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# Synthesis, characterization and structural thermally rearrangement of *ortho*-amide functional benzoxazine containing acetylene group

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## Highlights

- A novel benzoxazine bearing amide and acetylene was synthesized.
- Polymerization behaviors and curing kinetics were investigated.
- The dielectric constant was reduced after benzoxazole formation.

**ABSTRACT**

A novel *ortho*-amide functional benzoxazine monomer containing acetylene group has been synthesized in this study. The chemical structures of synthesized monomer are confirmed by $^{1}H$ and $^{13}C$ nuclear magnetic resonance (NMR) spectroscopy and Fourier transform infrared (FT-IR) spectroscopy. The polymerization behaviors including both ring-opening polymerization of oxazine ring and polymerization of acetylene functionality are investigated by *in situ* FTIR and differential scanning calorimetry (DSC). The activation energy of polymerization has also been studied,