Supporting Information:

Secondary dispersion based reactive pressure sensitive adhesives with improved tack

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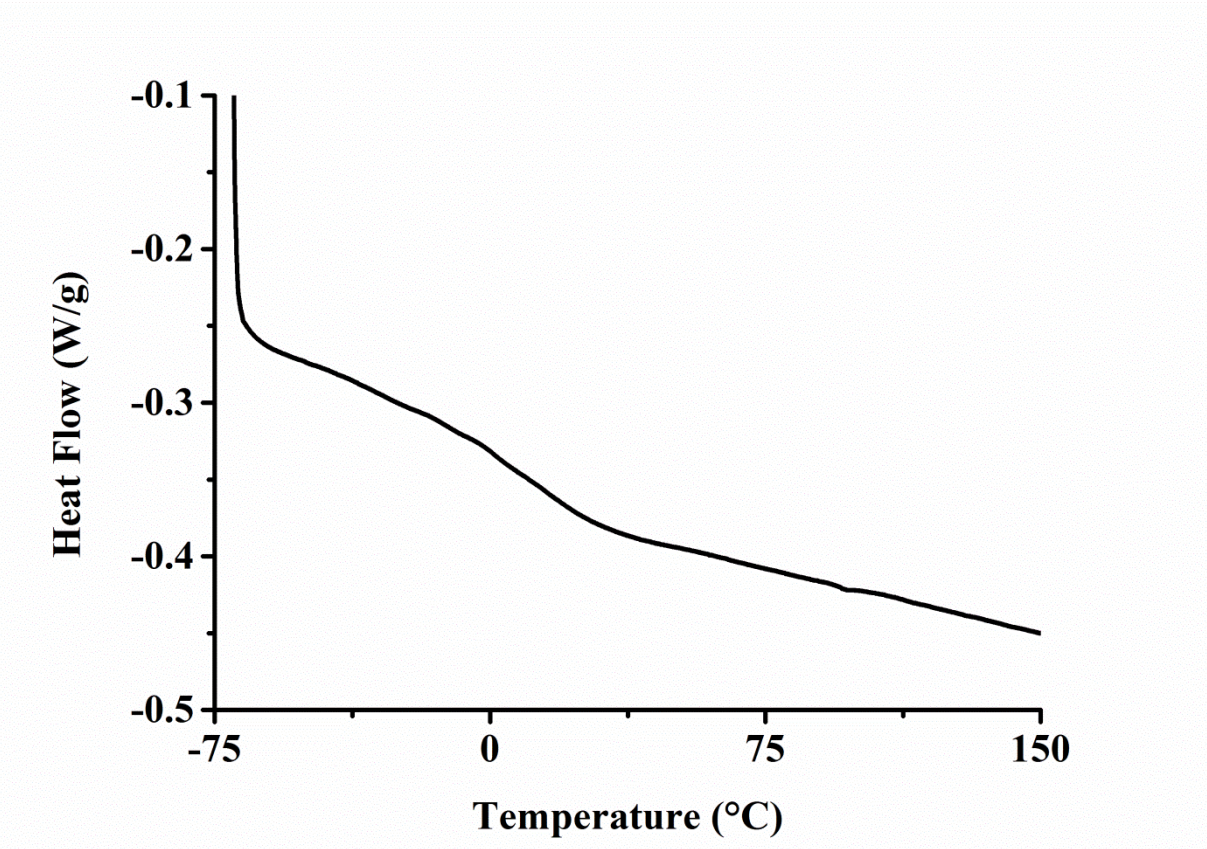

Figure S1: DSC thermogram of the solvent borne copolyacrylate based on 2-EHA containing 25 wt.-% AA. The sample was measured in one run with 10 K/min.

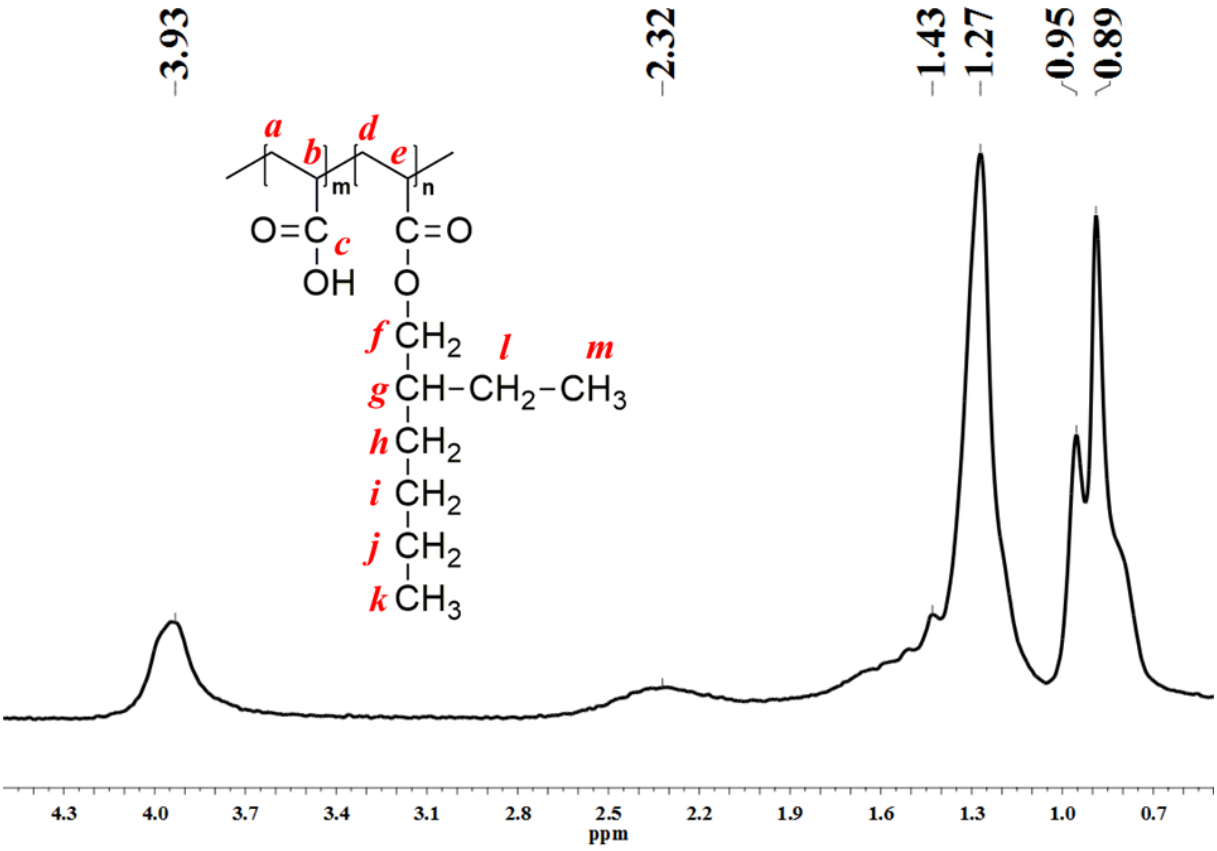

Figure S2: ^{1}H-NMR spectrum ($CDCl_3$, 80 MHz) of the solvent borne copolyacrylate based on 2-EHA containing 10 wt.-% AA. Spectrum acquisition was performed with Spinsolve 80 Benchtop NMR (Magritek, Aachen, Germany). The general structure of the solvent borne copolymer is included and each hydrogen is assigned with an alphabetic character.

Table S1: Comparison of chemical shifts (δ) obtained from ^{1}H-NMR spectra for solvent borne copolymers of 2-EHA and AA for this work (Figure S2, 10 wt.-% AA) and literature (50 wt.-% AA).[1] For assignment of alphabetic characters to each hydrogen of the copolymer see Figure S2.

alphabetic character	δ (ppm) literature [1]	δ (ppm) this work
a	1.1	-
b	1.9	-
c	12.1	-
d	1.55	-
e	2.25	2.32
f	3.9	3.93
g	1.40	1.43
h, i, j, l	1.28	1.27
k, m	0.85, 0.88, 0.91	0.89, 0.95

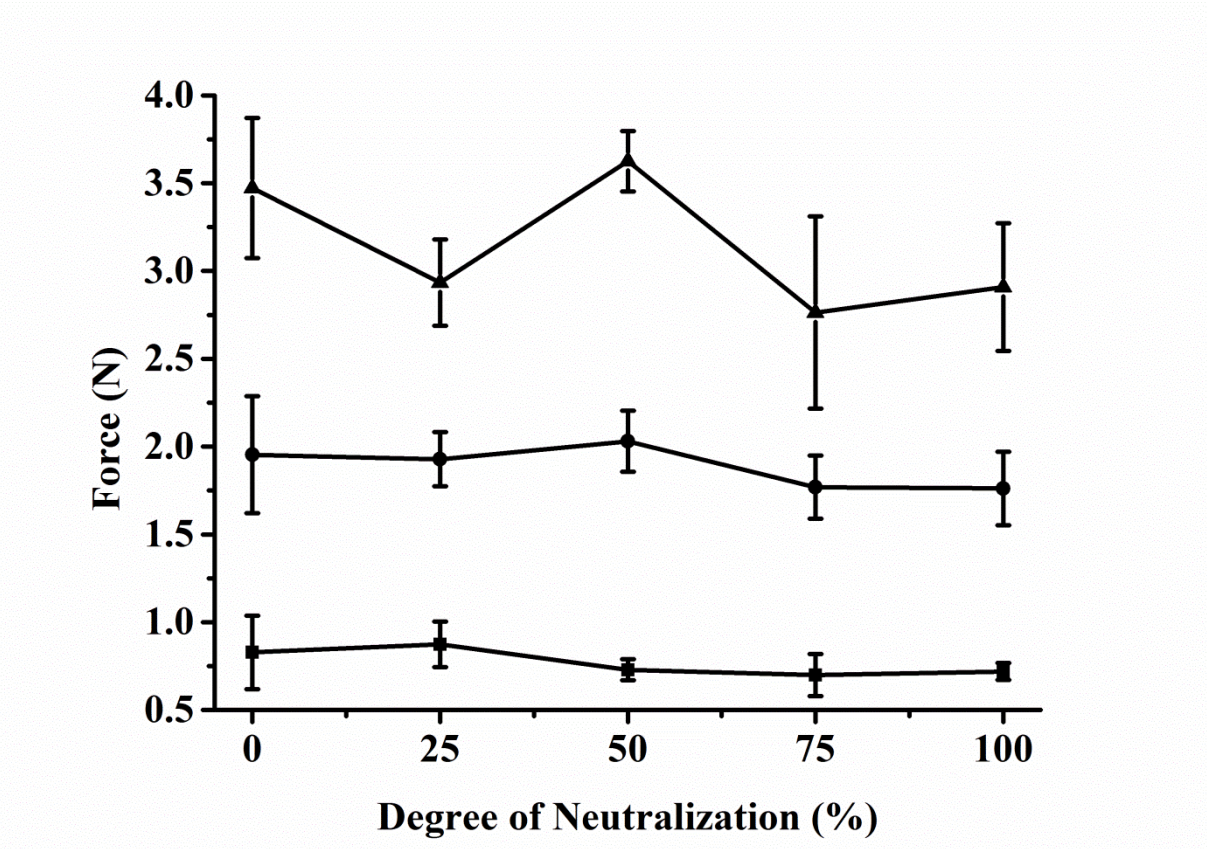

Figure S3: Dependence of probe-tack for PSA films on the degree of neutralization with DMEA for different probe rates (■: 10 µm/s; ●: 100 µm/s; ▲: 1000 µm/s). The PSA consisted of a solvent borne poly(2-EHA) containing 10 wt.-% AA and was dried at 75 °C for 3 h under reduced pressure.

Table S2: Particle size and polydispersity of three identically prepared secondary dispersions. The polymer consisted of a poly(2-EHA) containing 10 wt.-% AA while the degree of neutralization was 30 % with DMEA.

Sample	Diameter (nm)	Polydispersity
1	495	0.139
2	507	0.142
3	556	0.146

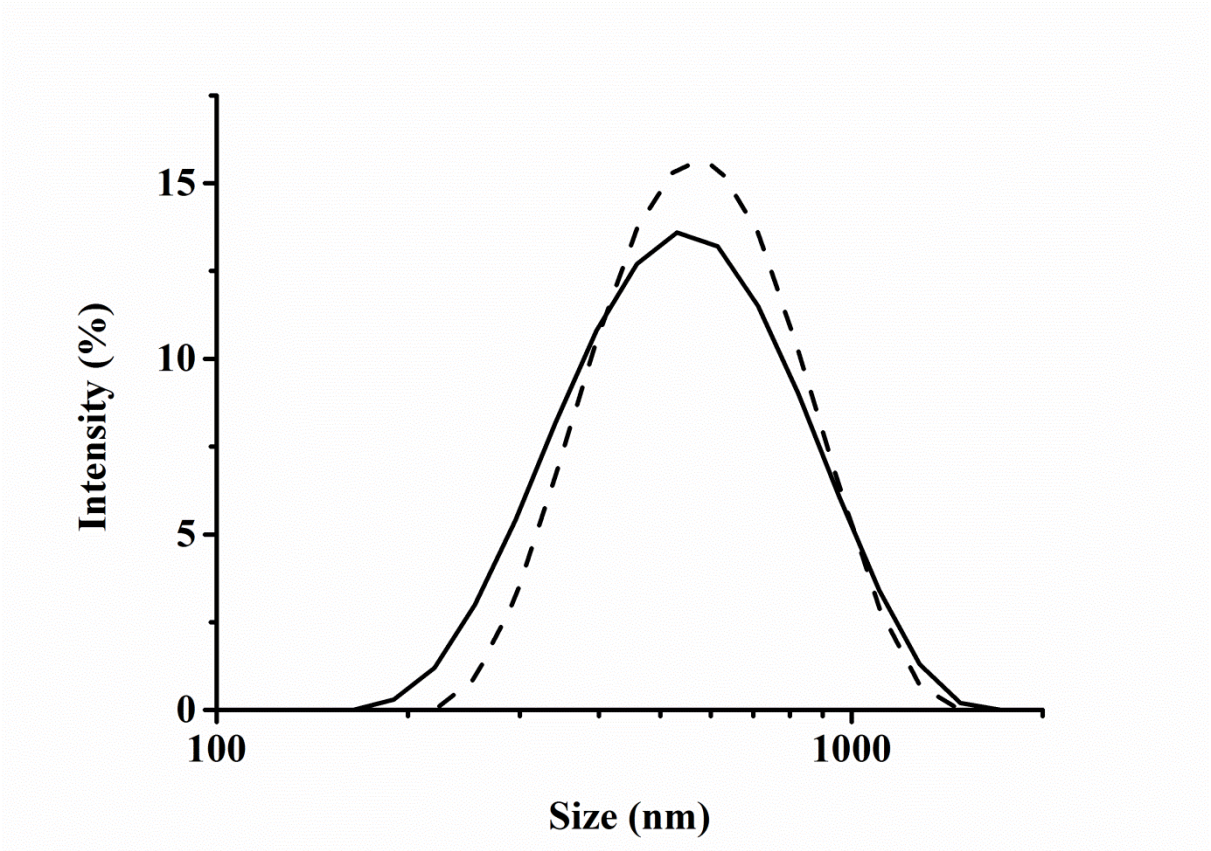

Figure S4: The particle size distributions of a secondary acrylic dispersion prepared according to the acetone process for the diluted (0.5 %) samples. Particle size distributions were measured for different storage times of the secondary dispersion (continuous: after preparation; dashed: after 6 months of storage under ambient conditions). The polymer consisted of a poly(2-EHA) containing 10 wt.-% AA while the degree of neutralization was 30 % with DMEA.

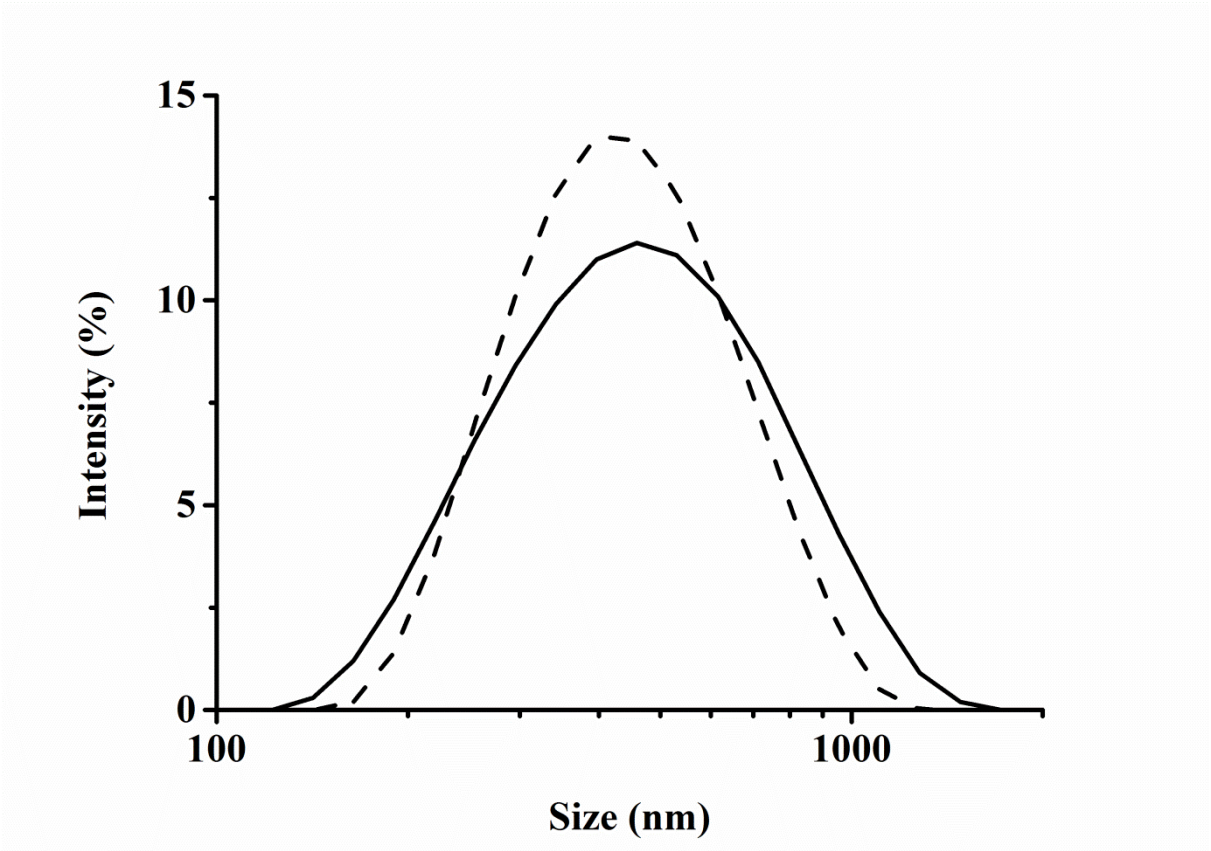

Figure S5: The particle size distributions of a secondary acrylic dispersion prepared by the acetone process for the diluted (0.5 %) samples. Particle size distributions were measured after centrifugation of an undiluted (continuous) and diluted (dashed) dispersion. Samples were centrifuged 2 times consecutively at 17000 g and 4 °C for 10 min. The copolymer consisted of 2-EHA containing 10 wt.-% AA while the degree of neutralization was 30 % with DMEA.

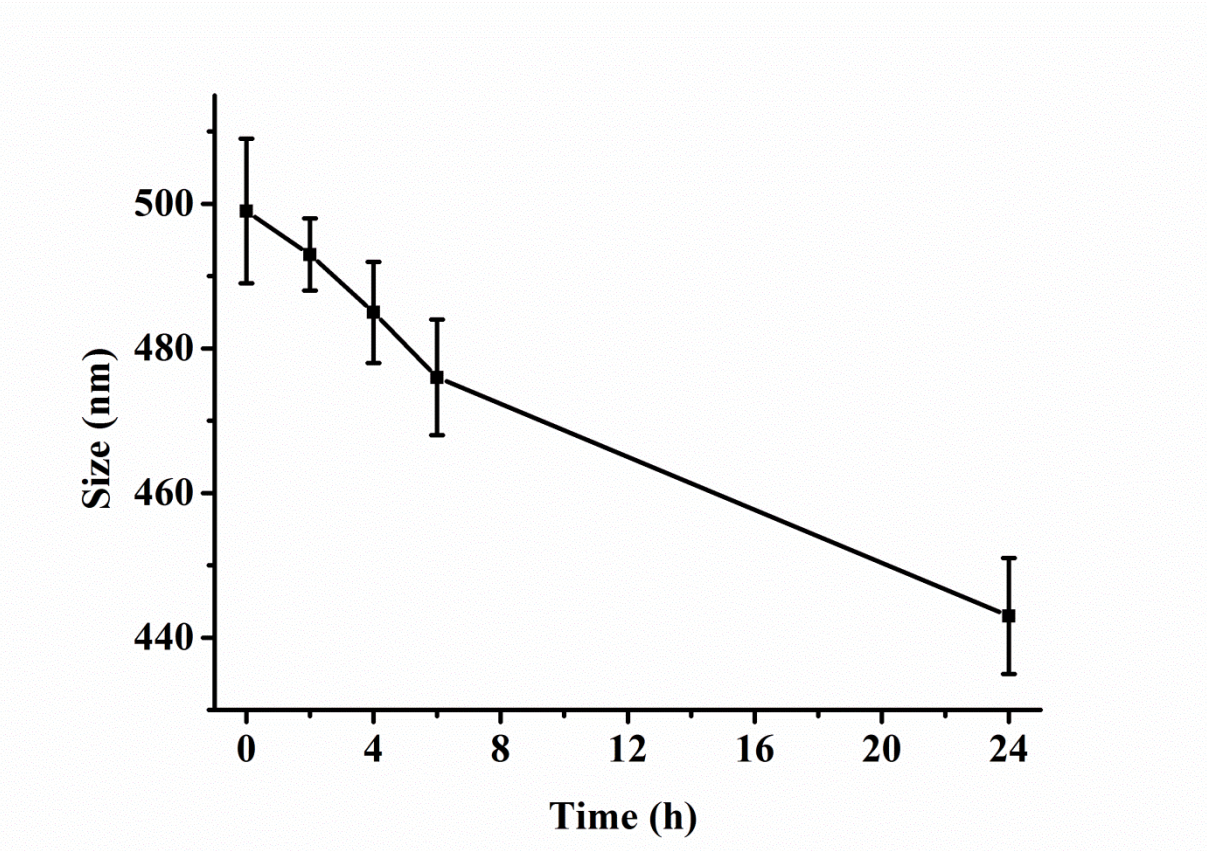

Figure S6: Particle sizes of a secondary acrylic dispersion prepared by the acetone process after different storage times of the diluted (0.5 %) dispersion.

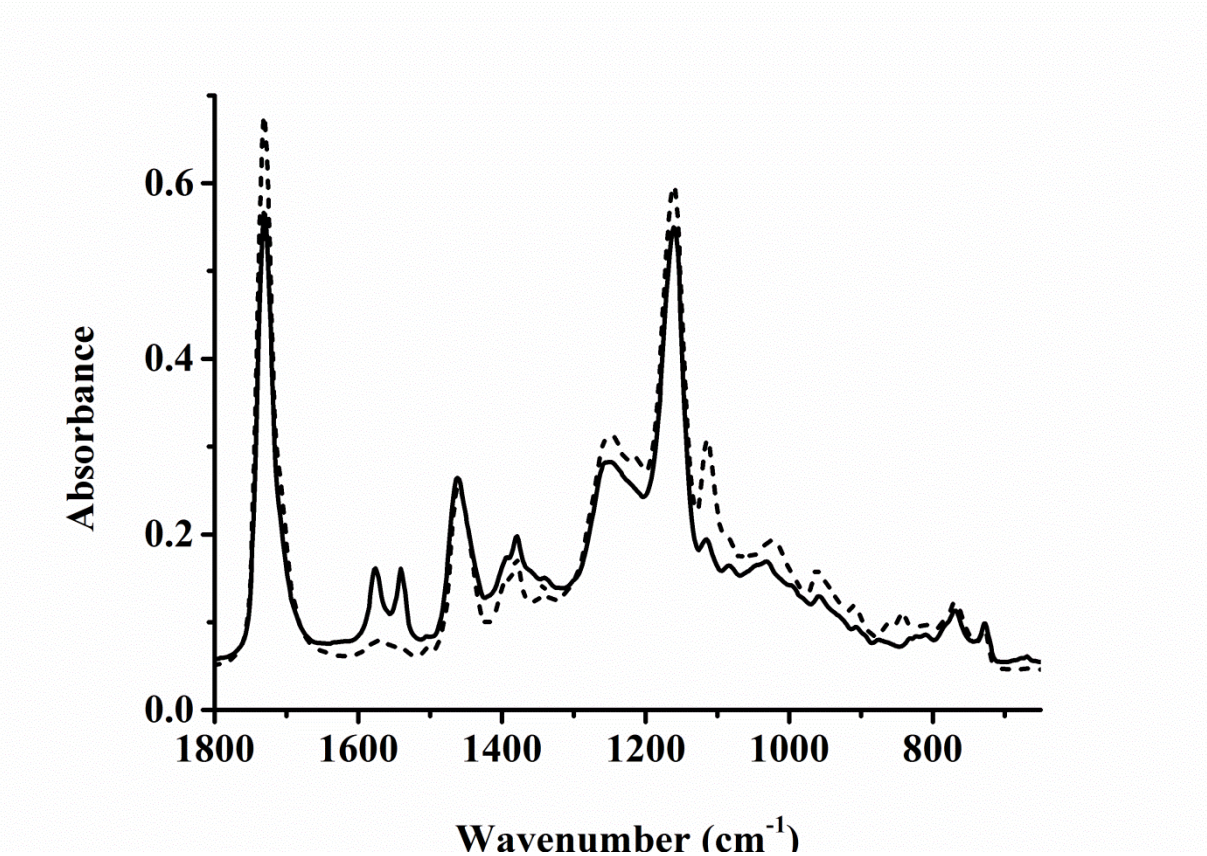

Figure S7: ATR-IR spectra of both sides of a dried reactive PSA film containing 22 wt.-% epoxy resin of the total solid content (continuous: facing release liner; dashed: facing air). The PSA film was prepared with a wet thickness of 5000 µm.

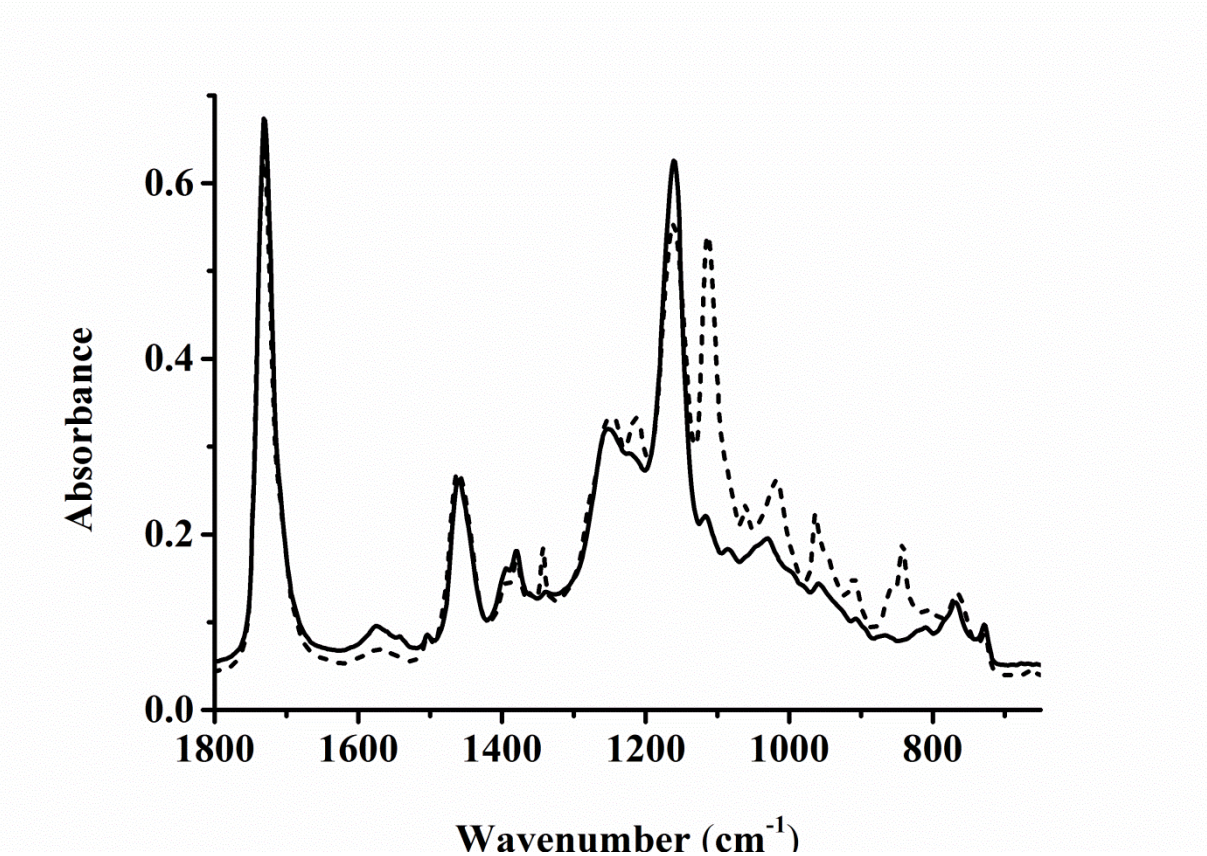

Figure S8: ATR-IR spectra of both sides of a dried reactive PSA film containing 36 wt.-% epoxy resin of the total solid content (continuous: facing release liner; dashed: facing air). The PSA film was prepared with a wet thickness of 5000 µm.

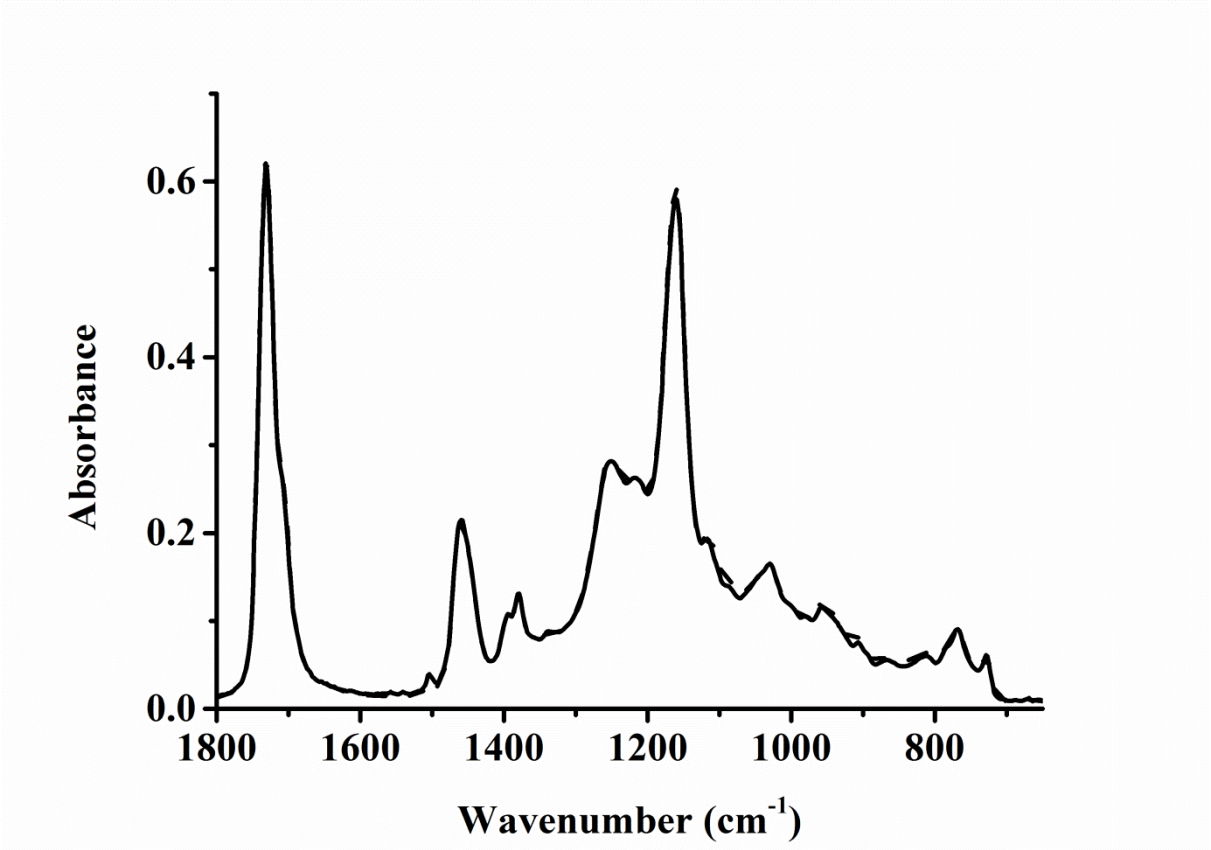

Figure S9: ATR-IR spectra of both sides of a dried reactive PSA film containing 22 wt.-% epoxy resin of the total solid content (continuous: facing release liner; dashed: facing air). The PSA film was prepared with a wet thickness of 250 μm.

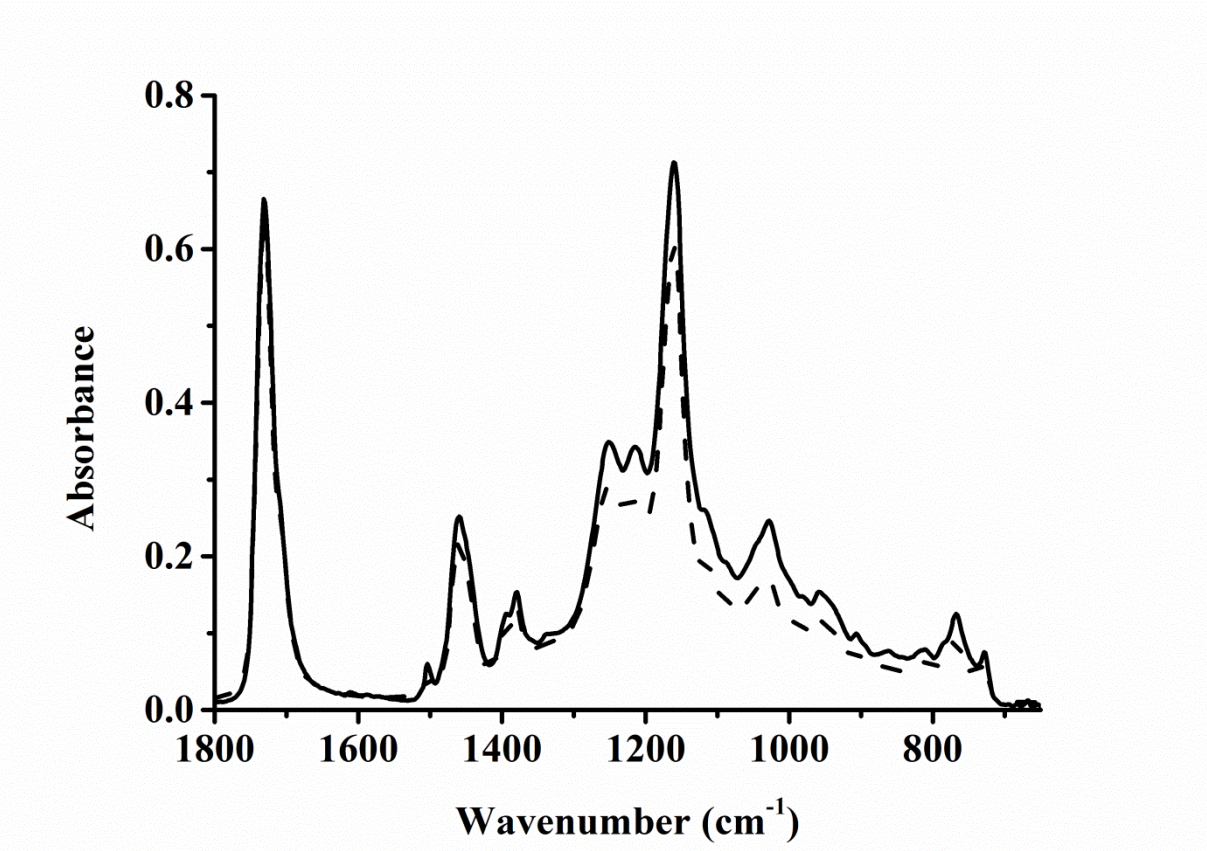

Figure S10: ATR-IR spectra of both sides of a dried reactive PSA film containing 36 wt.-% epoxy resin of the total solid content (continuous: facing release liner; dashed: facing air). The PSA film was prepared with a wet thickness of 250 μm.

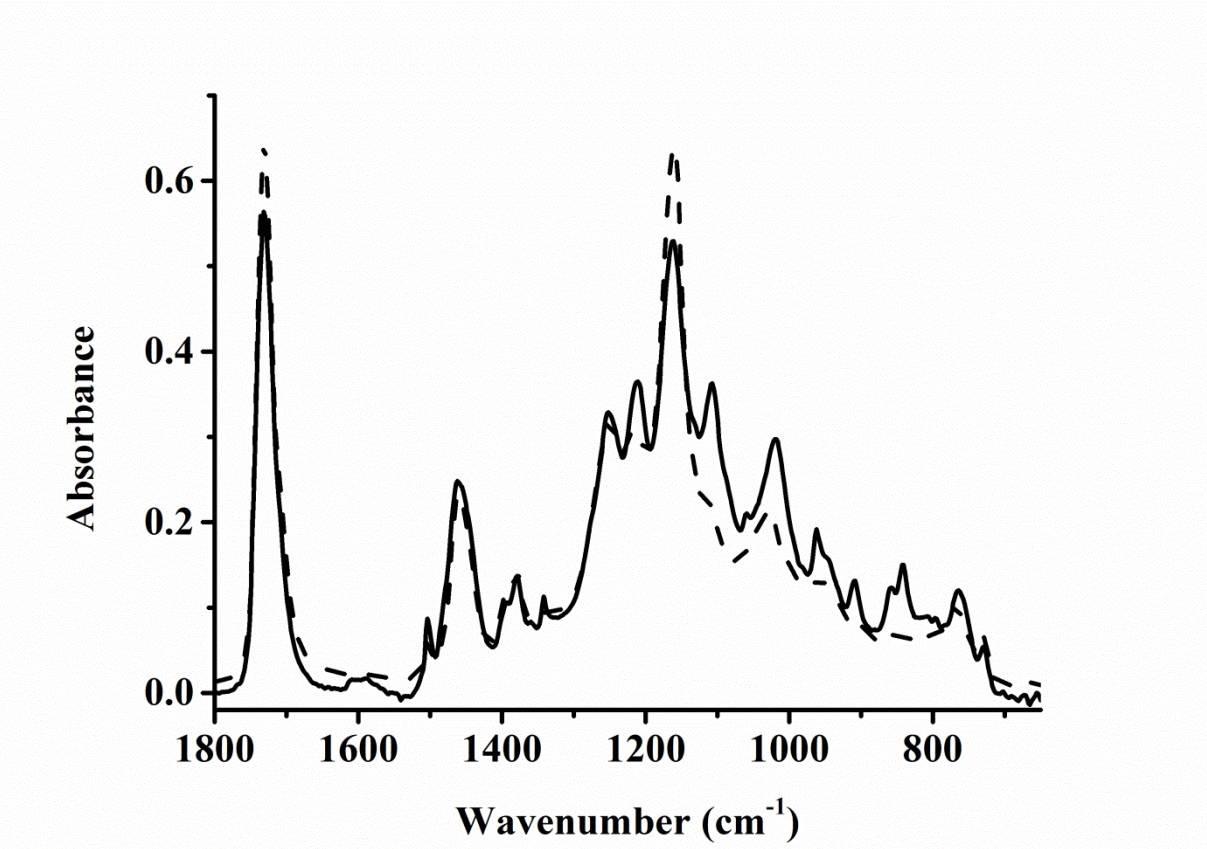

Figure S11: ATR-IR spectra of both sides of a dried reactive PSA film containing 53 wt.-% epoxy resin of the total solid content (continuous: facing release liner; dashed: facing air). The PSA film was prepared with a wet thickness of 250 μm.

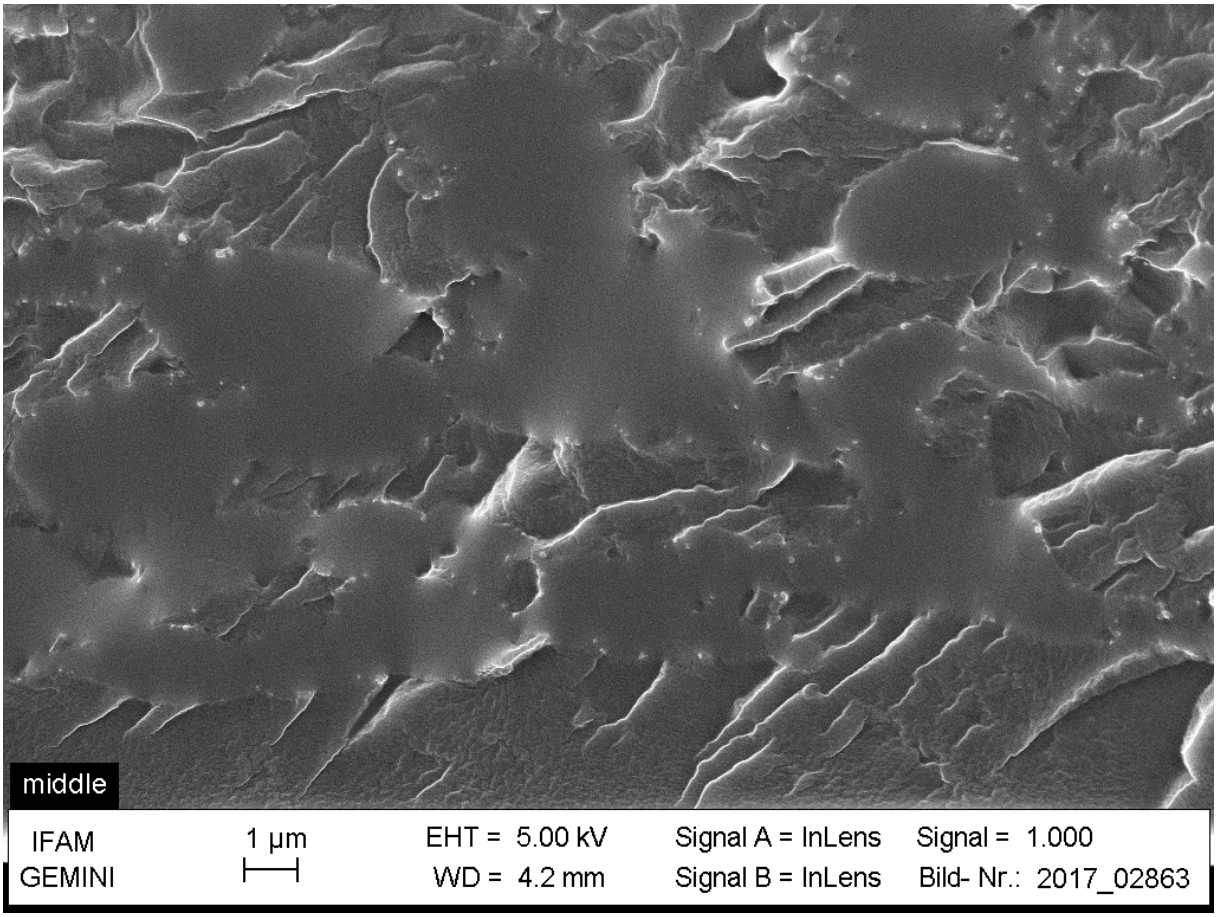

Figure S12: SEM image of a post-crosslinked polymer film containing 36 wt.-% epoxy resin of the total solid content after cryofracture.

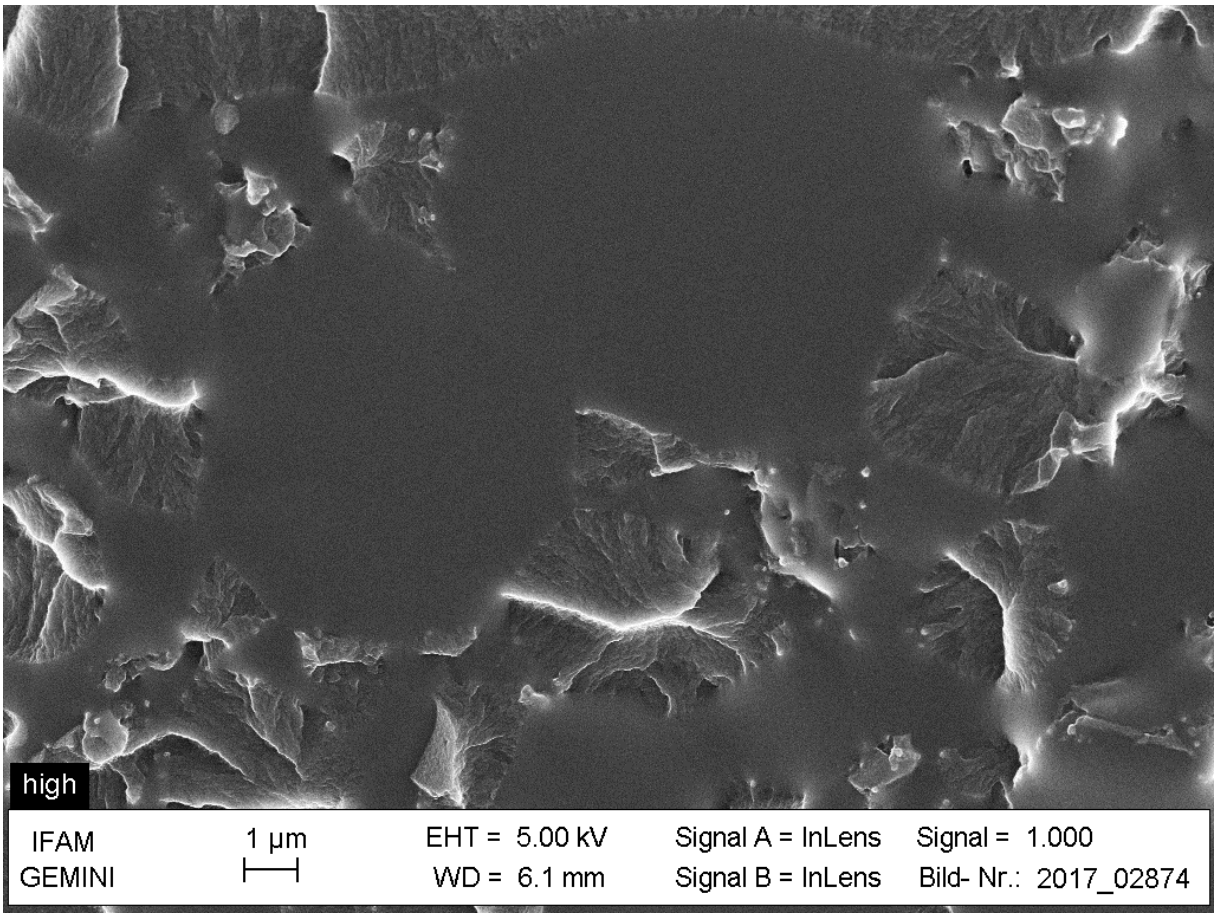

Figure S13: SEM image of a post-crosslinked polymer film containing 53 wt.-% epoxy resin of the total solid content after cryofracture.

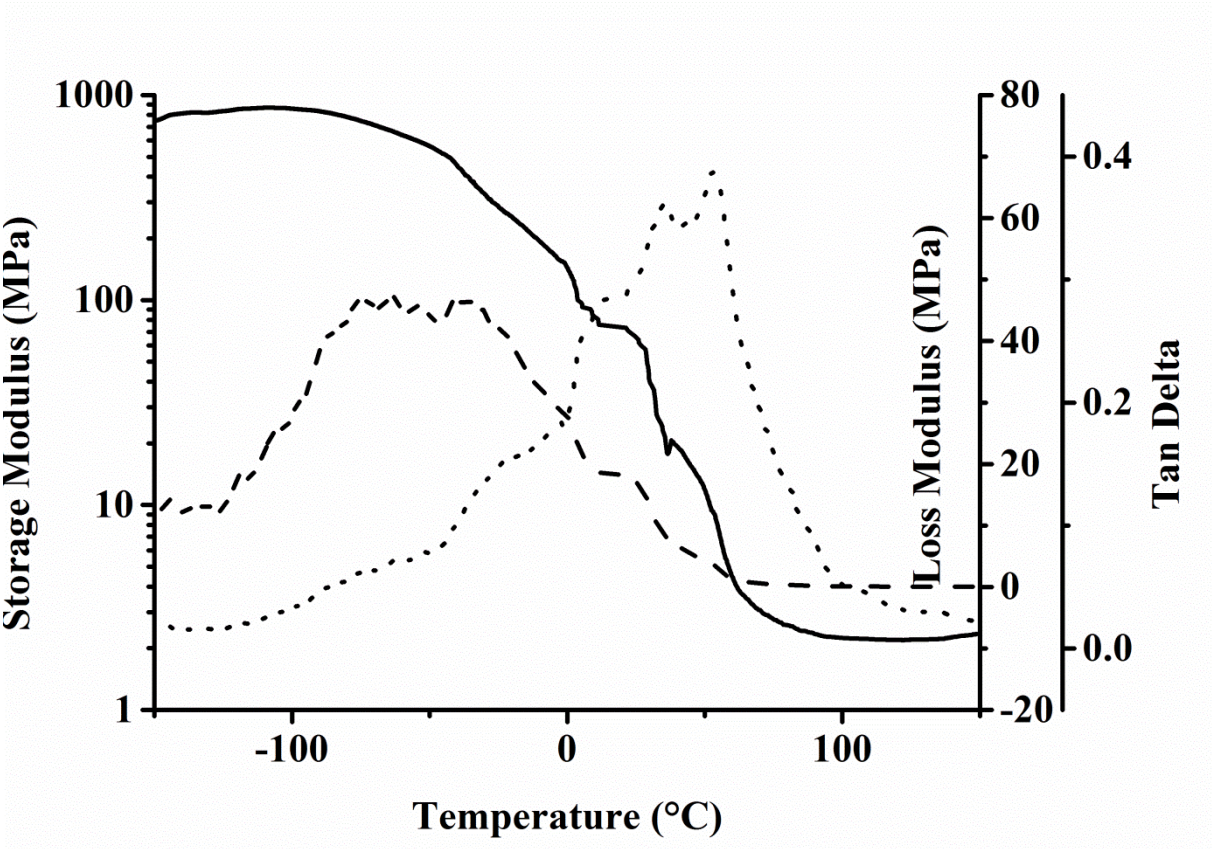

Figure S14: DMA of a post-crosslinked polymer film containing 36 wt.-% epoxy resin of the total solid content (continuous: storage modulus; dashed: loss modulus; dotted: tan δ).

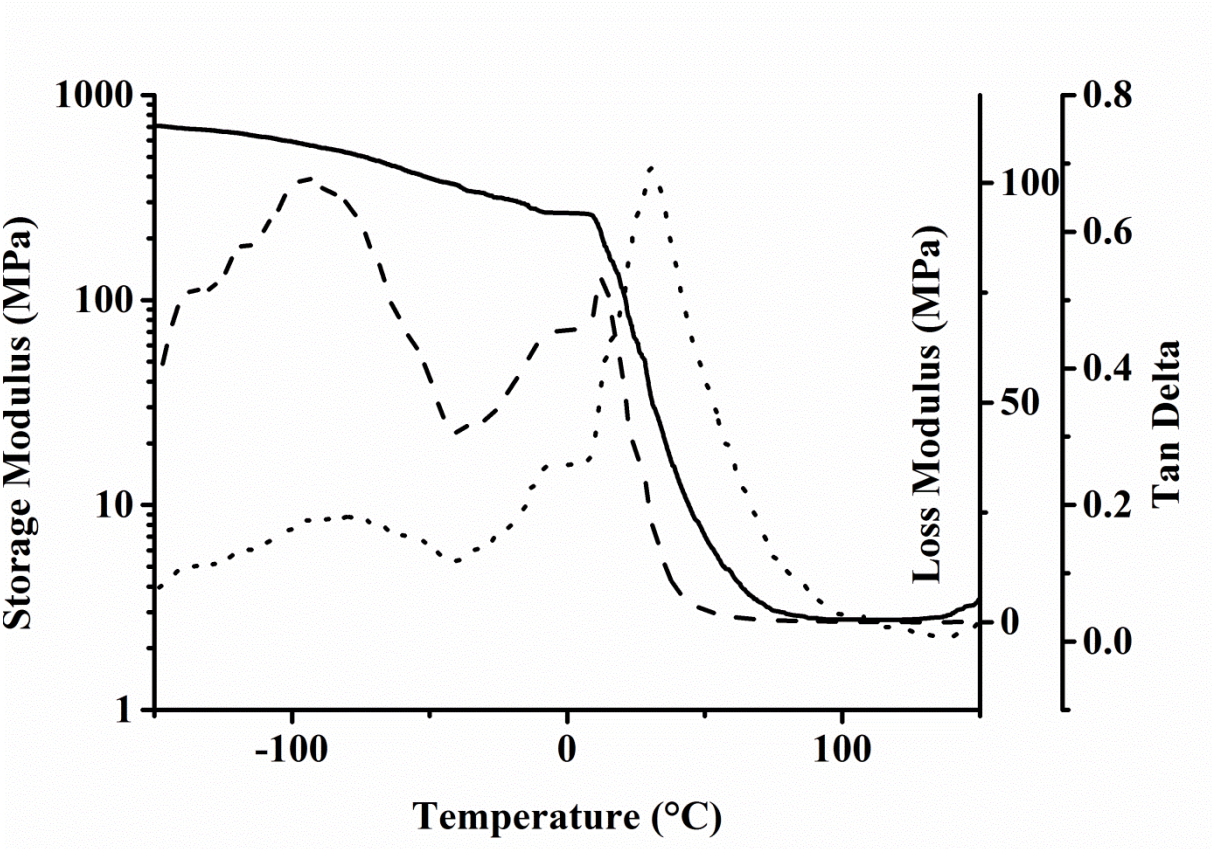

Figure S15: DMA of a post-crosslinked polymer film containing 53 wt.-% epoxy resin of the total solid content (continuous: storage modulus; dashed: loss modulus; dotted: tan δ).

References

1. Shojaei, A.H.; Paulson, J.; Honary, S. *J. Controlled Release* **2000**, *67*, 223–232.