl ether of bisphenol a (DGEBA) focused on the appropriate use (from 5% to 60 wt%) of pozzolan filler mechanically grinded to obtain a very fine particle size ($\varnothing < 10 \mu\text{m}$) and area surface of $23.5 \text{ m}^2 \text{ g}^{-1}$. The dielectric properties were investigated at great filler concentrations by weight. Epoxy microcomposite samples with a good dispersion of nanoparticles in the epoxy matrix were prepared and experiments were performed to measure the capacitance (C), the electrical resistance (R), and impedance (Z) as a function of frequency (1 kHz–10 kHz). Measurements were made using dielectric spectroscopy over the temperature range 25–80°C. Using the scanning electron microscope (SEM), the morphologies and structure of the surface and fracture surfaces of Pozzolan/DGEBA