Electronic Supplementary Material (ESI) for RSC Advances.
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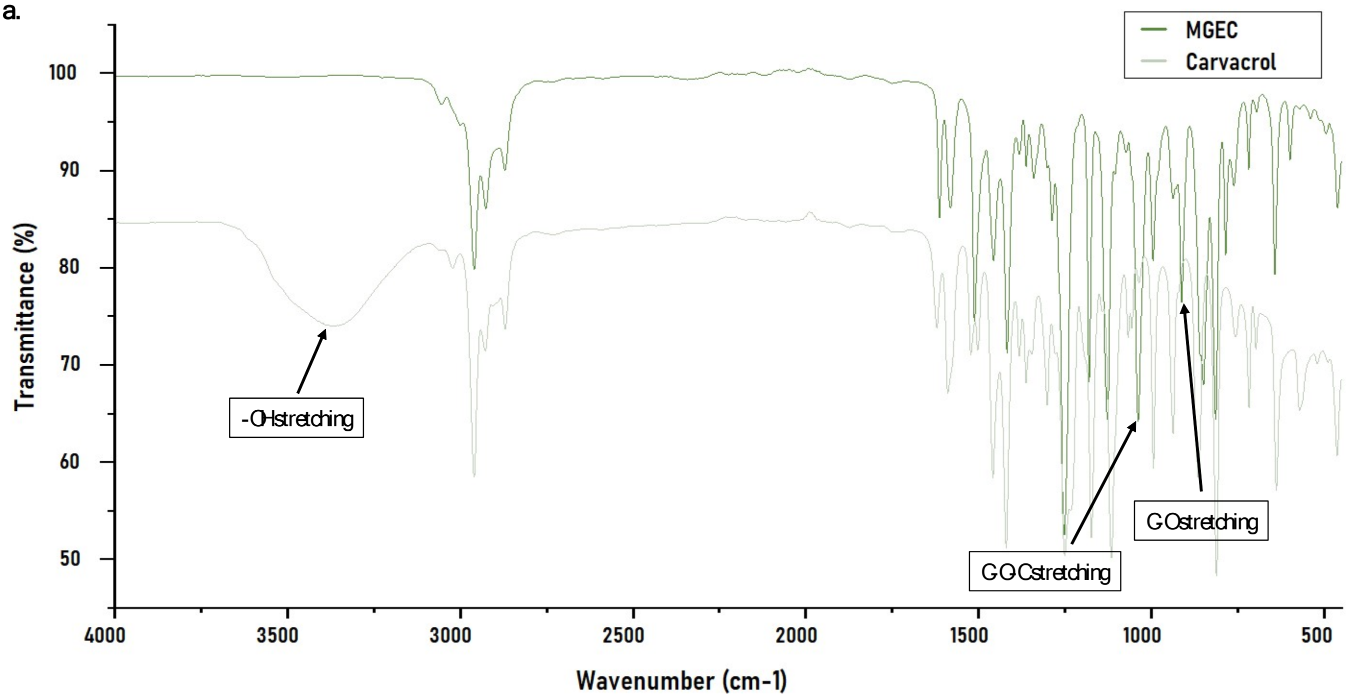
New series of biobased epoxy reactive diluents: effect on viscosity and glass transition temperature of epoxy resins

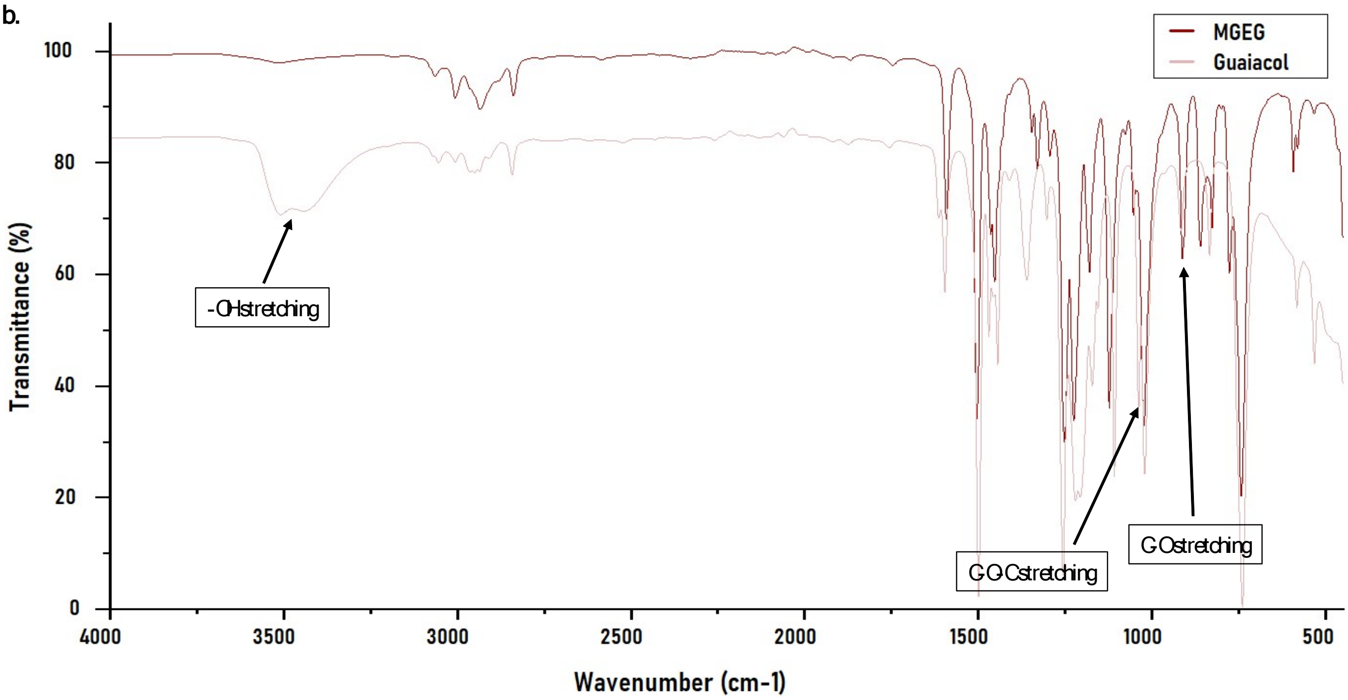
Supporting information

1. FTIR analysis of the phenols and their associated epoxy derivatives

a.



b.



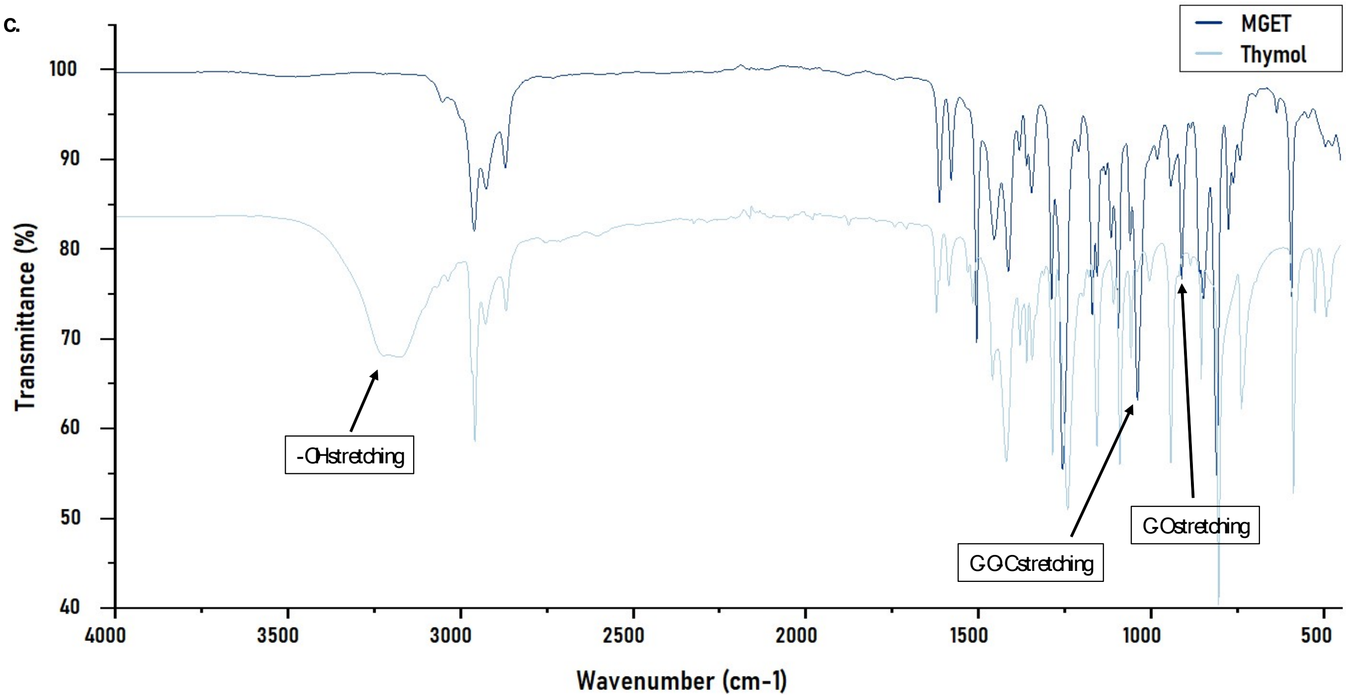


Figure S1. Overlay of FTIR spectra of carvacrol (light green) and MGEC (dark green) (a), guaiacol (light red) and MGEG (dark red) (b) and thymol (light blue) and MGET (dark blue) (c)

2. Rheological curves and data

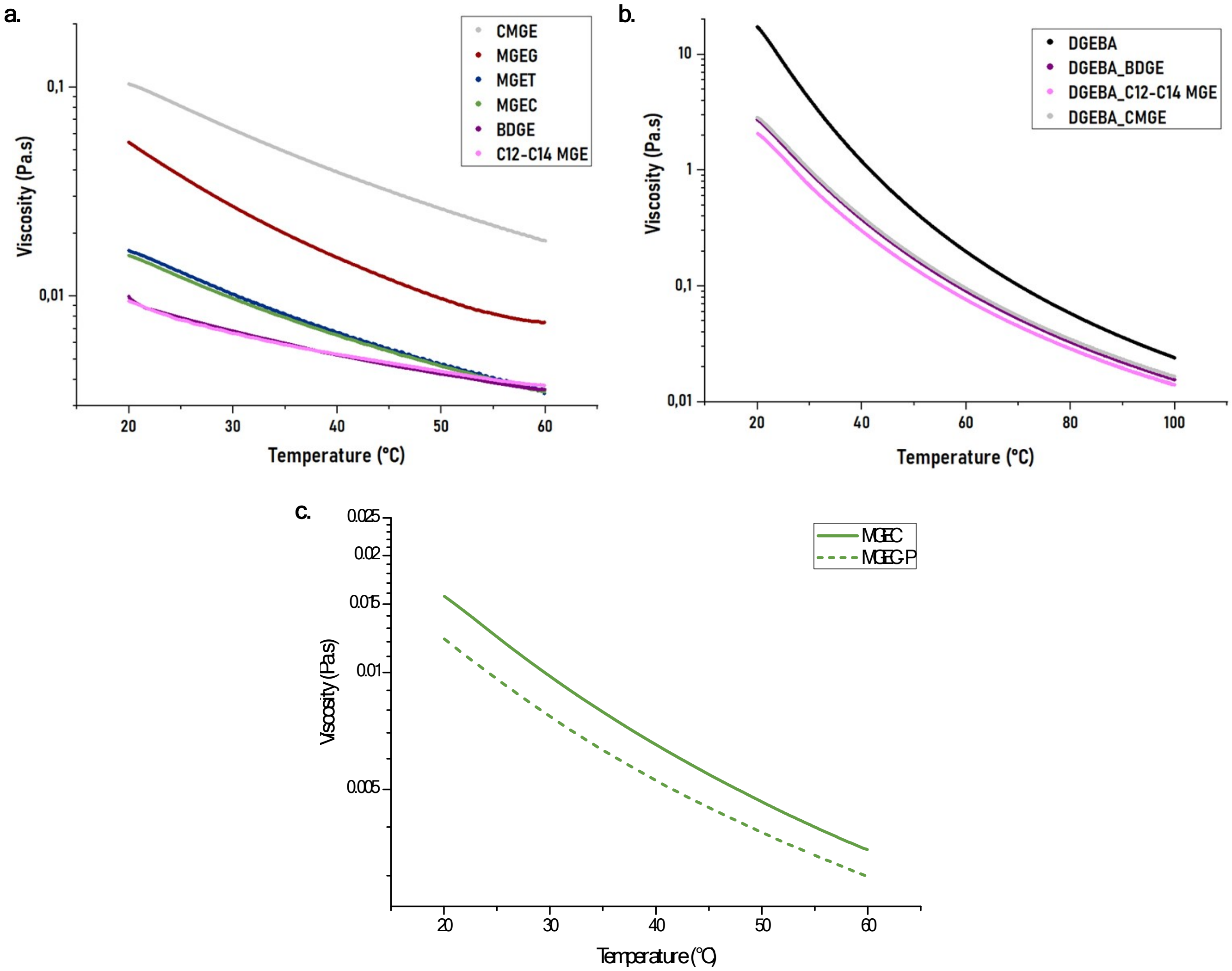


Figure S2. *Viscosity as a function of temperature of each reactive diluent (a), DGEBA-based commercial reference systems (b) and purified MGEC-P (c)*

Table S1. Viscosity of the formulations at different temperatures

Sample	Viscosity (mPa.s)					
	20 °C	25 °C	40 °C	60 °C	80 °C	100 °C
DGEBA (SR GREENPOXY 28)	17238	8436	1195	198	58	24
DGEBA_BDGE (SR GREENPOXY 33)	2729	1639	377	90	33	16
DGEBA_MCGE (FORMULITE 2500 A)	2850	1737	397	96	35	17
DGEBA_C12-C14 MGE (Araldite LY 1568)	2074	1274	299	76	29	14
DGEBA_MGEC5	10064	5120	814	149	46	20
DGEBA_MGEC-P5	8519	4036	627	116	37	17
DGEBA_MGEC10	5528	2972	532	107	36	16
DGEBA_MGEC-P10	5656	2835	494	99	33	15
DGEBA_MGEC15	3431	1892	373	82	29	14
DGEBA_MGEC-P15	2861	1507	295	66	24	11
DGEBA_MGEC20	2024	1222	270	64	24	11
DGEBA_MGEC-P20	1605	919	198	48	18	8.3
DGEBA_MGEG5	10051	4736	807	148	46	20
DGEBA_MGEG10	6219	3238	548	107	36	16
DGEBA_MGEG15	4088	2364	404	85	29	14
DGEBA_MGEG20	2744	1307	304	69	25	12
DGEBA_MGET5	9585	5110	739	136	42	18
DGEBA_MGET10	6134	3226	550	109	36	16
DGEBA_MGET15	4261	2190	407	86	30	14
DGEBA_MGET20	2221	1519	256	59	22	11

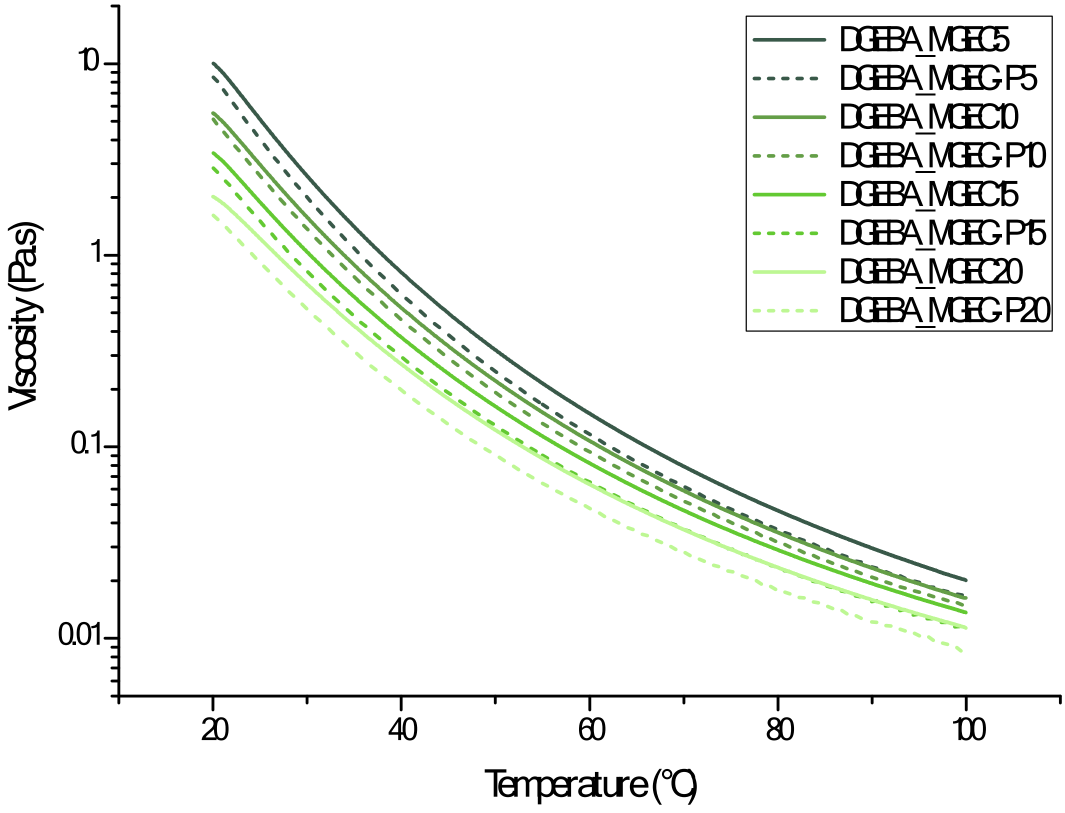


Figure S3. Viscosity as a function of temperature of DGEBA_MGEC and DGEBA_MGEC-P mixtures

3. Non-isothermal DSC analysis of epoxy formulations and oven-cured materials with IPDA

Table S2. Main data obtained from the DSC measurements carried out on the formulations and oven-cured materials

Formulation	EEW	phr	Tonset	Tpeak	Enthalpy	Tg
	g/eq	g	°C	°C	J.g-1	°C
DGEBA (SR GREENPOXY 28)	178.9	23.8	84.5	117.5	407.5	149.2
DGEBA_BDGE (SR GREENPOXY 33)	180.2	23.6	78	115.2	457.4	127.8
DGEBA_MCGE (FORMULITE 2500 A)	207.9	20.5	77.6	119.1	375.2	102.3
DGEBA_C12-C14 MGE (Araldite LY 1568)	187.3	22.7	81.8	120	416.4	125.5
DGEBA_MGEC5/IPDA	180.8	23.5	79.2	116.4	396.9	128.8
DGEBA_MGEC-P5/IPDA	180.2	23.6	85	118	443	144
DGEBA_MGEC10/IPDA	182.8	23.2	77.6	116.5	408.9	116.8
DGEBA_MGEC-P10/IPDA	181.6	23.5	86	120	461	135.2
DGEBA_MGEC15/IPDA	185.2	23	79.2	118.1	394.2	118.5
DGEBA_MGEC-P15/IPDA	183	23.3	82	119	426	124.4
DGEBA_MGEC20/IPDA	187.3	22.7	78.1	118.4	360.2	99.9
DGEBA_MGEC-P20/IPDA	184.4	23.1	84	121	426	111.8
DGEBA_MGEG5/IPDA	179.9	23.7	74.6	113.5	425.4	128.3
DGEBA_MGEG10/IPDA	180.8	23.5	73.8	113.8	369.3	113.2
DGEBA_MGEG15/IPDA	181.8	23.4	68.6	110.4	363.4	108.8
DGEBA_MGEG20/IPDA	182.8	23.3	72.3	113.1	376.6	92.7
DGEBA_MGET5/IPDA	180.8	23.5	78.4	116.2	409	131.1
DGEBA_MGET10/IPDA	183.2	23.2	75.2	114.8	367.5	110.9
DGEBA_MGET15/IPDA	185.2	23	77.5	118.2	401.7	111.7
DGEBA_MGET20/IPDA	187.6	22.7	75.2	117.6	354.6	104.6

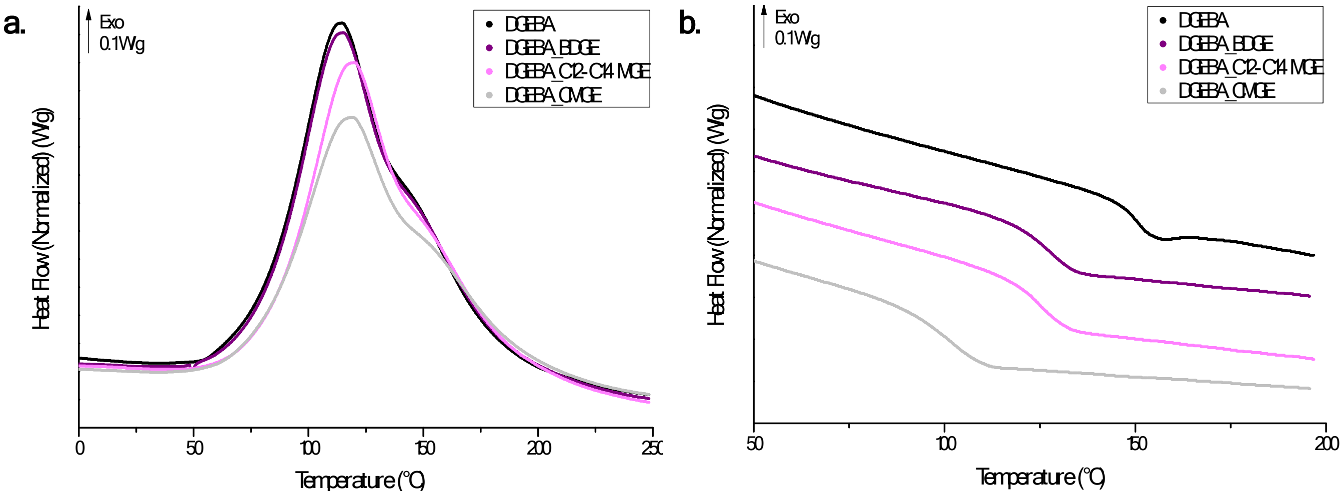


Figure S4. *DSC analysis of uncured (a) and oven-cured (second heating ramp) (b) DGEBA-based commercial reference systems mixed with IPDA.*

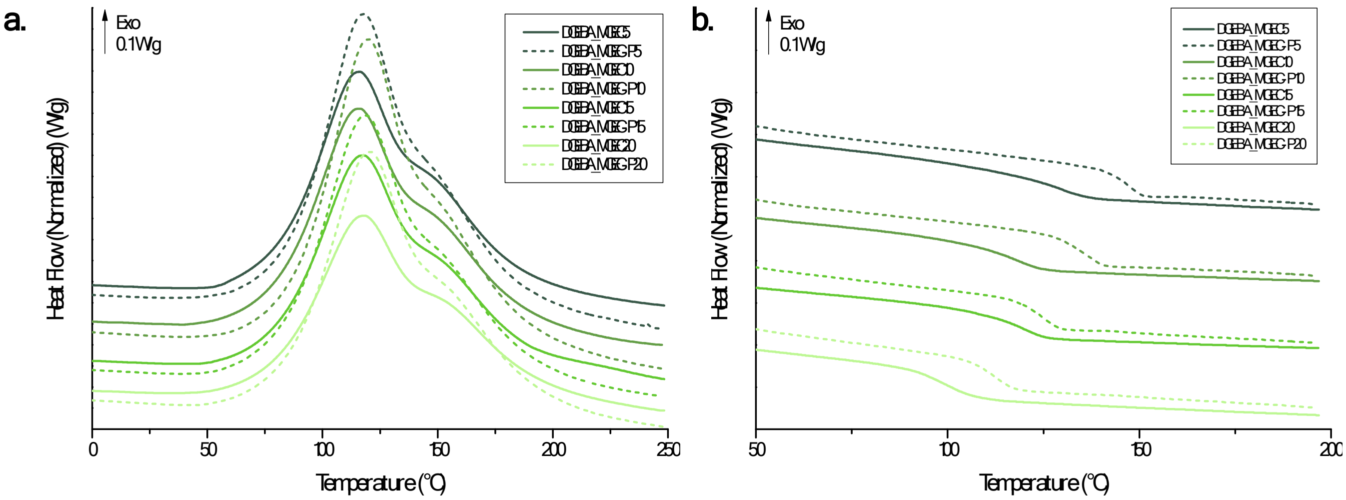


Figure S5. DSC analysis of uncured (a) and oven-cured (second heating ramp) (b) DGEBA_MGEC and DGEBA_MGEC-P systems mixed with IPDA