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Mechanical and thermal properties of natural rubber-modified Poly(lactic acid) compatibilized with telechelic liquid natural rubber

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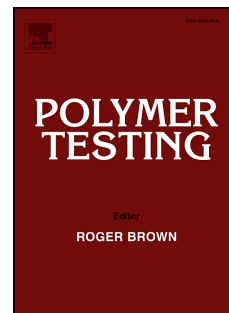
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1 **Mechanical and Thermal Properties of Natural Rubber-Modified Poly(lactic acid)**
2 **Compatibilized with Telechelic Liquid Natural Rubber**

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9
10 **Abstract**

11 The effect of telechelic liquid natural rubber (TLNR) compatibilizer on natural rubber (NR)
12 modified by melt-blending with poly(lactic acid) (PLA-NR) is studied using infrared
13 spectroscopy (FTIR), differential scanning calorimetry (DSC) and notched Izod impact testing to
14 determine the structural, thermal and mechanical properties. Scanning electron microscopy
15 (SEM) is used to relate these properties to the morphology of the blends and fracture surface of
16 the impact samples. Through this, it is revealed that the addition of LNR significantly improves
17 the tensile and impact strength of PLA-NR, with the greatest compatibilization effect achieved
18 with 6 wt% LNR. This improvement is confirmed through FTIR analysis to be due to a chemical
19 interaction between LNR and PLA that improves the phase morphology of the blend.

20
21 **Keywords:** Telechelic liquid natural rubber, Poly(lactic) acid, Melt blending, Compatibilization

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