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Electronic Supplementary Material

The influence of microcapsule with a partially filled structure on the damping property of epoxy resin

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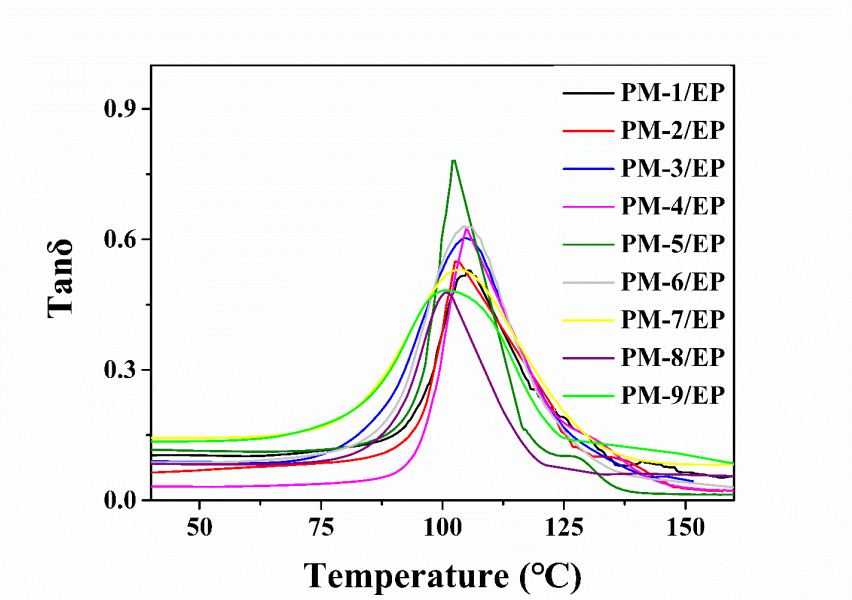

Fig. S1 DMA curve of PM/EP blends (from PM-1 to PM-9)

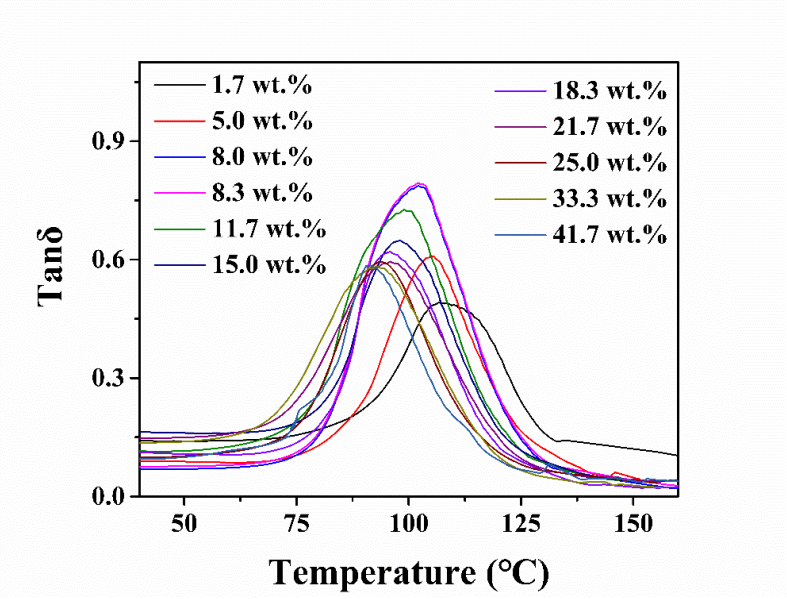

Fig. S2 DMA curve of PM-5/EP blend with different microcapsule concentration

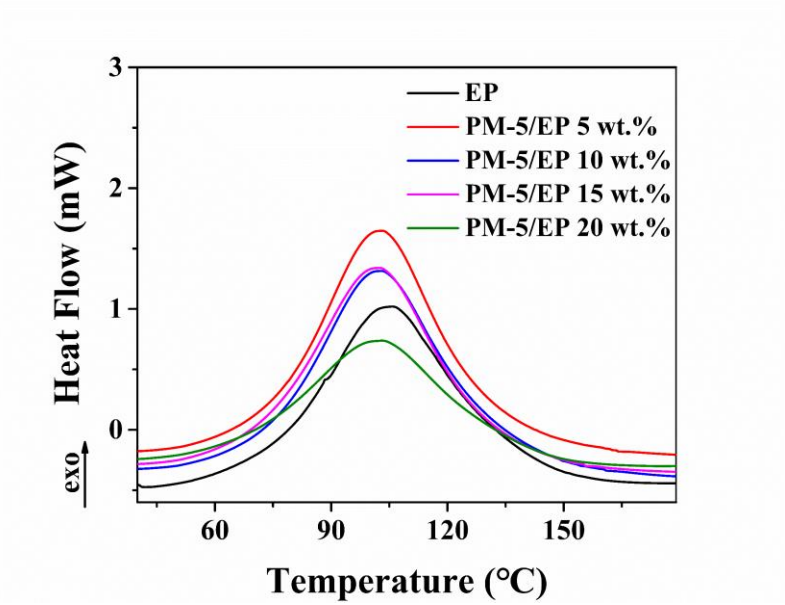

Fig. S3 PM-5/EP DSC curves as a function of temperature with different PM-5 loading. EP mixed DETA with a mass ratio of 100:5.5.

Table S1 the DSC result of PM-5/EP/DETA curing process (10 °C/min)

	T_i/°C	T_p/°C	T_f/°C
EP	**72.23**	**103.77**	**140.82**
PM-5/EP 5 wt.%	**71.42**	**103.20**	**133.55**
PM-5/EP 10 wt.%	**71.12**	**103.01**	**136.50**
PM-5/EP 15 wt.%	**69.19**	**102.52**	**134.17**
PM-5/EP 20 wt.%	**65.12**	**101.60**	**140.21**

T_i: the initial temperature, T_p: the peak temperature, T_f: the final temperature

According to Fig.S3 and Table S1, T_i, T_p and T_f of PM-8/EP/DETA DSC result slightly decrease when the microcapsule concentration increases from 0 to 20 wt.%. This may be due to the amino-groups on the surface of microcapsules that react with epoxy group of epoxy resin and promote the crosslink process.

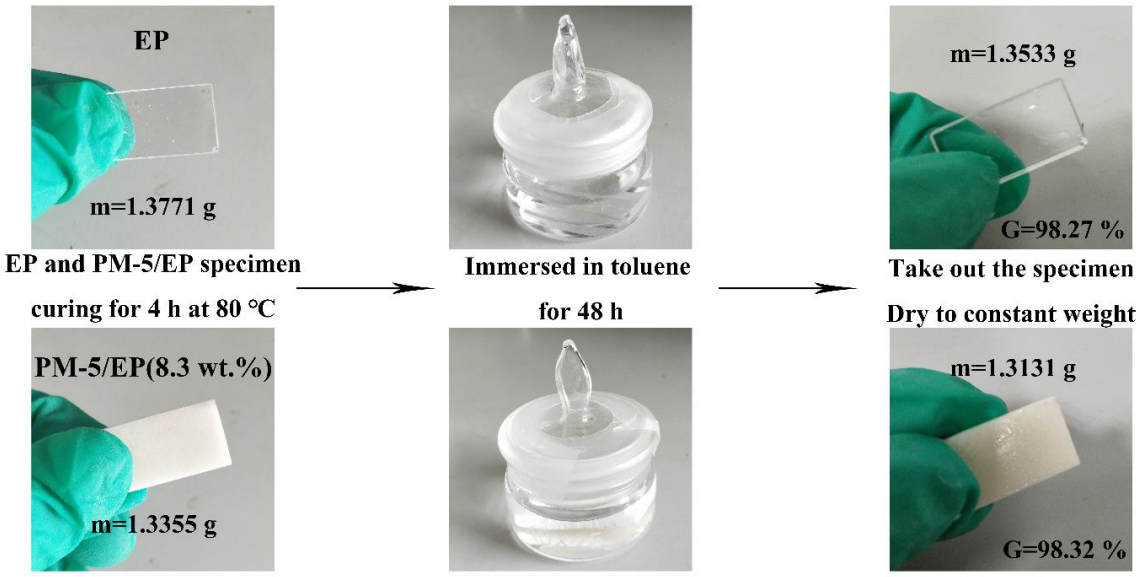

Fig.S4 The comparative gel fraction experiment of EP and PM-5/EP (8.3 wt.%) after curing for 4 h at 80 ℃. Two specimen had the similar gel fraction values. The result proves that microcapsules with a concentration of 8.3 wt. % hardly influence the reactivity of EP.