

Supplementary Information

Curing kinetics, thermal and mechanical properties of TDE-85 modified by bicyclo-benzoxazine

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Supplement:

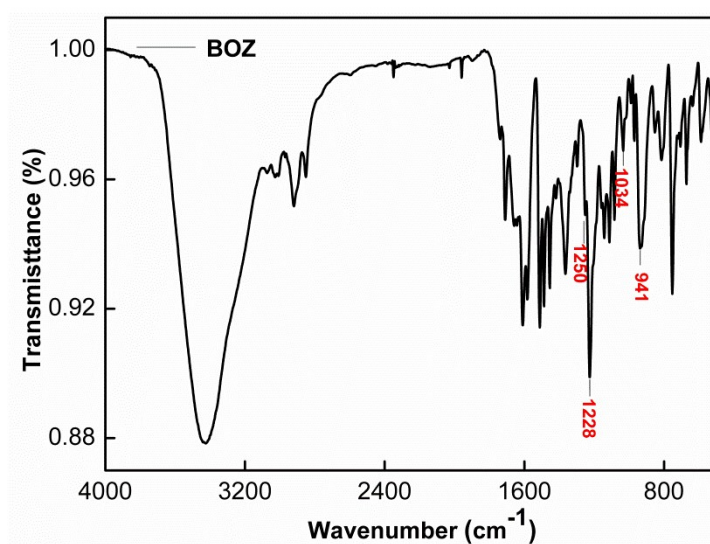


Fig. S1 FTIR spectrum of BOZ

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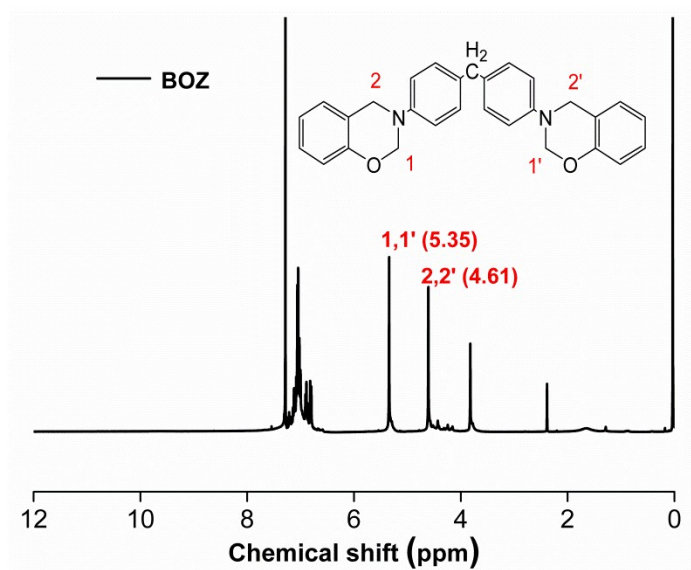


Fig. S2 ¹H-NMR spectrum of BOZ

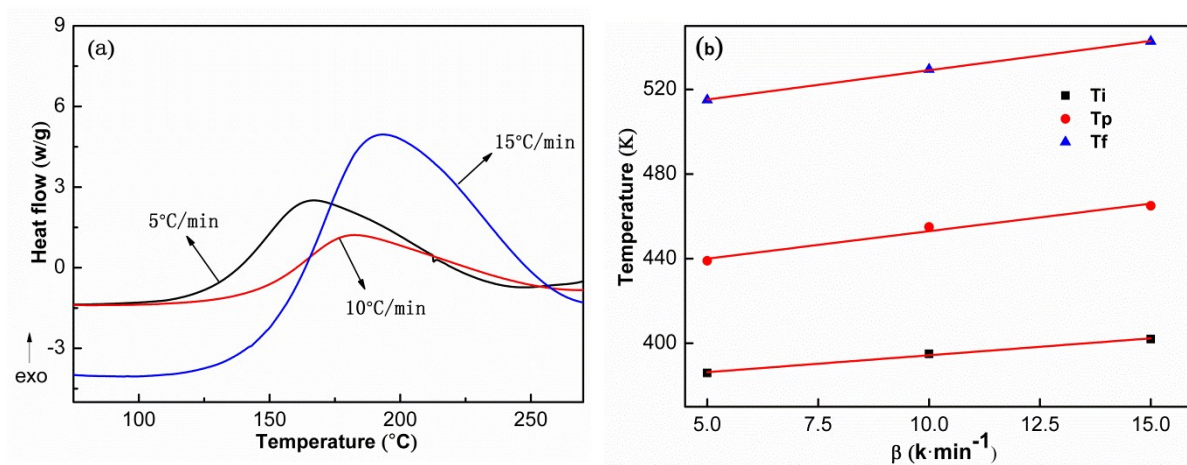


Fig. S3 (a) DSC curves of BOZ/DDS/TDE-85 systems at different scanning rates and (b) Plots of T versus β .

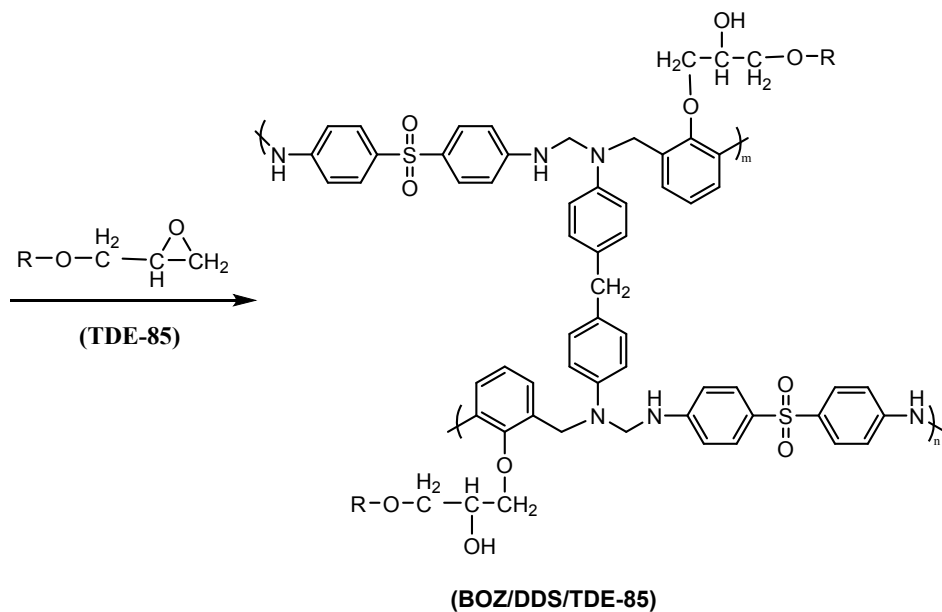
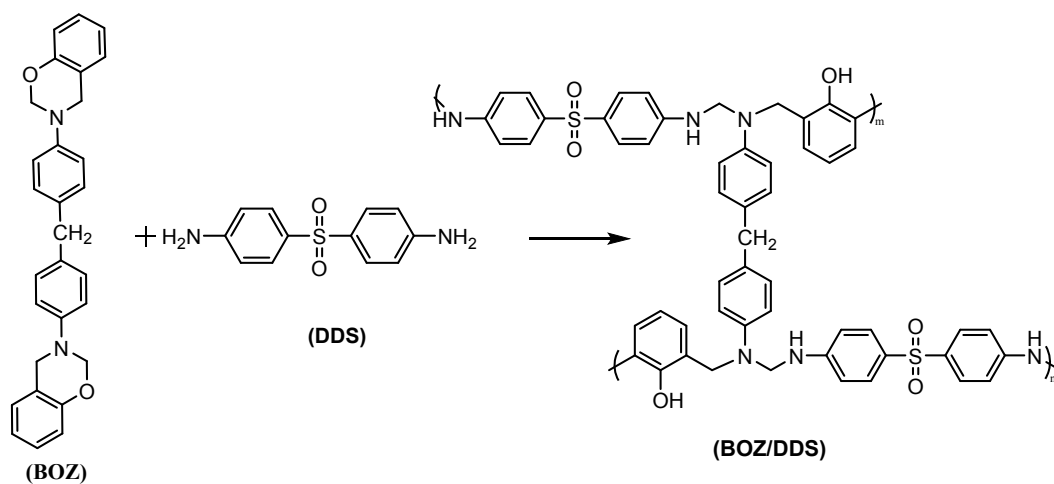
Table S1 DSC data at different scanning rates

β (K·min ⁻¹)	T_i (K)	T_p (K)	T_f (K)
5	386.1	438.9	514.1
10	394.3	455.3	529.5
15	401.9	465.2	542.6

Table S2 Kinetic parameters for curing reaction of 5 phr BOZ/DDS/TDE-85 systems

Method	Equation of linear plot	Activation energy E_a (kJ/mol)	Pre-exponential factor A
Kissinger's	$-\ln(\beta/T_p^2) = 7335 \times (1/T_p) - 2.048$	61.0	5.68×10^4
Flynn-Wall-Ozawa	$\ln\beta = -8269 \times (1/T_p) + 16.34$	65.3	

(a)



(b)

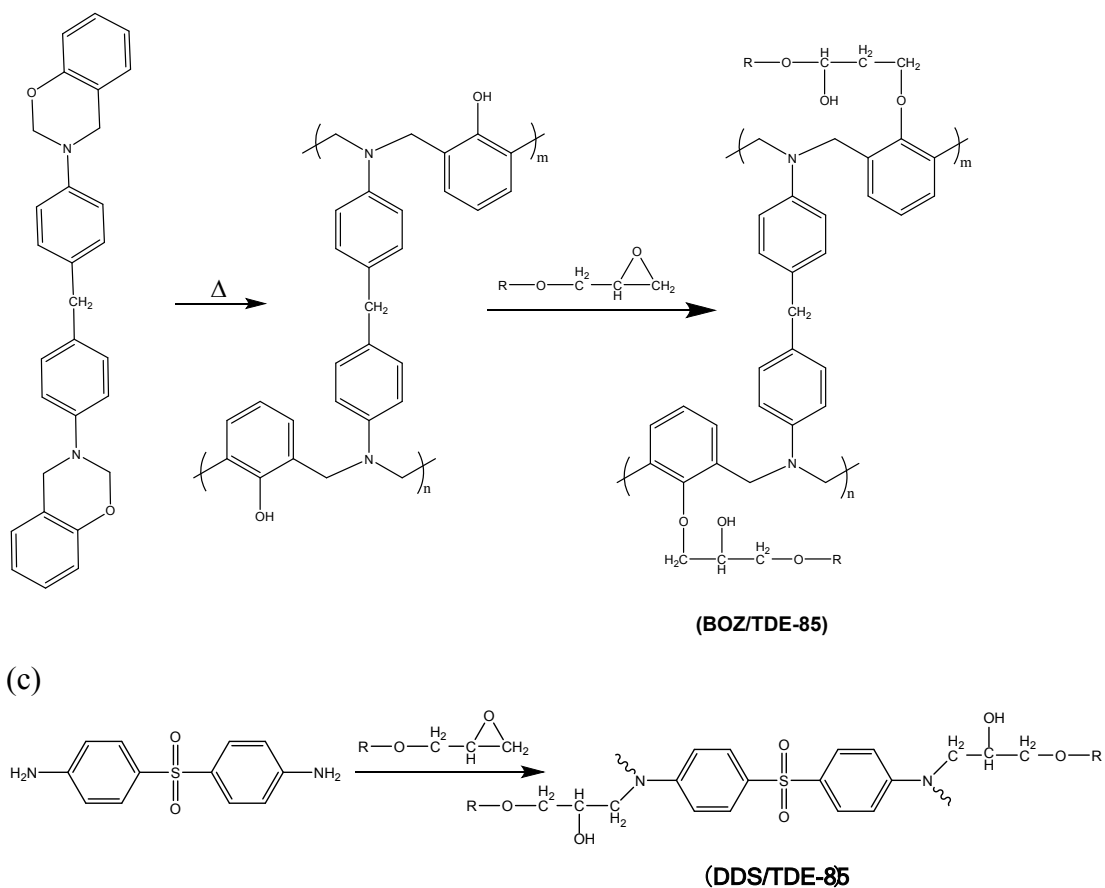


Fig. S4 Proposed curing reaction mechanism of BOZ, DDS and TDE-85: (a) BOZ/DDS/TDE-85 (b) BOZ/TDE-85 and (c) TDE-85/DDS.

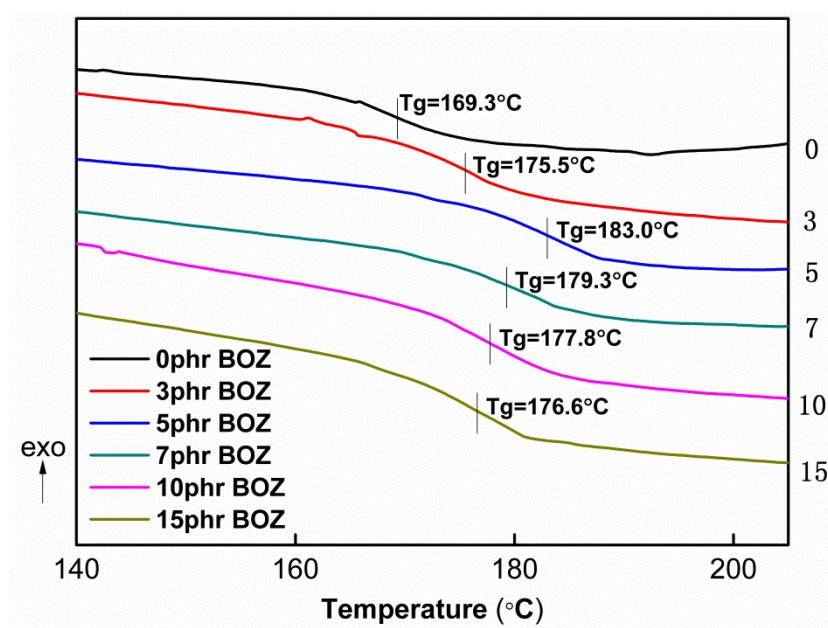


Fig. S5 DSC curves for the cured BOZ/DDS/TDE-85 systems with different content of BOZ.

Table S3 TGA data of TDE-85cured with DDS and BOZ

BOZ content (phr)	$T_{5\%}$ (°C)	$T_{10\%}$ (°C)	Char yield at 600°C (%)
0	314	335	20.8%
5	315	337	21.5%
7	312	333	24.7%

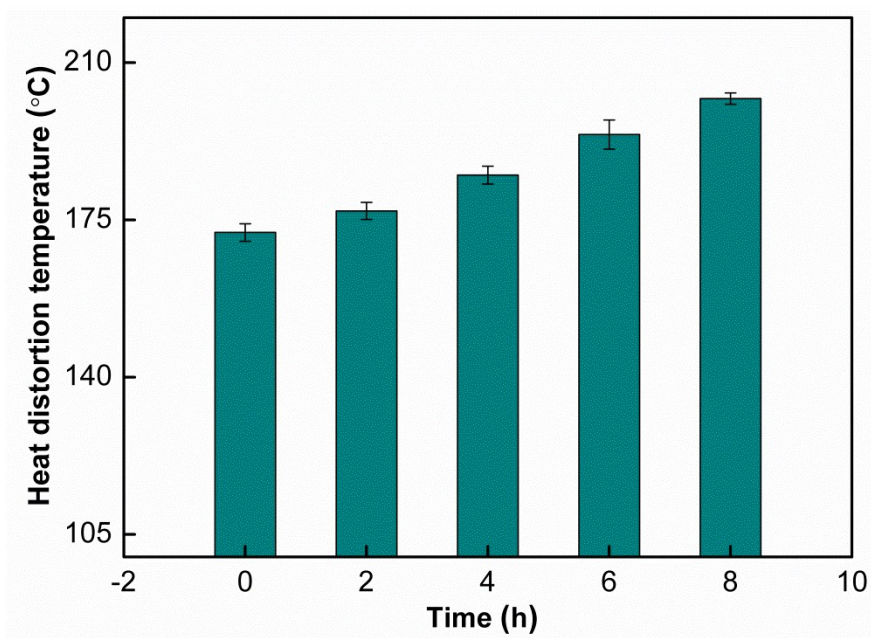


Fig. S6 HDT of 5 phr BOZ/DDS/TDE-85 systems disposed at different times under 200°C.