Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

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Table S1Thermal parameters of PLLA/PBAT-based blends during the first and second DSC heating cycles

Sample name	T_{cc}	T_{ex}	T_m	ΔH_c	ΔH_m	Xc	T_{scm}	ΔH_{sc-m}
The first heating								
PLLA/PBAT 9/1	92.8	157.7	174.3	33.44	41.11	9.17%		
PLLA/PBAT 8/2	92.9	158.5	174.9	27.66	36.48	11.86%		
PLLA/PBAT 7/3	89.3	158.6	175.7	19.66	27.90	12.68%		
PLLA/PBAT 5/5	-	156.4	174.7	0	16.49	35.47%		
PLLA/PBAT 9/1+5% PDLA	90.4	158.6	176.3	20.88	25.85		222.8	7.43
PLLA/PBAT 9/1+10% PDLA	90.6	158.4	175.6	18.89	25.44		233.1	8.27
PLLA/PBAT 8/2+5% PDLA	90.8	158.4	176.2	19.6	24.6		229.21	8.93
PLLA/PBAT 8/2+10% PDLA	91	158.8	176	18.02	23.92		230.1	9.75
The second heating								
PLLA/PBAT 9/1	95.4	158.2	174.1	15.04	40.50	30.41%		
PLLA/PBAT 8/2	95.1	159	174.4	8.95	32.63	31.83%		
PLLA/PBAT 7/3	94.1	159.2	175.1	5.4	27.08	33.30%		
PLLA/PBAT 5/5	97.6	158.6	174.5	3.74	17.67	29.96%		
PLLA/PBAT 9/1+5% PDLA	95.4	157.8	174.1	27.84	28.36			
PLLA/PBAT 9/1+10% PDLA	94.9	157.4	173.5	25.75	26.63			
PLLA/PBAT 8/2+5% PDLA	95.3	157.9	174	25.41	26.45			
PLLA/PBAT 8/2+10% PDLA	94.9	157.6	173.8	24.27	25.4			

Table S2 Solubility of supercritical carbon dioxide in PLLA, PBAT and their blends

Samples	PLLA	PLLA/PBAT 9/1	PLLA/PBAT 8/2	PLLA/PBAT 7/3	PLLA/PBAT 5/5	PBAT
[a] Gas solubility (g CO2/100g polymer)	22.60	21.24	19.87	18.51	15.78	8.95
[b] Gas solubility (g CO2/100g polymer)	----	21.09	18.90	18.40	16.5	-----

Note: [a] means the gas solubility determined by the experiments, while [b] means the calculated gas solubility considering the weight percentage according to this equation:

Solubility of binary blends=Solubility of CO2 in pure PLLA × Weight percent of PLLA+ Solubility of CO2 in pure PBAT × (1−Weight percent of PLLA)

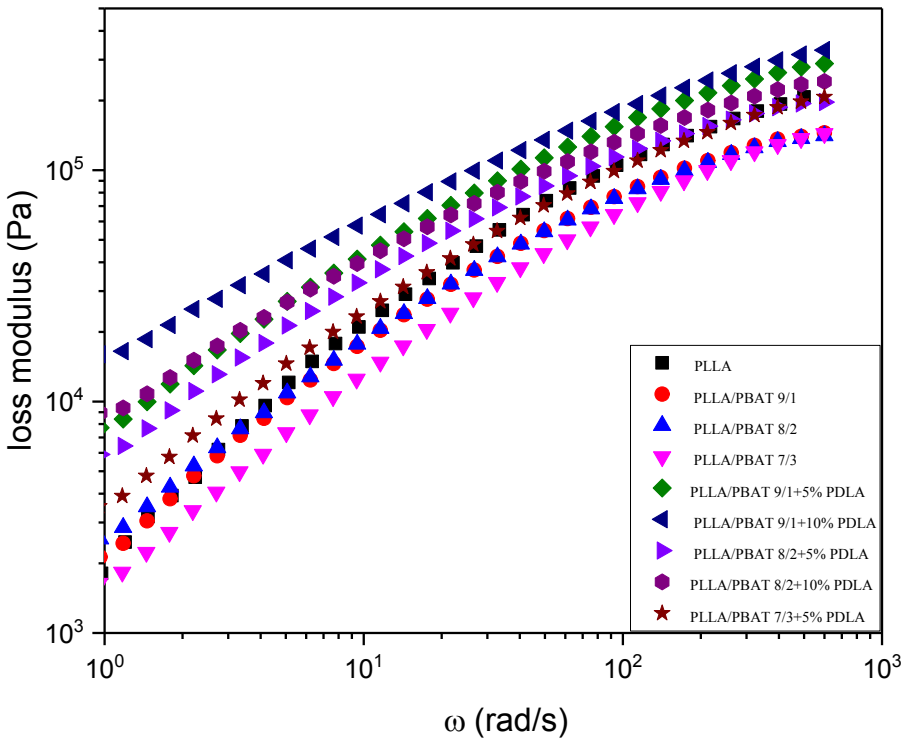

Figure S1 Frequency dependences of loss modulus G´´ of PLLA, PLLA/PBAT and PLLA/PBAT/PDLA at 190 °C

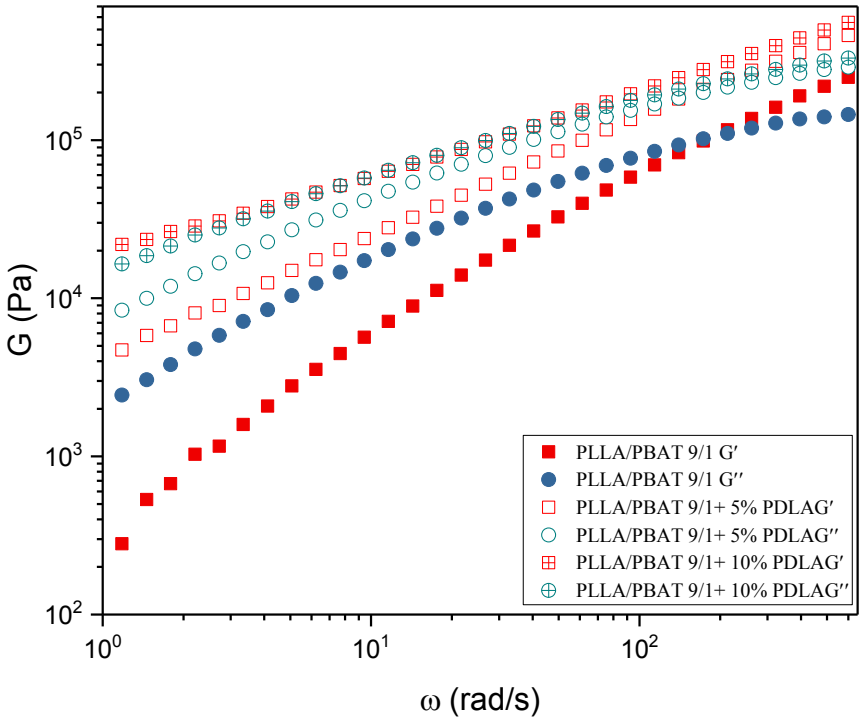

Figure S2 Cross-over points for curves of G´and G´´ as a function of frequency for PLLA/PBAT 9/1 systems with different PDLA

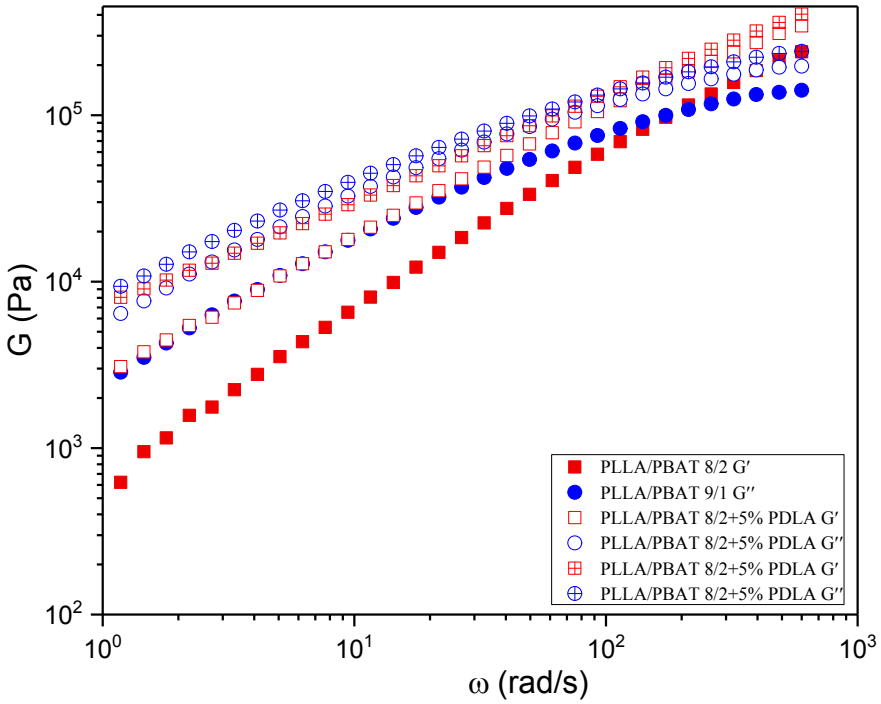

Figure S3 Cross-over points for curves of G´and G´´ as a function of frequency for PLLA/PBAT 8/2 systems with different PDLA