Supporting Information

Lignin reinforced NBR/PVC composites via metal coordination interactions

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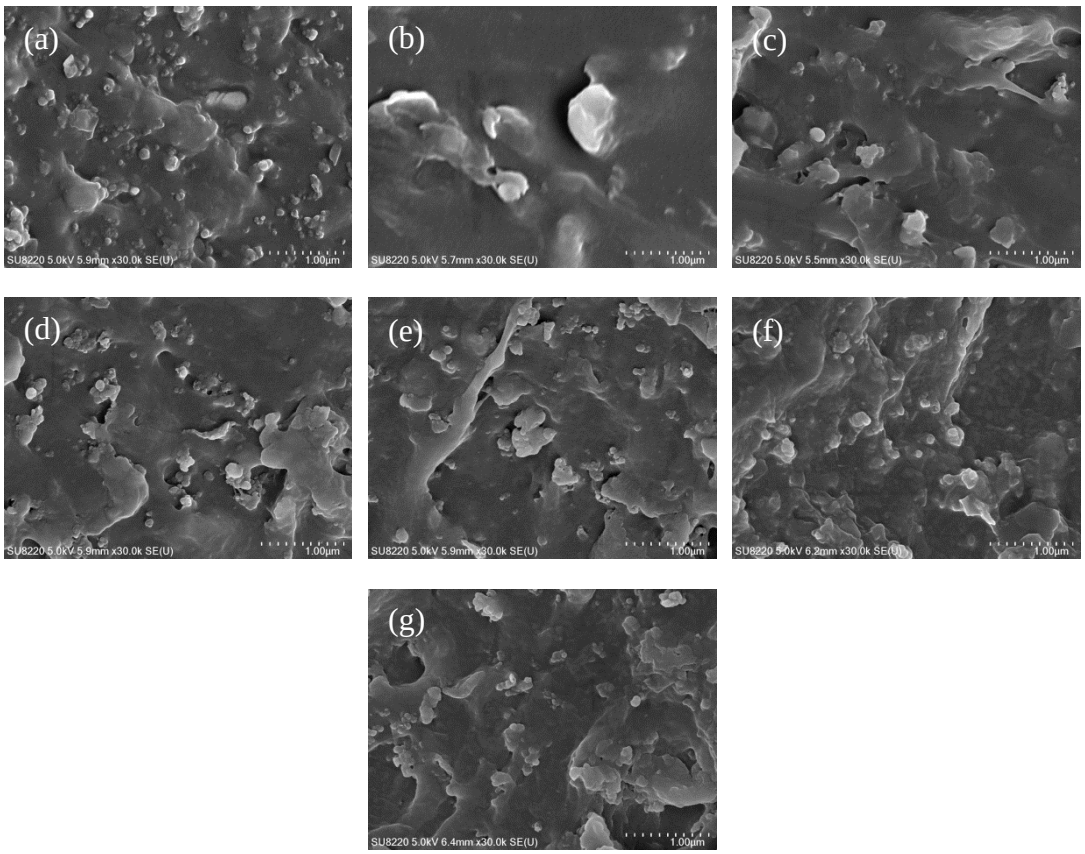
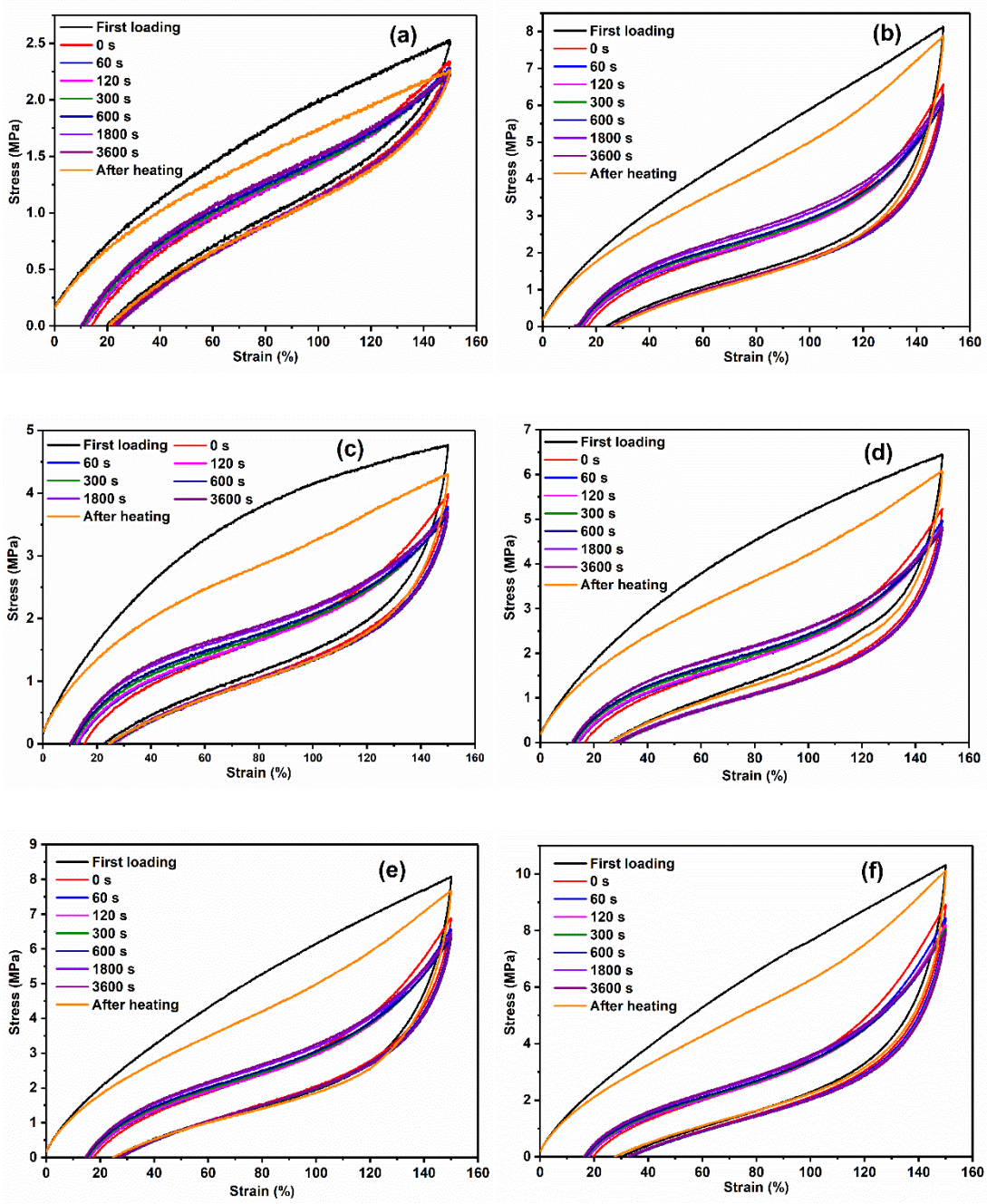


Figure S1. The SEM images obtained from the fracture surface of lignin/CB/NBR/ PVC composites: (a)C40S1.05, (b)L40S1.05, (c)L20C20S1.05, (d) L20C20Z4, (e) L20C20Z6, (f) L20C20Z8, (g) L20C20Z10.

As shown in Figure S1, compared with C40S1.05, the lignin particles in L40S1.05 and L20C20S1.05 had much larger particle size and sharper phase interfaces. As the Zn^{2+} content increased, the presence of Zn^{2+} led to a better dispersion of lignin with smaller particle size distribution in the rubber matrix and better interfacial compatibility as the particle-rubber interface became blurry.



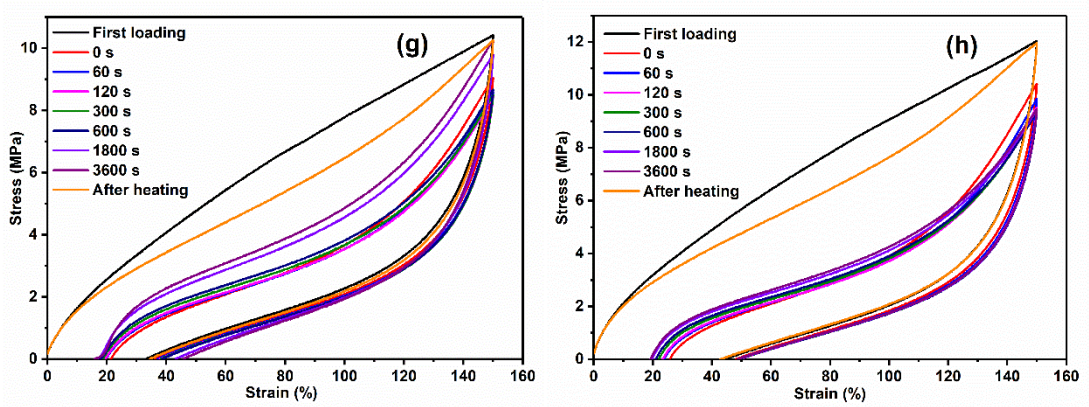


Figure S2. The cyclic tensile curves of the sample (a) control, (b) C40S1.05, (c) L40S1.05, (d) L20C20S1.05, (e) L20C20Z2S1.05, (f) L20C20Z4S1.05, (g) L20C20Z6S1.05 and (h) L20C20Z8S1.05 with different waiting time.