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# Model Free Thermal Degradation Kinetics of Bisphenol-Z Based Polymers Containing Substituted Cyclohexane Group: Syntheses and Spectral Characterization

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## Abstract

Polymers containing cyclohexane ring as a cardo group was prepared by interfacial polycondensation of 1,1-bis(4-hydroxyphenyl)cyclohexane/1,1-bis(4-hydroxyphenyl)-4-methylcyclohexane with adipoyl chloride. The newly generated polymers were characterized by FTIR and NMR spectral analyses. The thermal properties were studied using thermogravimetric analysis and differential scanning calorimetry. Thermal degradation kinetics of methyl substituted and unsubstituted polymers were studied by TGA at different heating rates. The apparent activation energy for the degradation of both the polymers was determined by two different non-isothermal model free kinetic (Friedmann and Flynn-Wall-Ozawa) methods. The results showed that the activation energy of the polymers with methyl substituent in cyclohexane is higher than unsubstituted polymers.