Supporting Information

Renewable Coumarin-Derived Network as a Toughening Structure for Petroleum-Based Epoxy Resins

Xiaoxia Cai [a], Cong Li[b*], Congde Qiao[a], Dan Peng [c]

[a] Key Laboratory of Processing and Testing Technology of Glass Functional Ceramics of Shandong Province, School of Materials Science and Engineering, QiluUniversity of Technology (Shandong Academy of Sciences), Jinan, 250353 , PR China

[b] State Key Laboratory of Biobased Material and Green Papermaking, Qilu University of Technology (Shandong Academy of Sciences), Jinan, 250353 , PR China

[c] Qilu University of Technology (Shandong Academy of Sciences), Advanced Materials Institute, Jinan, 250014 China

[*]Corresponding author. Tel: 0086-531-89631681; fax: 0086-531-89631681. E-mail address: congli2016@163.com (C. Li)

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1. **There are two ways to calculate the conversion rate of curing temperature.**
   The conversion rate of this article is based on second equations.

   (1) The conversion was calculated from

$$\alpha = \frac{\Delta H_0 - \Delta H_r}{\Delta H}$$

   where ΔH_0 is the total heat of reaction and ΔH_r is the residual heat of reaction

   (2) The basic assumption for the application of DSC technique to the cure of the thermosetting polymers is that the rate of the kinetics process ($d\alpha/dt$) is proportional to the measured heat flow dH/dt

$$\frac{d\alpha}{dt} = \frac{\Delta H/dt}{\Delta H}$$

   ΔH being the enthalpy of the cure reaction, α being the conversion of the cure reaction

2. Reaction Mechanism of Epoxy Resin DGEBA/ Dicyandiamide (DICY) System

Generally, the reaction mechanism between dicyandiamide and epoxy resin is considered as the ring opening reaction of the hydrogen atom on the primary amine and the epoxy group in DICY (Figure S1 (1)), and then the reaction of the nitrile group and the hydroxyl group to form amide and further the ring opening reaction with the epoxy group (Figure S1 (2)).

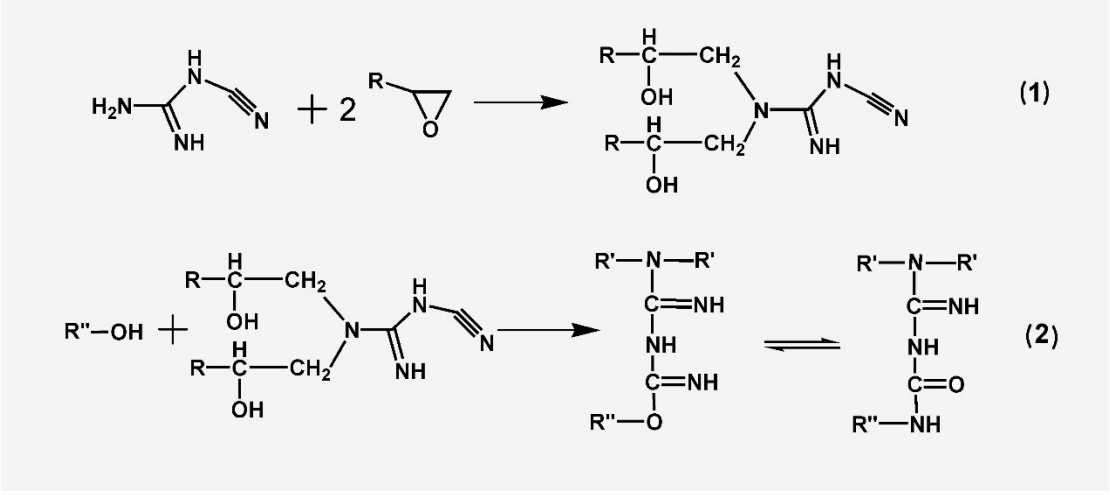

Figure S1. Reaction Mechanism of DGEBA/ DICY System