

Supporting Information to

Functionalizable Coaxial PLLA/PDLA Nanofibers with Stereocomplexes at the Internal Interface

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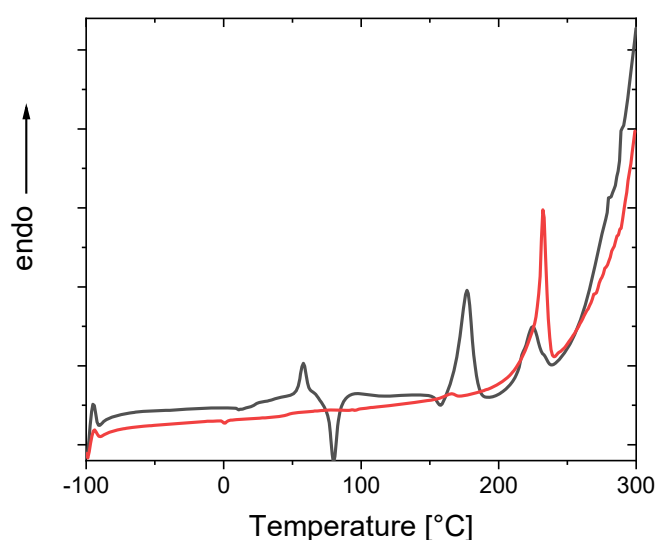


Figure S1: DSC thermogram of as-spun PLLA/PDLA coaxial core-shell fibers. Black: 1st heating run. Red: 2nd heating run (full thermogram), compare with Fig. 3C of the main manuscript. The melting peak at 175 °C is from homocrystallites (HC), and $T_m > 220$ °C is related to the stereocomplexes (SC). At this temperature, thermal degradation of the material starts, which is indicated by the sharp increase in the baseline.

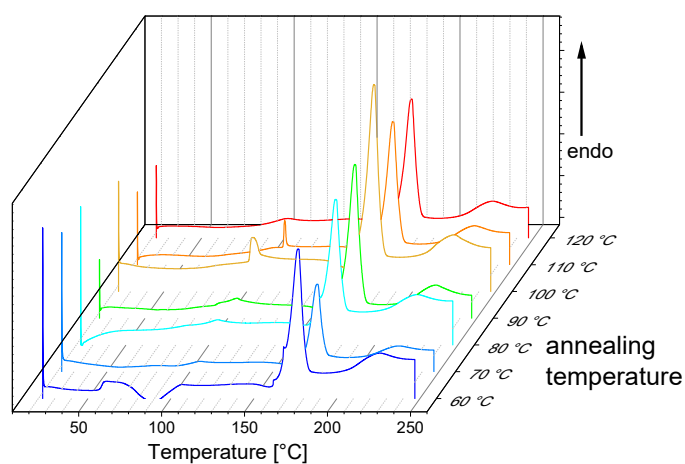


Figure S2: DSC of electrospun core/shell fibers annealed at different temperatures for 1 h.

Table S1: Melting enthalpies and crystallinities of core/shell fibers annealed for 1 h at different annealing temperatures.

Annealing Temperature [°C]	ΔH_m^1 [J·g ⁻¹]	ϕ_c^{HC} [%]	ΔH_m^2 [J·g ⁻¹]	ϕ_c^{SC} [%]
120	13.53	14.6	2.18	1.5
110	13.84	14.9	2.29	1.6
100	20.19	21.7	3.27	2.3
90	16.00	17.2	2.73	1.9
80	14.27	15.3	2.16	1.5
70	7.62	8.2	1.43	1.0
60	14.87	16.0	2.39	1.7

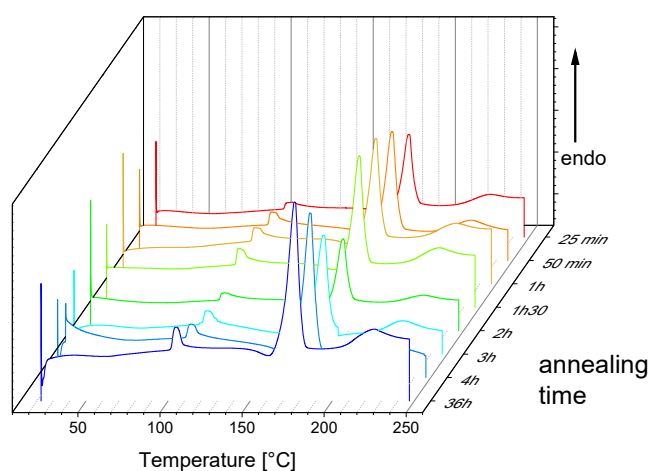


Figure S3: DSC studies of electrospun core/shell fibers annealed for different times at 100 °C.

Table S2. Melting enthalpies and crystallinities of core/shell fibers annealed at 100 °C for different times.

Annealing Time	ΔH_m^1 [J·g ⁻¹]	ϕ_c^{HC} [%]	ΔH_m^2 [J·g ⁻¹]	ϕ_c^{SC} [%]
25 min	8.59	9.2	1.52	1.1
50 min	12.52	13.5	2.19	1.5
60 min	12.23	13.1	2.07	1.5
90 min	13.55	14.6	2.40	1.7
2 h	7.42	8.0	0.76	0.5
3 h	13.74	14.8	2.27	1.6
4 h	17.65	19.0	3.14	2.2
36 h	19.14	20.6	3.47	2.4

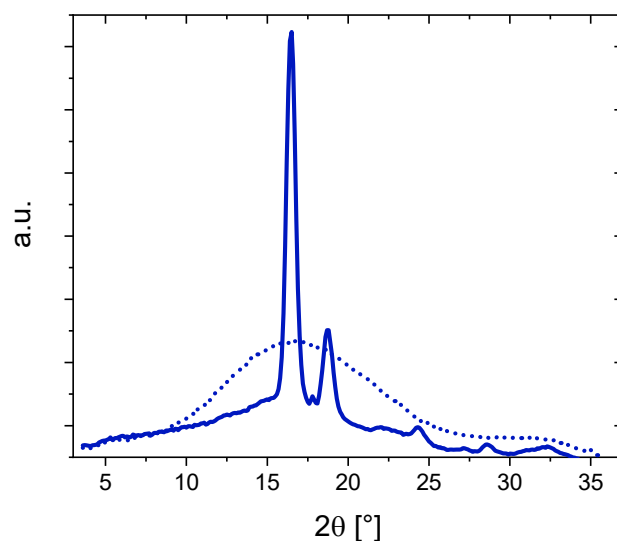


Figure S4. WAXS pattern of as-spun (dots) or annealed (line) PLLA fibers. The as-spun fibers appear amorphous, while in the annealed fibers crystallites are present. All peaks are associated with PLA homocrystallites.

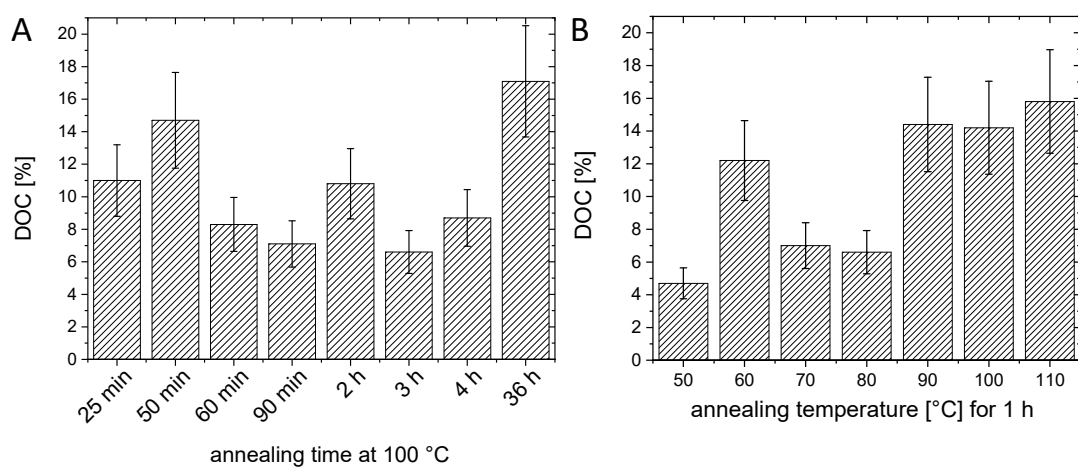


Figure S5. Degree of crystallinity of annealed core/shell samples determined from WAXS data, varying the annealing time at 100 °C (A) or the annealing temperature (B).

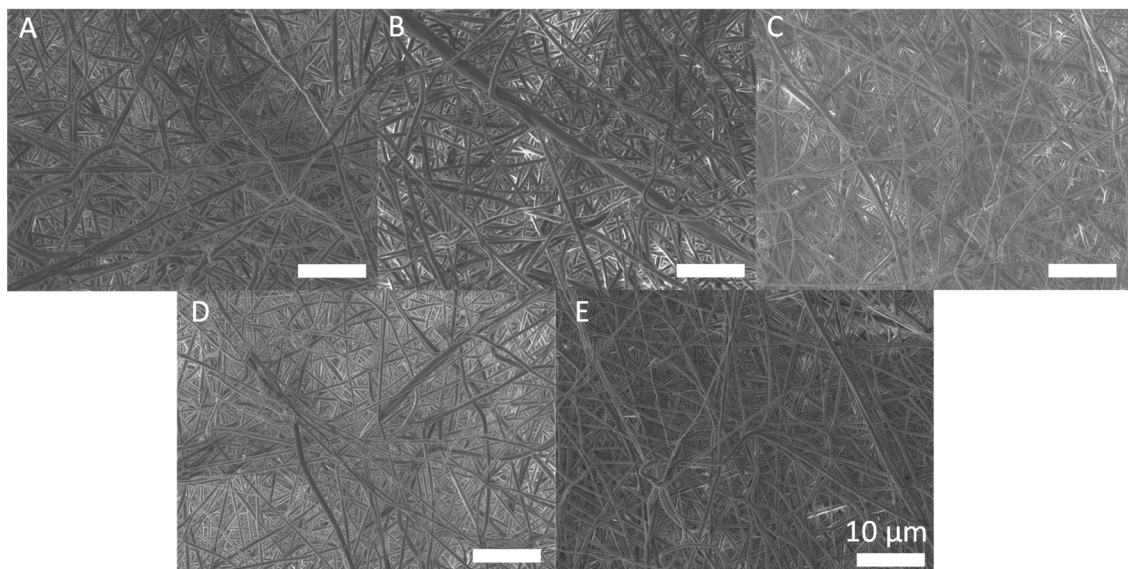


Figure S6: SEM images of core-shell nonwovens nominally containing 6.9 (A), 13.5 (B), 19.8 (C), 25.9 (D) or 37.5 wt% (E) gelatin in the PDLA shell.

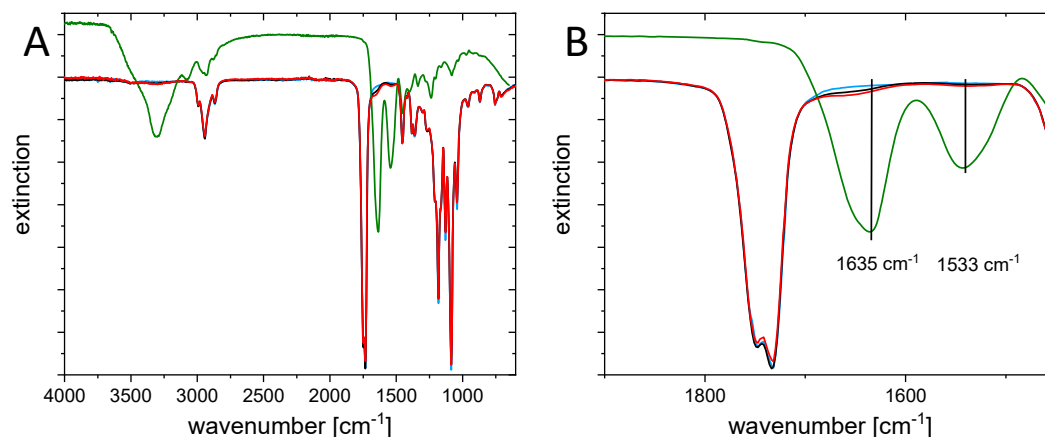


Figure S7. FT-IR spectra of gelatin (green) and core-shell nonwovens nominally containing 0 (red), 6.9 (black) or 13.5 wt% (blue) gelatin in the shell. Gelatin contains bands at ~ 1635 and 1533 cm^{-1} , which are not clearly present in the nonwovens. The overall wt% may have been too low for detection. The attenuated total reflectance Fourier-transformed infrared spectroscopy spectra were recorded on a Nicolet 6700 FT-IR (Thermo Fisher Scientific, Waltham, MA, USA) spectrometer.

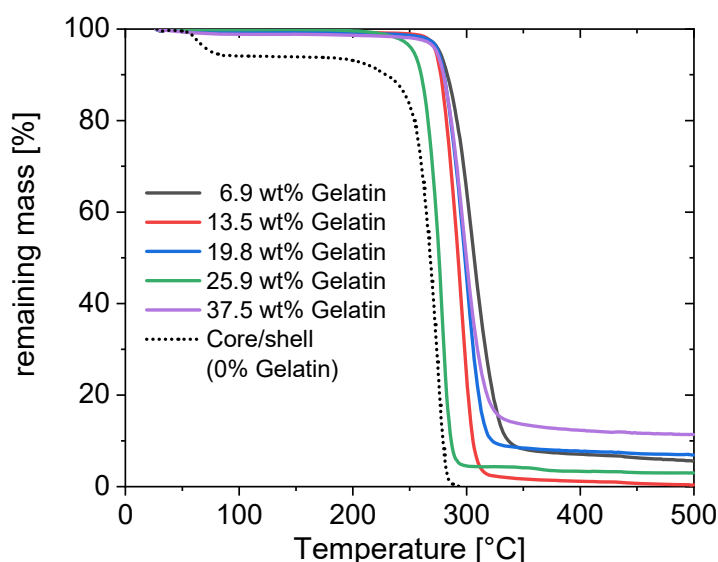


Figure S8. Thermal degradation of core-shell nanofibers containing different nominal amounts of gelatin in the shell. No two-step degradation was observed by which the gelatin content could have been quantified.

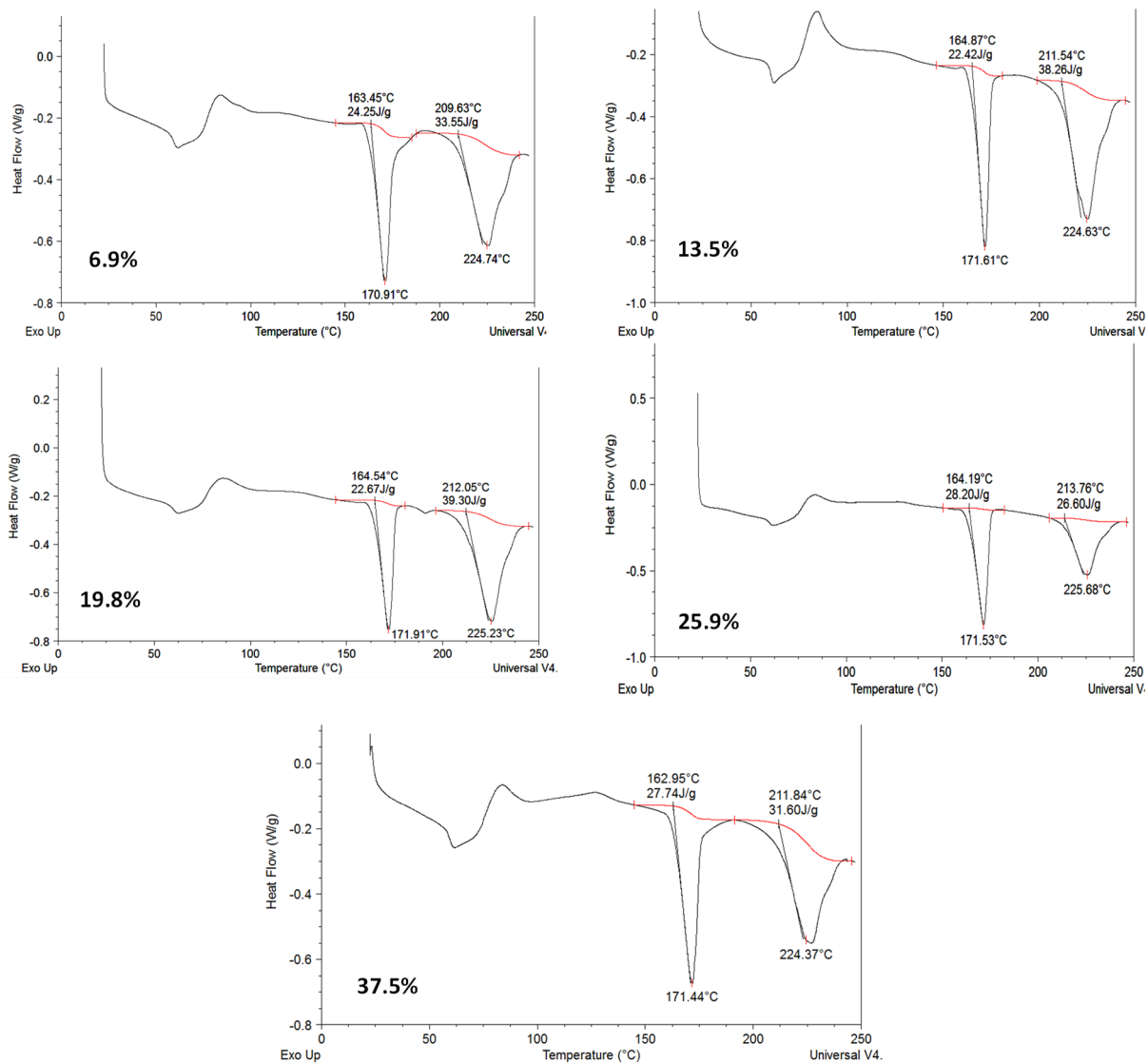


Figure S9. DSC curves of core-shell fibers nominally containing 6.9-37.5 wt% of gelatin in the PDLA phase.

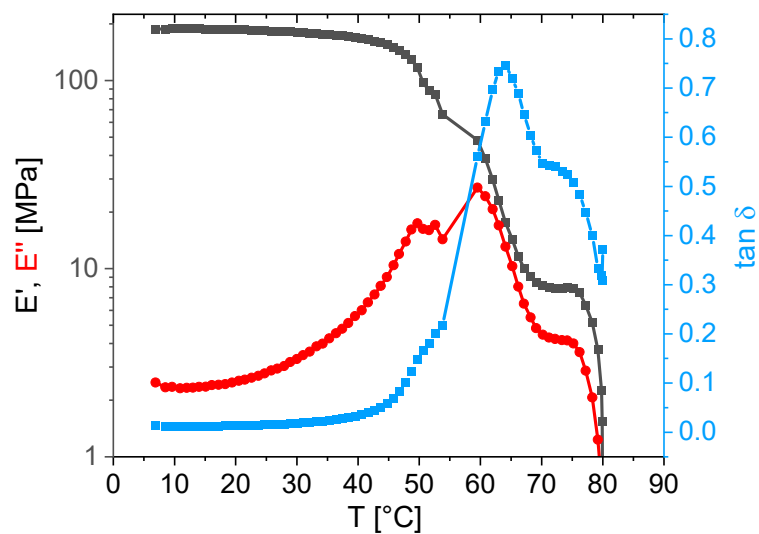


Figure S10. DMTA of core-shell nonwovens without gelatin after swelling in water for 30 min. black: E' , red: E'' , blue: $\tan \delta$.

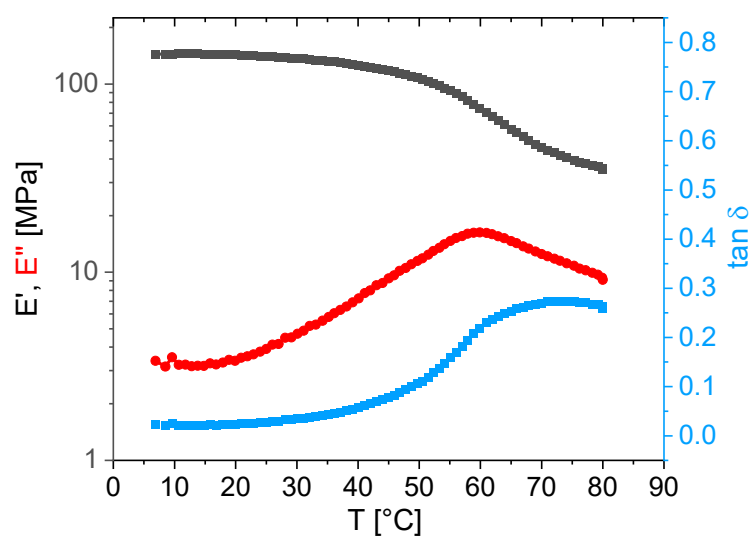


Figure S11. DMTA of core-shell nonwovens nominally containing 6.9 wt% gelatin in the PDLA shell after swelling in water for 30 min. black: E' , red: E'' , blue: $\tan \delta$.

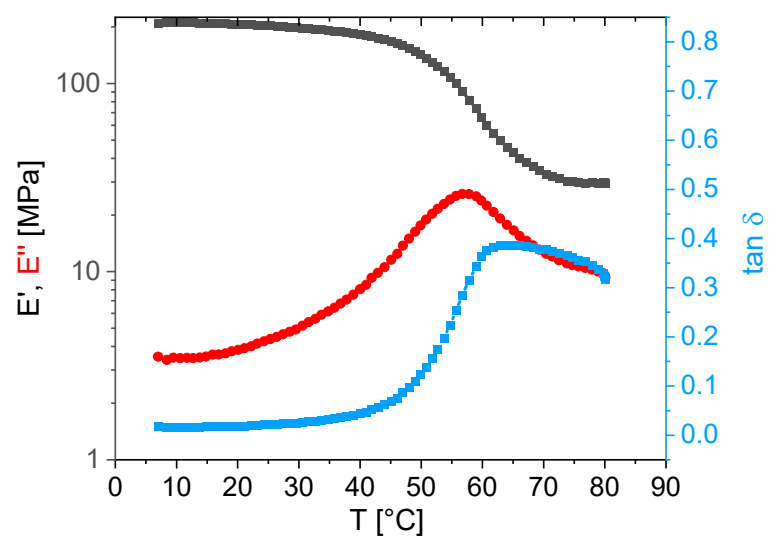


Figure S12. DMTA of core-shell nonwovens nominally containing 13.5 wt% gelatin in the PDLA shell after swelling in water for 30 min. black: E' , red: E'' , blue: $\tan \delta$.

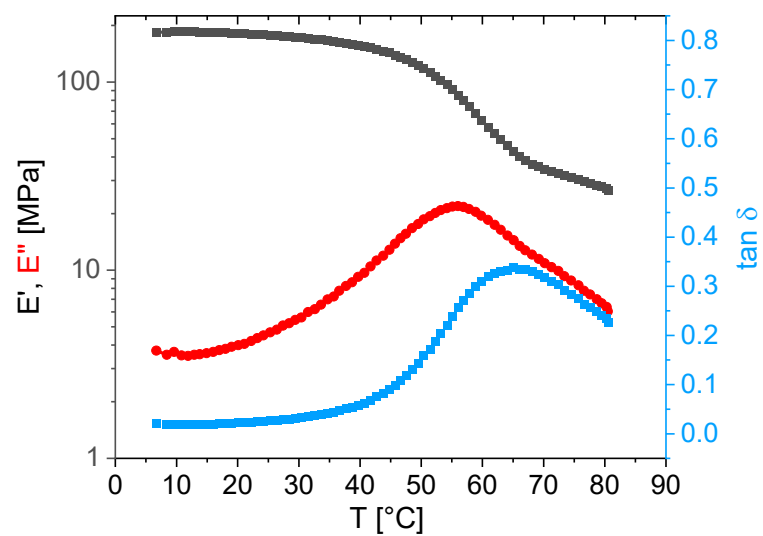


Figure S13. DMTA of core-shell nonwovens nominally containing 19.8 wt% gelatin in the PDLA shell after swelling in water for 30 min. black: E' , red: E'' , blue: $\tan \delta$.

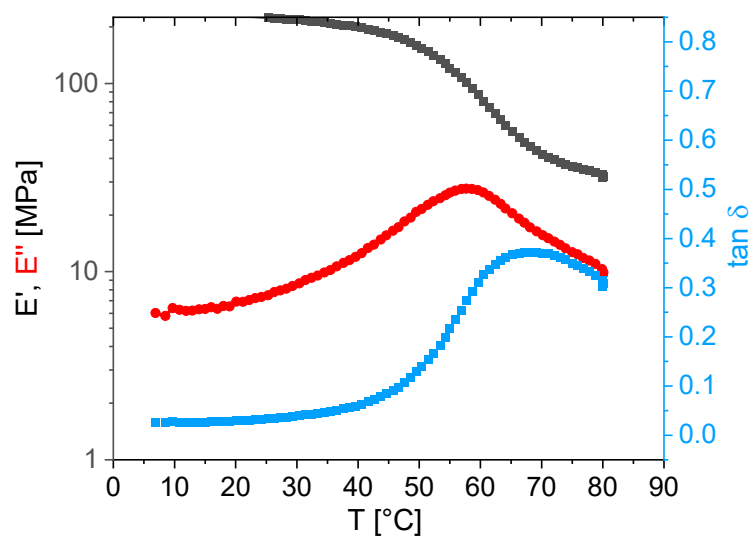


Figure S14. DMTA of core-shell nonwovens nominally containing 25.9 wt% gelatin in the PDLA shell after swelling in water for 30 min. black: E' , red: E'' , blue: $\tan \delta$.

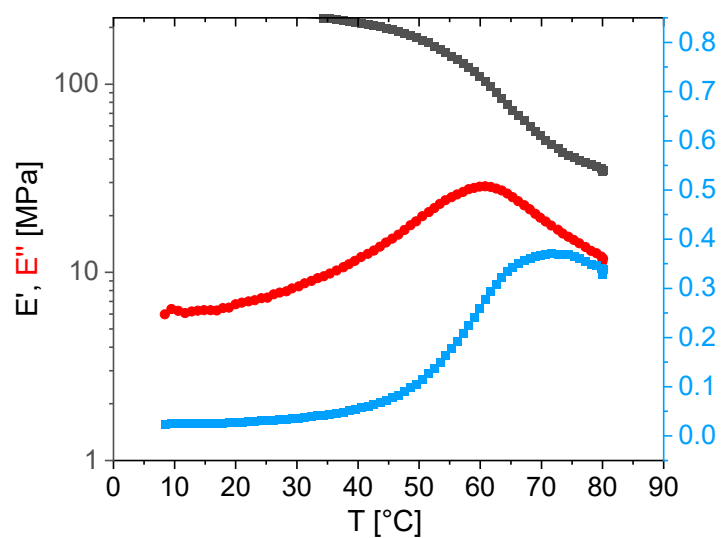


Figure S15. DMTA of core-shell nonwovens nominally containing 25.9 wt% gelatin in the PDLA shell, after swelling in water overnight while clamped in the DMTA. black: E' , red: E'' , blue: $\tan \delta$.

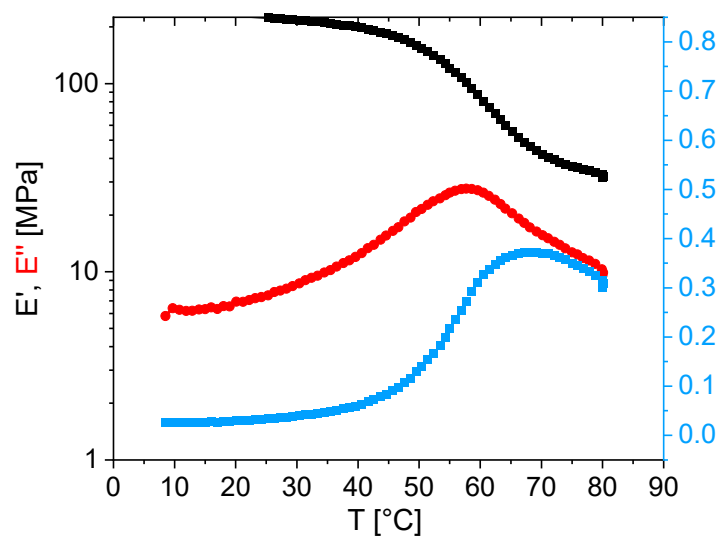


Figure S16. DMTA of core-shell nonwovens nominally containing 25.9 wt% gelatin in the PDLA shell, after swelling in water overnight without clamping. black: E' , red: E'' , blue: $\tan \delta$.

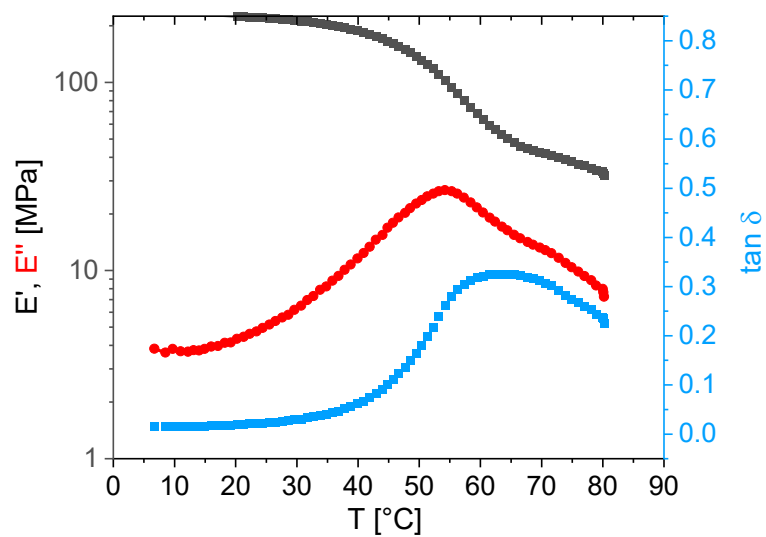


Figure S17. DMTA of core-shell nonwovens nominally containing 37.5 wt% gelatin in the PDLA shell after swelling in water for 30 min. black: E' , red: E'' , blue: $\tan \delta$.