

## Cure Kinetics and Thermal Stabilities of Zeolite/DGEBA Composites

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In this work, a zeolite/diglycidylether of bisphenol A (DGEBA) system was investigated in terms of cure kinetics and thermal stabilities. 4, 4'-diamino diphenyl methane (DDM) was used as a curing agent for epoxy resins and zeolite was treated with 0.1 and 1 N HCl for 24 h. The zeolites and the zeolite/DGEBA composites are characterized by X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), differential scanning calorimetry (DSC), and thermogravimetric analysis (TGA). As experimental results, the crystallinity of treated zeolites was decreased by de-alumination during the HCl treatment, and Si/Al composition ratio of the treated zeolites was increased. Cure activation energy ( $E_a$ ) of the treated zeolite/DGEBA composites was decreased, whereas decomposition activation energy ( $E_d$ ) was increased, compared with those of untreated zeolite/DGEBA ones. It was probably accounted that the acidity of zeolite was increased by surface treatments and the cure reaction between zeolite and epoxy was influenced on the increased acidity of zeolite.