عنوان مقاله:

Kinetic Study of a Phenolic Resin Curing Process: A Model-free Kinetic Approach

محل انتشار:

دهمین سمینار بین المللی علوم و تکنولوژی پلیمر (سال: 1391)

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خلاصه مقاله:

Phenolic resins are a class of materials having wide applications in many areas [1]. The study of the cure kinetics contributes to a better knowledge of the complex processgoverning the curing of PF resins and helps to improve the quality of final products [2]. On the basis of different fittingmechanisms, the cure kinetic methods can be divided into two types: the model fitting kinetic method (MF) and the modelfree kinetic method (MFK). The model fitting kinetic methodassumes that curing process is consistent with a kinetic model. MFK models are another type of kinetic models and providemore accurate information as they evaluate the changes in activation energy throughout the curing process [3]. In thecase of PF resins, due to complex cure mechanism and change of its mechanism in different stages of cure and generation of many intermediates during cure, a single kinetic model (MF)can not accurately model the whole curing reaction. The aim of present work is the study of the curing reaction ofa phenolic-novolac resin by using model-free kinetic method. The variations of activation energy with conversion used to get more information about mechanism of various stages ofcuring process. Activation energy calculations were done by using Kissinger-Akahira-Sunose method according below equation: (1)

کلمات کلیدی:

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