

Synthesis and characterization of a new binding macromolecular Polycondensate hexafonctionnel Hexa Glycidyl Ethylene in Methylene Dianiline (HGEMDA). Formulation of nanocomposite based natural phosphate

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Abstract : In this work, we have synthesized the new binding macromolecular Polycondensate HexaGlycidyl Ethylene of Methylene Dianiline (HGEMDA) by polycondensation, by the arm of a spacer, which is methylene dianiline, and then we proceeded to the formulation of a nanocomposite (HGEMDA/MDA/PN) at the base of nanofilled phosphate and methylene dianiline as hardener.

As a first step, after its synthesis optimization, we characterized the new binding macromolecular Polycondensate infrared spectroscopy to transform of Fourier transform (TFIR). Its structure is confirmed by nuclear Magnetic Resonance (RMN ¹H) proton and carbon (RMN ¹³C).

As a second step, we reticulate and formulated the new nanocomposite material thermosetting in the presence of loads of phosphate at different percentages (0%, 5%, 10% and 15%) by the addition of methylene dianiline (MDA) as hardener. The dispersion of nanofillers in the polyepoxide hardener matrix was followed using the Electron Microscope at Scanning (SEM).

Key words: Macromolecular Binder, Polycondensate, HGEMDA, natural phosphate, cross-linking, formulation, thermosetting nanocomposite, SEM.

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