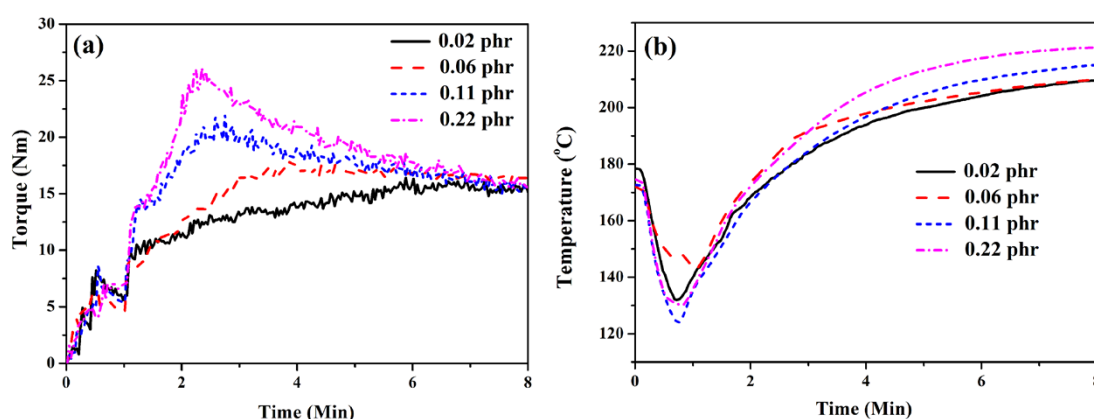


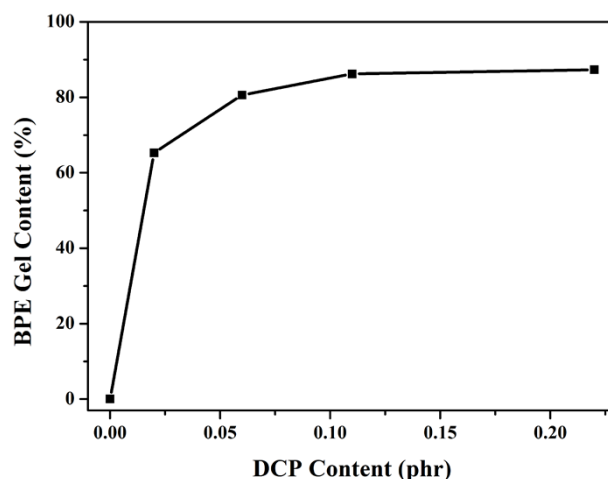
## Supplementary Information

**Characterization.** Chloroform extraction was used to determine the BPE gel content as a measure of the degree of crosslinking of the BPE phase. Approximately 1 g of biobased TPV was weighed and placed in an 80-mesh coppery pouch. The pouch was also weighed and then immersed in chloroform for 72 h. After the sample was dried in a vacuum oven at 60 °C for 12 h, the weight of the pouch was determined. The BPE gel content was calculated by assuming that the residue consisted of insoluble crosslinked BPE.



**Figure S1:** Dynamic crosslinking curves of BPE/PLA (w/w, 70/30) blend with different DCP contents: (a) mixing torque vs time; (b) mixing temperature vs time.

Figure S1 shows the mixing torque and temperature as a function of time during the dynamic crosslinking of the BPE/PLA (w/w, 70/30) blend with different DCP contents. The torque and temperature of the biobased TPVs increase as the DCP content increases because a higher degree of crosslinking results in a higher viscosity and elasticity of the BPE phase.



**Figure S2:** BPE gel content of biobased TPVs (BPE/PLA, w/w, 70/30) with different DCP contents.

The BPE gel content as a function of DCP content is shown in Figure S2 for biobased TPV( a blend of BPE and PLA in the ratio BPE/PLA of 70/30 (w/w)).The BPE gel content of the BPE/PLA blend with no DCP is 0%, as expected. The BPE gel content increases with increasing DCP content, indicating the increase of the degree of crosslinking. Further increases in DCP content above 0.1 phr do not lead to further increases in BPE gel content.