Electronic Supplementary Material (ESI) for RSC Advances.

Novel Tunable Super-Tough Material from Biodegradable Polymer Blends: Nano-structuring through Reactive Extrusion

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Fig. S1 – S4

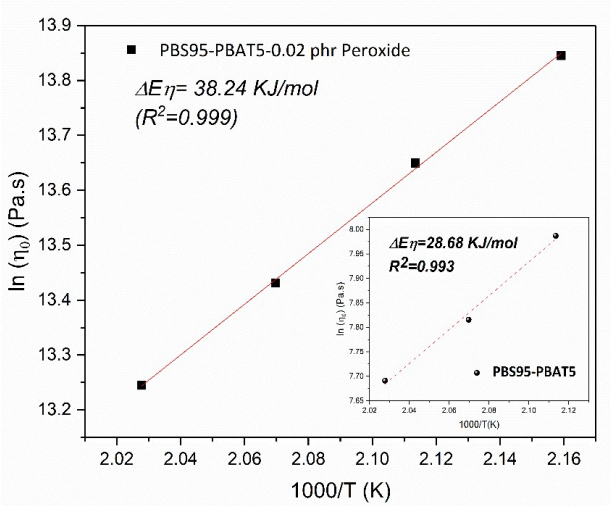

Figure S1. The Arrhenius plot of the zero shear viscosity of the nano and micro-blending samples as a function of temperature

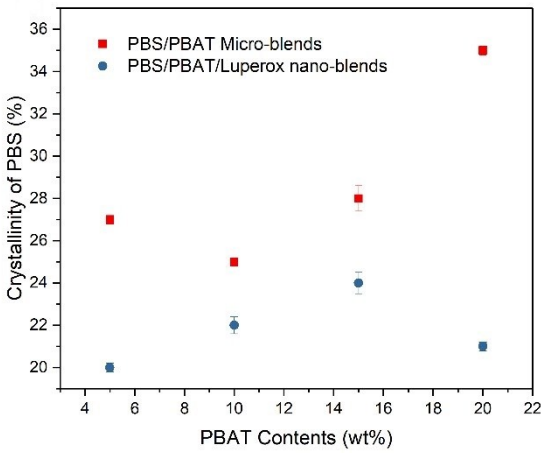

Figure. S2 The dependence of the crystallinity of the blends on PBAT contents for the micro and nano-blends

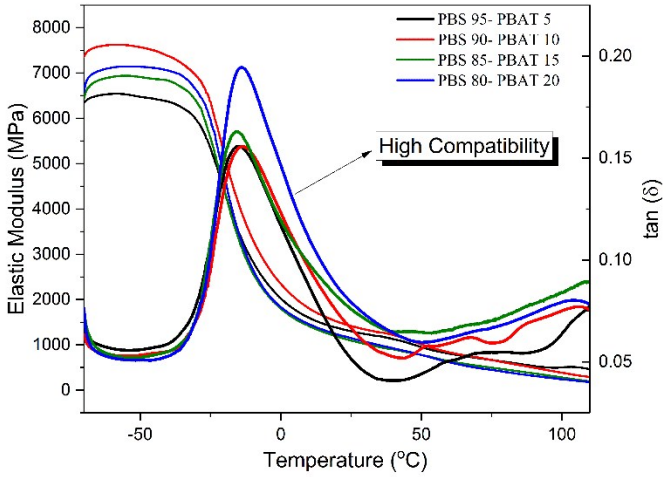

Figure S3. The DMA curves of PBS/PBAT blends measured in dual-cantilever model

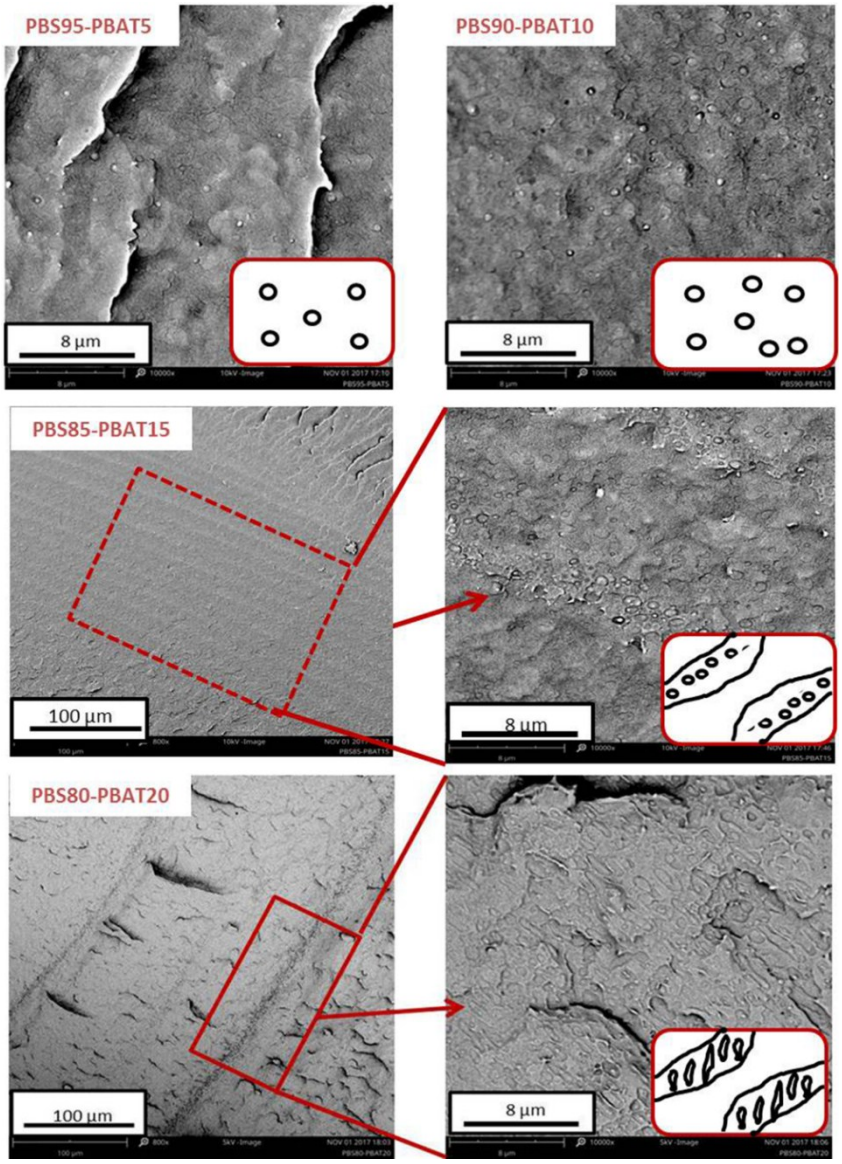

Figure S4 Morphology evolution of the immiscible PBS-PBAT blends with increasing PBAT contents observed by SEM

Table S1-S2

Table S1 The gel contents of the PBS/PBAT nano-blends after extracted in chloroform

Samples	Gel contents (wt%)
PBS 95/ PBAT5 Luperox 0.02	15.8
PBS 90/ PBAT 10/ Luperox 0.02	6.1
PBS 85/ PBAT 15/ Luperox 0.02	0.96
PBS 80/ PBAT 20/ Luperox 0.02	0

Table S2 The mechanical properties of the pure PBS and PBAT

Samples	Tensile modulus (MPa)	Tensile strength (MPa)	Elongation at yield (%)	Elongation at break (%)	Notched Impact Strength (J/m)
PBS	613 ± 23.2	48.7 ± 2.36	17.9 ± 0.4	267.3 ± 24.5	79 ± 28.8
PBAT	70 ± 7.5	27.6 ± 1.9	23.2 ± 0.8	574.4 ± 53.3	Non-break