Two-dimensional Raman correlation spectroscopy reveals molecular structural changes during temperature-induced self-healing in polymers based on the Diels-Alder reaction

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Figure S1 Experimental FT-Raman spectrum of furfuryl methacrylate (FMA). The spectrum consists of 724 combined single spectra. The resolution is 4 cm$^{-1}$. The spectrum is background corrected using a SNIP algorithm and normalized to the peak at 1503 cm$^{-1}$. Band assignment: 1718 ($\nu$(C=O) methacrylate), 1639 ($\nu$(C=C) methacrylate), 1602 ($\nu$(C=C) furan), 1503 ($\nu$(C=C) furan), 1081 ($\nu$(ring) furan) cm$^{-1}$.
Figure S2 Experimental FT-Raman spectrum of furan protected maleimide methacrylate (MIMA). The spectrum consists of 724 combined single spectra. The resolution is 4 cm$^{-1}$. The spectrum is background corrected using a SNIP algorithm and normalized to the peak at 1772 cm$^{-1}$. Band assignment: 1772 ($\nu$(C=O) maleimide), 1716 ($\nu$(C=O) methacrylate & $\nu_{as}$(C=O) maleimide), 1638 ($\nu$(C=O) methacrylate), 1574 ($\nu$(C=C) maleimide), 655 ($\pi$(C-N-C) maleimide) cm$^{-1}$. 
Figure S3 Experimental FT-Raman spectrum of furan protected poly(maleimide methacrylate) (P(MIMA)). The spectrum consists of 724 combined single spectra. The resolution is 4 cm$^{-1}$. The spectrum is background corrected using a SNIP algorithm and normalized to the peak at 1775 cm$^{-1}$. Band assignment: 1775 (ν$_s$(C=O) maleimide), 1727 (ν(C=O) methacrylate & ν$_s$(C=O) maleimide), 1571 (ν(C=C) maleimide), 653 (τ(C-N-C) maleimide) cm$^{-1}$. 
Figure S4 Experimental FT-Raman spectrum copolymer P(LMA-co-FMA-co-MIMA) with monomer ratio of 1:1:1 (P1). The spectrum consists of 72 combined single spectra. The resolution is 4 cm\(^{-1}\). The spectrum is background corrected using a SNIP algorithm and normalized to the peak at 1772 cm\(^{-1}\). Band assignment: 1772 (\(\nu(C=O)\) maleimide), 1716 (\(\nu(C=O)\) methacrylate & \(\nu_{as}(C=O)\) maleimide), 1501 (\(\nu(C=C)\) furan) cm\(^{-1}\).
Figure S5 Asynchronous 2D Raman correlation spectra of P(LMA-co-FMA-co-MIMA) with monomer ratio of 1:1:1 (P1) between 110 and 160 °C (in steps of 10 °C) in the wavenumber region 500 - 2000 cm\(^{-1}\). The spectrum plotted at the top and the left is the respective reference Raman spectrum at 110 °C. Red colour indicates positive peaks, while blue shows negative ones.