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OPTIMIZATION FORMULATION OF NANOCOMPOSITE EPOXY-CARBON NANOTUBE

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The nano-composite has several advantages over conventional composites, the characteristic size of the nanofiller provides better coupling between the nanofillers and the matrix. In this context, we wish to contribute to the growth experienced by nano-composites. This work, report the study of formulation of nanocomposites with epoxy matrix contains carbon multi walls nanotubes, made it possible to control the manufacturing process and to improve the thermostability of the resin. We are interested to study a formulation development laboratory of a composite based on a mono component epoxy that contains as a filler of carbon nanotubes (CNT) multiwall.

The nanocomposite materials based on epoxy resins to be used in microelectronic and electrical encapsulation. Were synthesized from an epoxy resins models: DGEBA, and a new epoxy resins based on diglycidyl ether dihydroxy diphenyl sulfone (DGEDDS). The products are characterized by FTIR and ¹H NMR spectra.

The thermal stability and dielectrical properties of this resins cured with methylenedianiline (MDA), were studied by thermogravimetric analysis (TGA), scanning differential calorimetry (SDC) and dielectrical analysis in a low frequency field. SEM and TEM microscopy were using to reveal microscopic properties, the morphology and nanostructure of materials surface.

The results of this study enabled a deeper understanding of the parameters for implementation and represent a key factor in the manufacturing of nanocomposite materials.