

# Supplementary material: Thermally Remendable Polyurethane Network Cross-Linked via Reversible Diels-Alder Reaction

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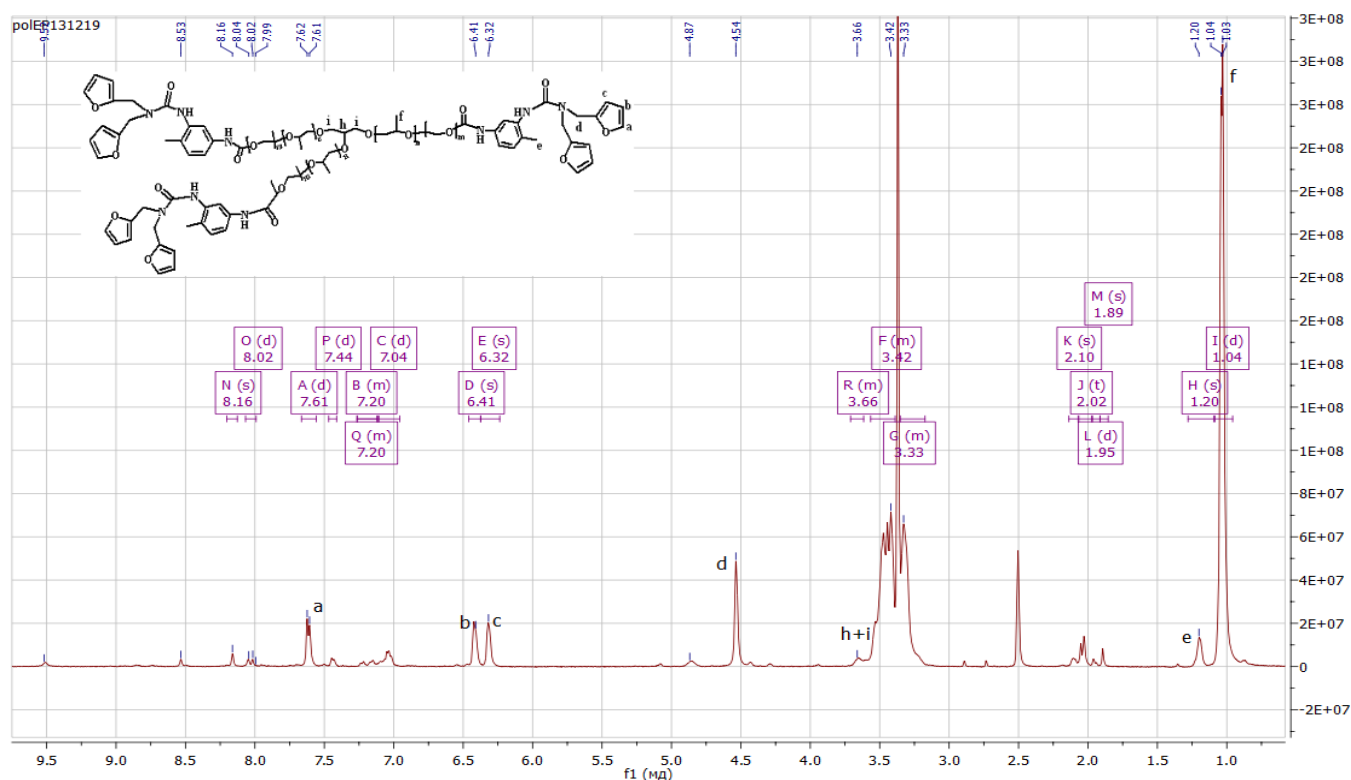
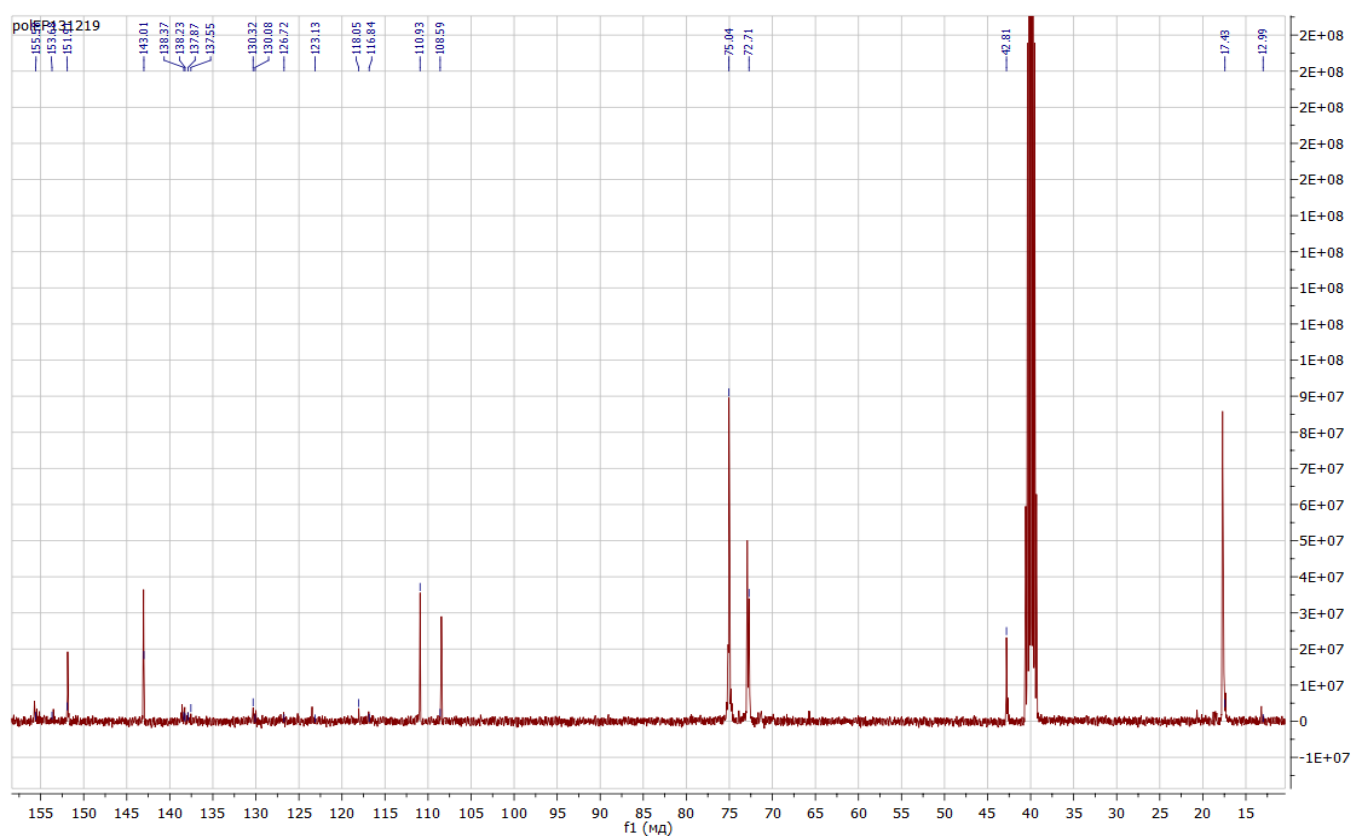
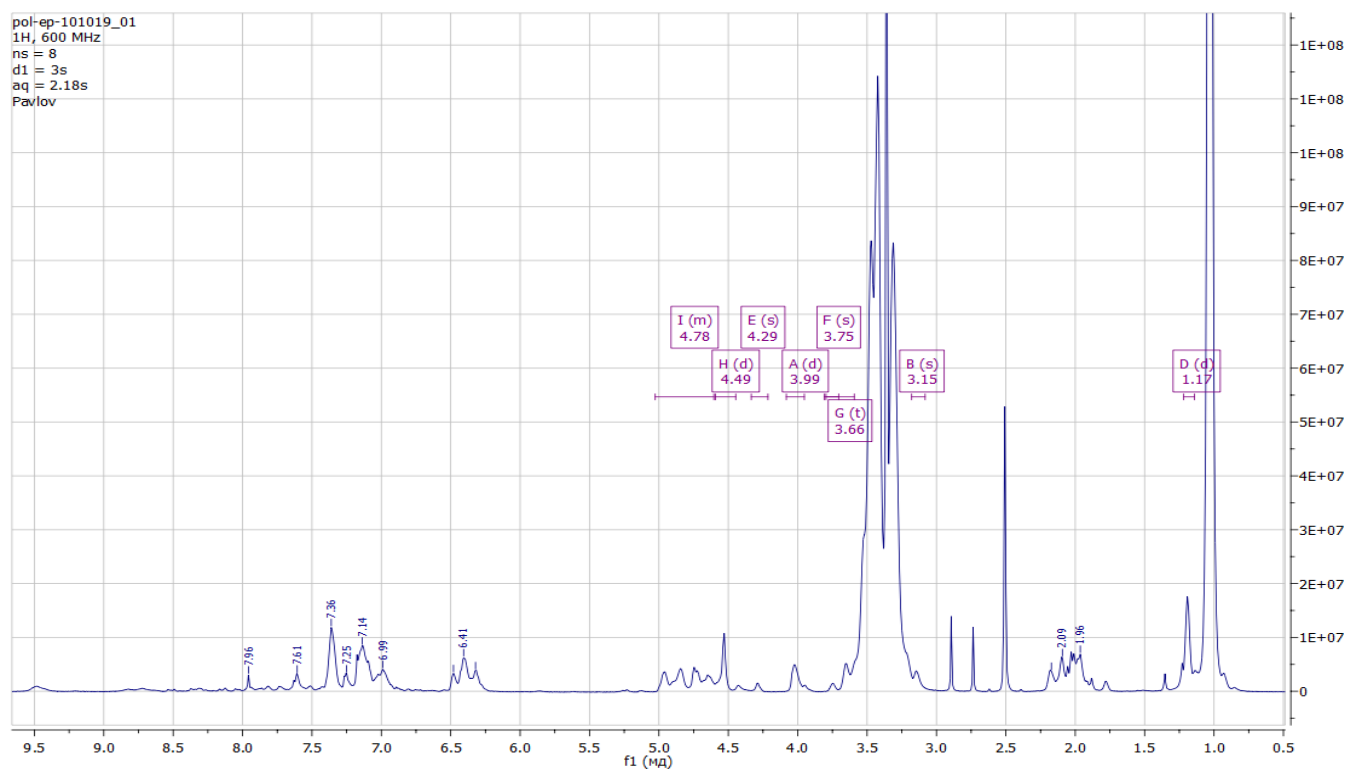
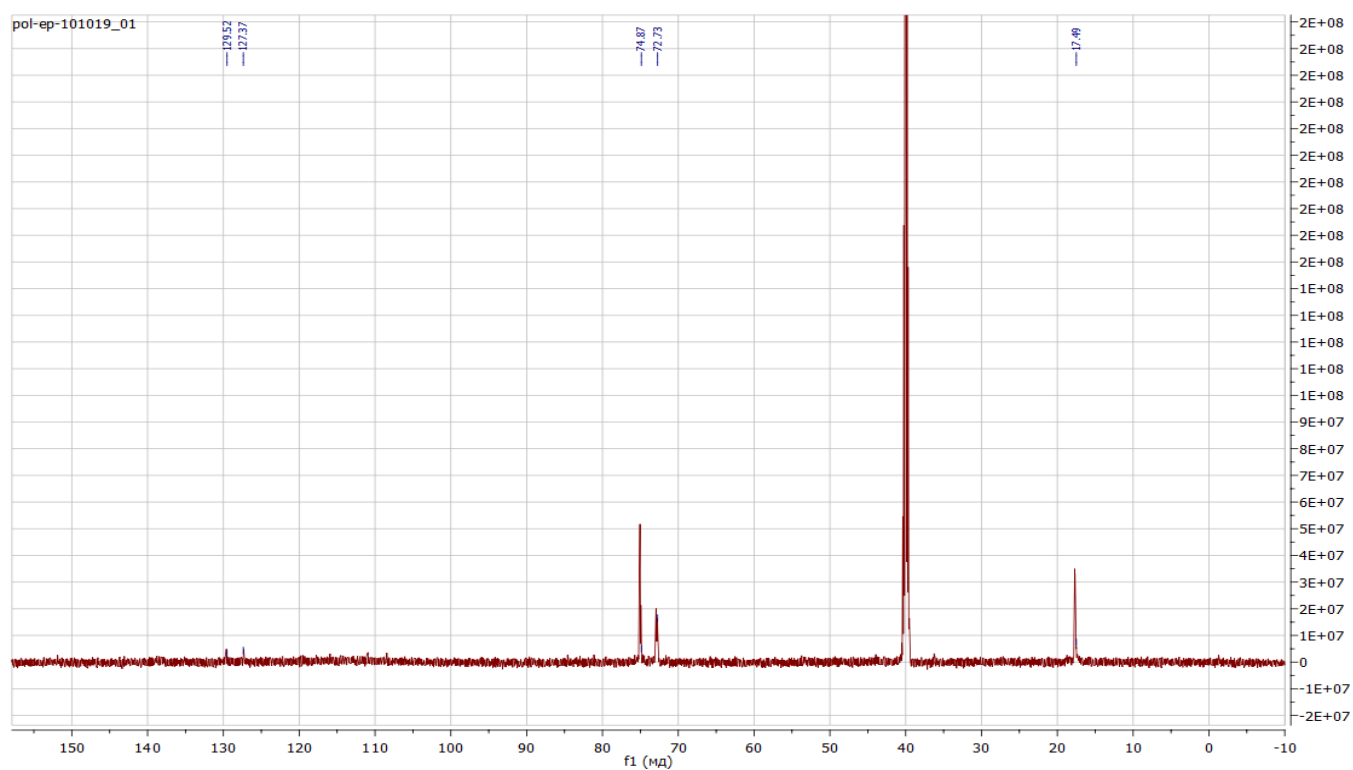
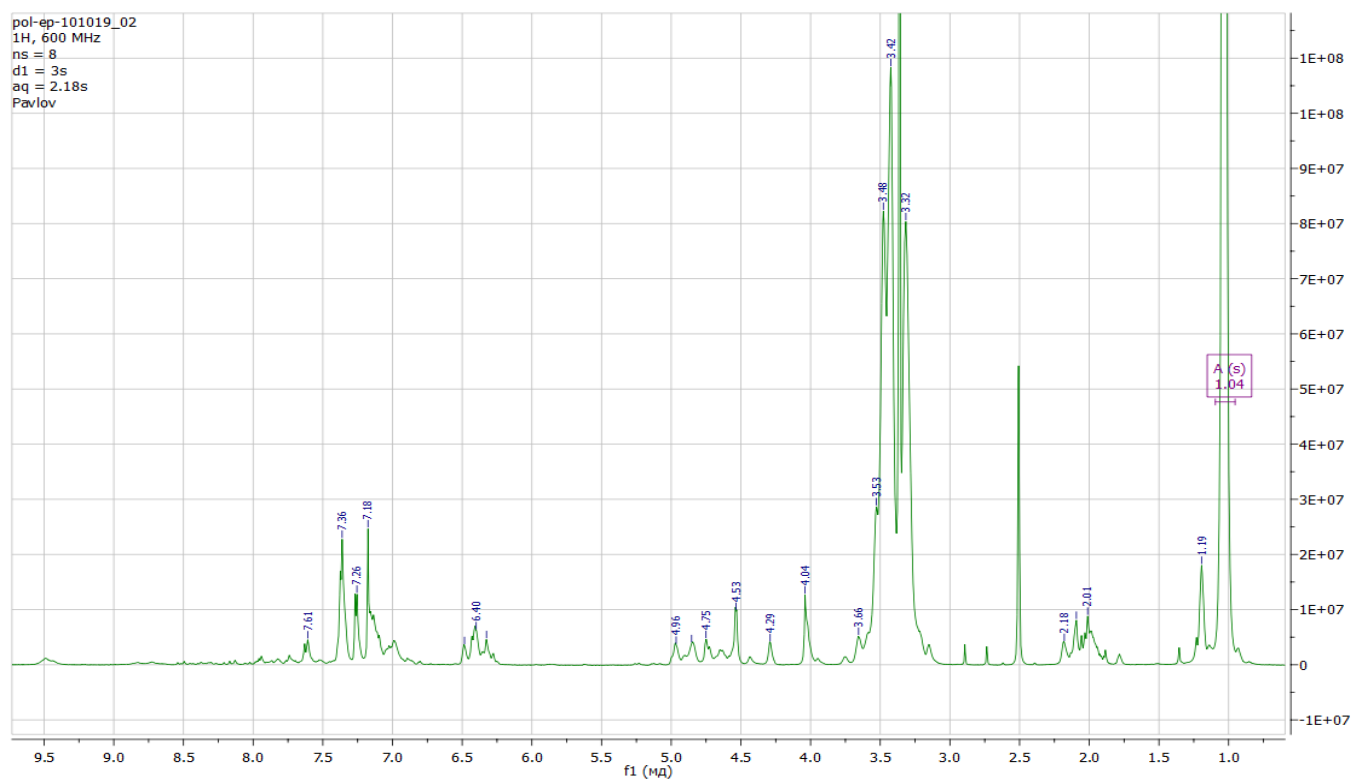


Figure S1.  $^1\text{H}$  NMR spectrum of PU-V0 in  $\text{DMSO-d}_6$ .

Figure S2.  $^{13}\text{C}$  NMR spectrum of PU-V0 in  $\text{DMSO-d}_6$ .Figure S3.  $^1\text{H}$  NMR spectrum of PU-V1.0 in  $\text{DMSO-d}_6$ .

Figure S4.  $^{13}\text{C}$  NMR spectrum of PU-V1.0 in  $\text{DMSO-d}_6$ .Figure S5.  $^1\text{H}$  NMR spectrum of PU-V2.0 in  $\text{DMSO-d}_6$ .

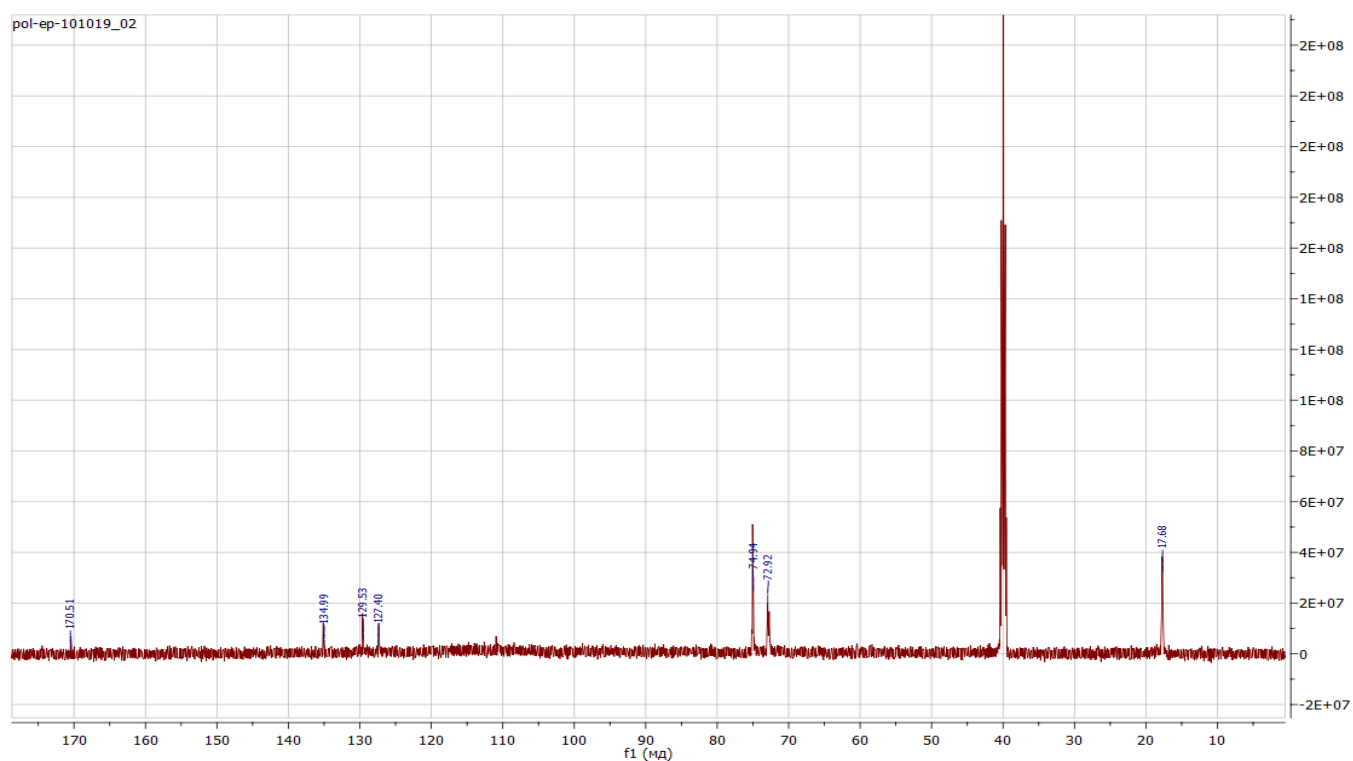


Figure S6.  $^{13}\text{C}$  NMR spectrum of PU-V2.0 in  $\text{DMSO-d}_6$ .

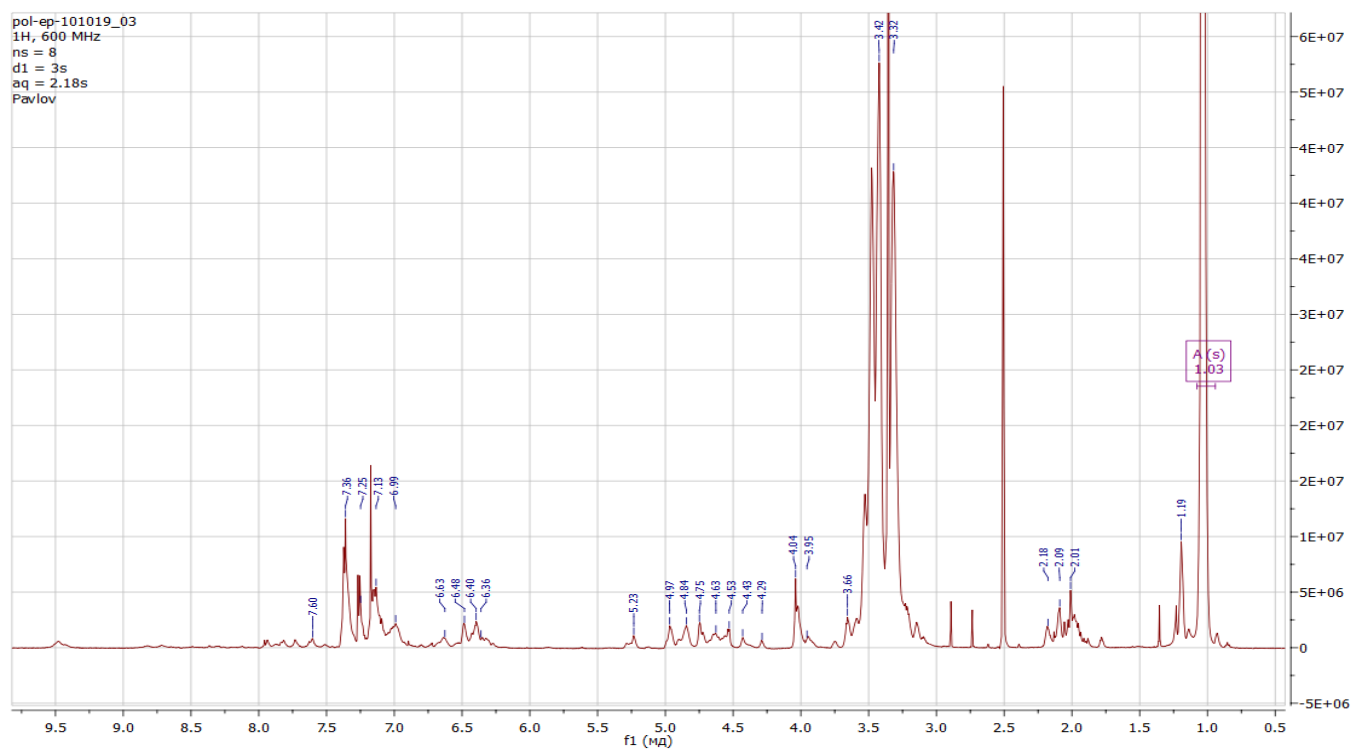


Figure S7.  $^1\text{H}$  NMR spectrum of PU-V3.0 in  $\text{DMSO-d}_6$ .

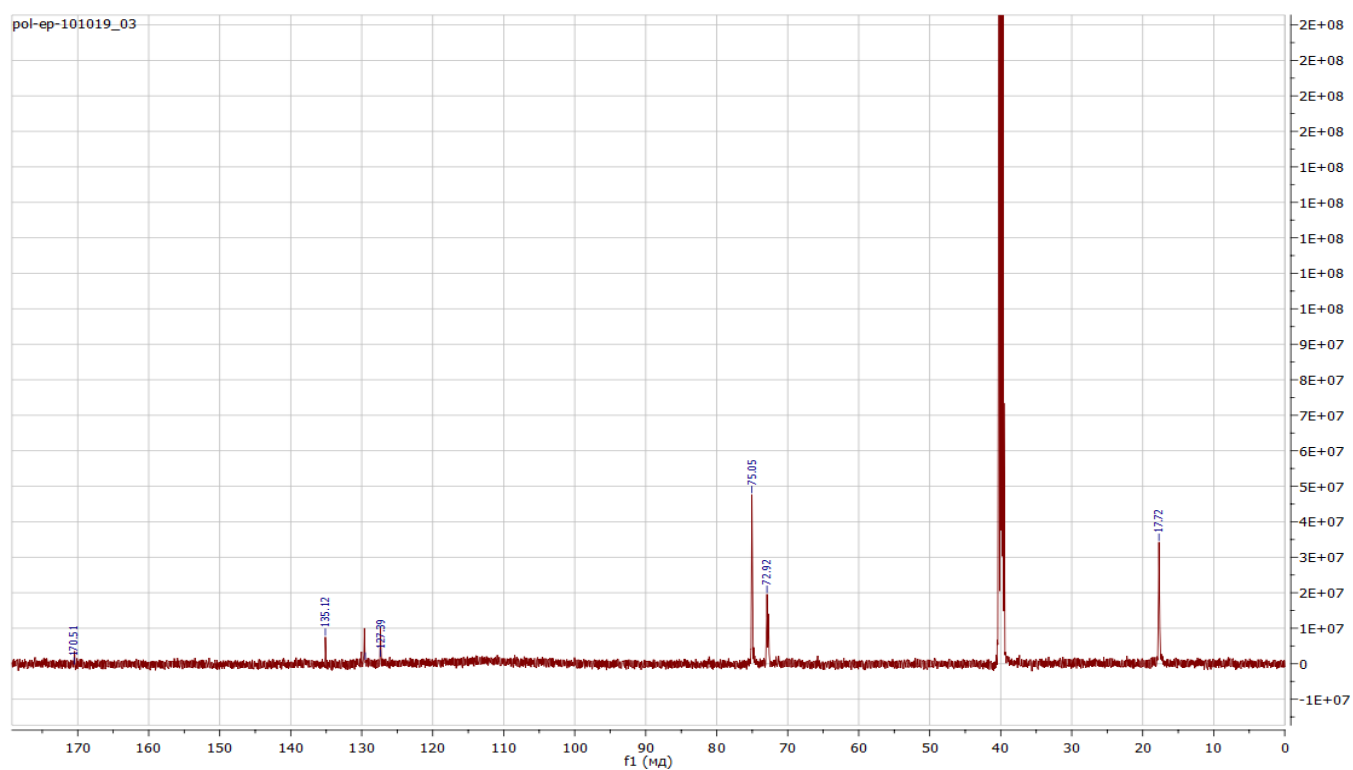


Figure S8.  $^{13}\text{C}$  NMR spectrum of PU-V3.0 in  $\text{DMSO-d}_6$ .

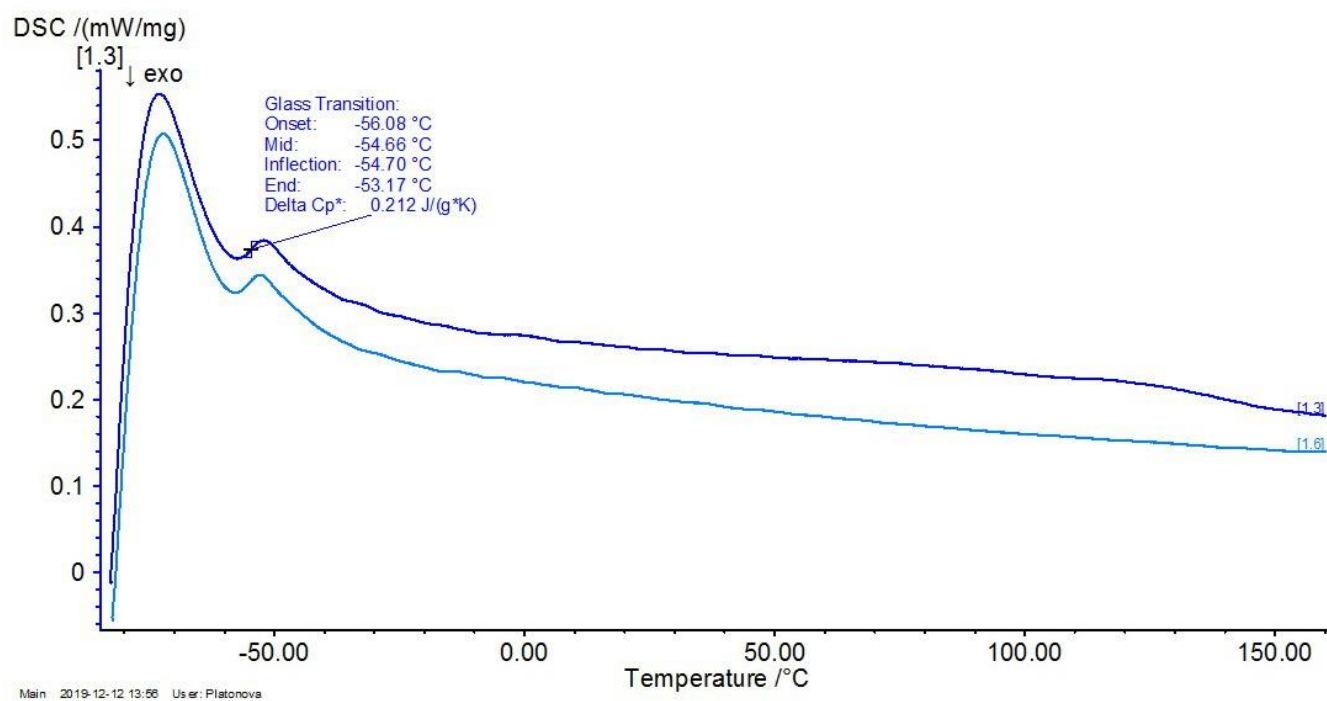


Figure S9. DSC curves for PU-V1.0 at 5 K/min.

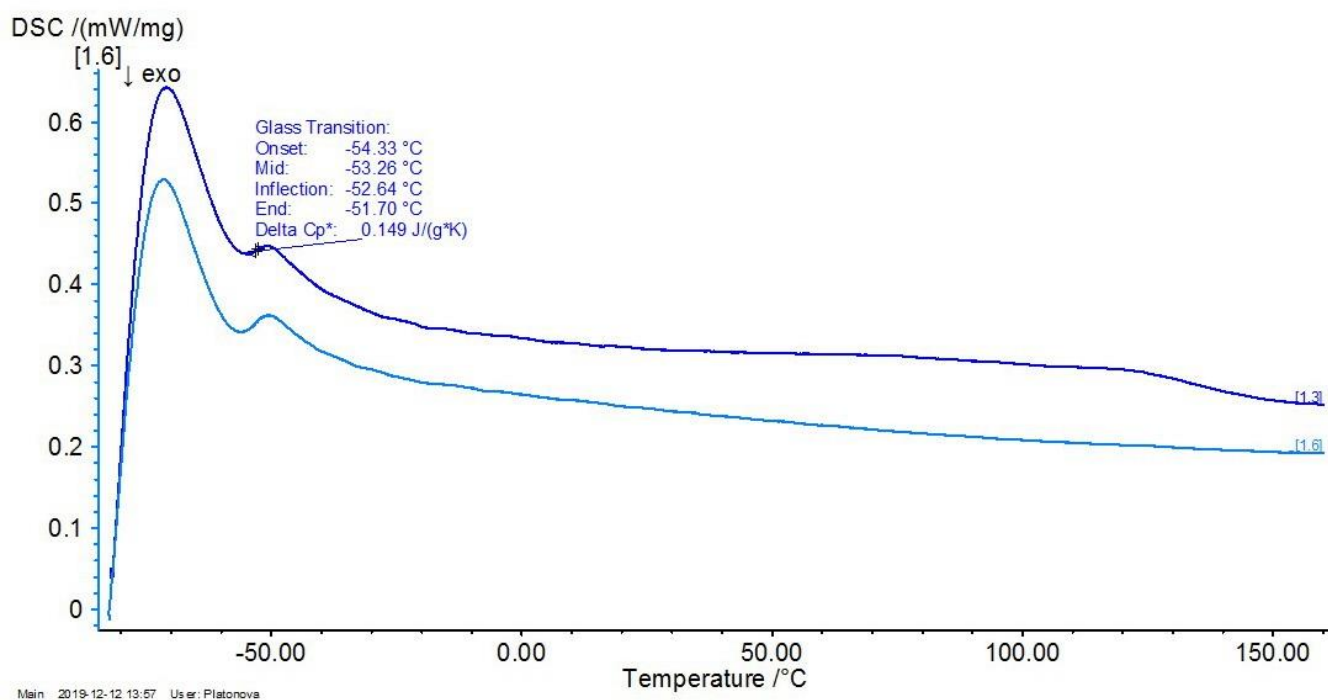


Figure S10. DSC curves for PU-V2.0 at 5 K/min.

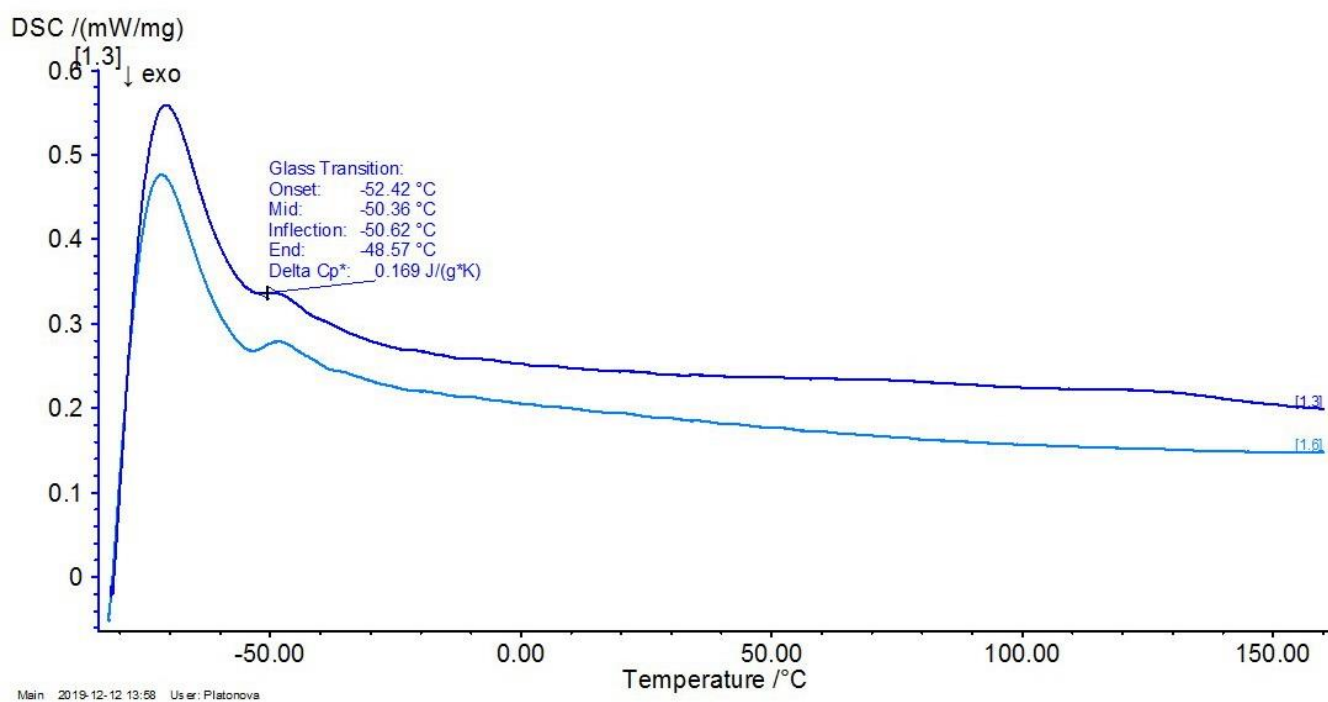
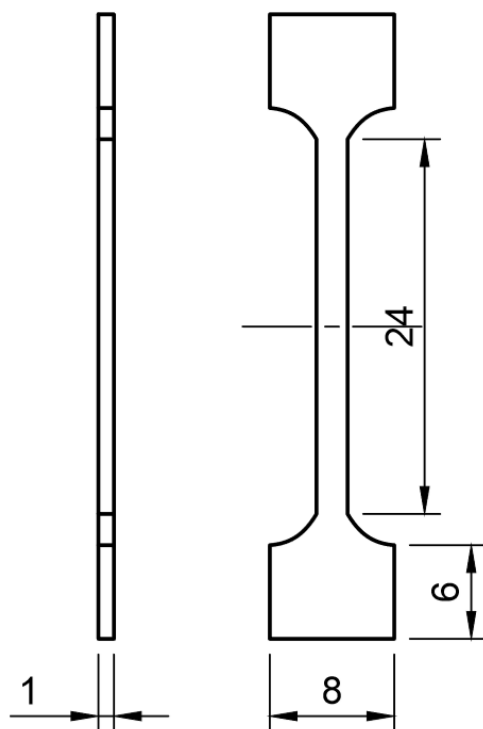


Figure S11. DSC curves for PU-V3.0 at 5 K/min.



**Figure S12.** Shape of tensile strength samples of PU-L1.X-3.X (X =0-5).

Tensile tests were performed with Zwick Roell Z100. Set of test parameters are shown at Table S1.

**Table S1.** Tensile test parameters.

Preload, N	1.2
Preload speed, mm/min	50
Test load speed, mm/min	150/800

Value of preload was chosen in accordance with accuracy of the force sensor ( $\pm 1$  N) for getting rid of compressive stresses in material, which occur after installation of test samples in the clamps of tensile-machine).

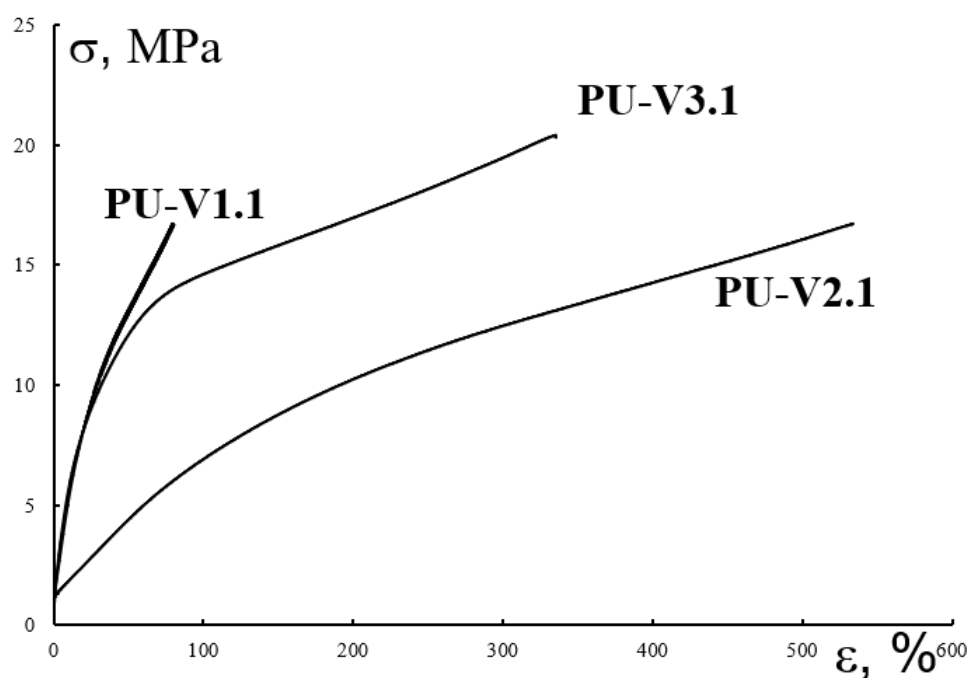


Figure S13. Loading diagrams for samples PU-V1.1-3.1.

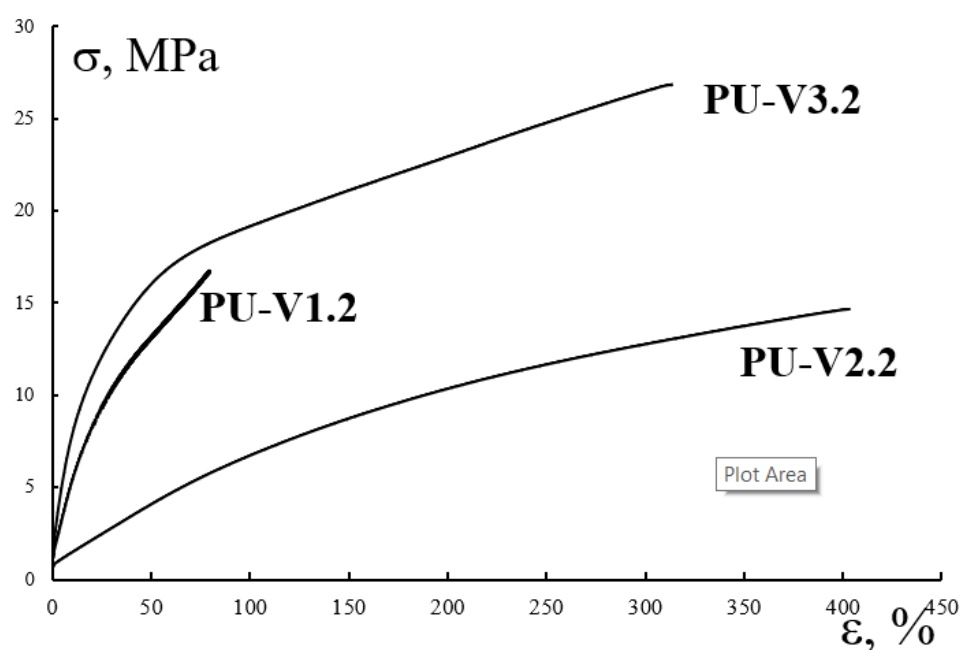


Figure S14. Loading diagrams for samples PU-V1.2-3.2.



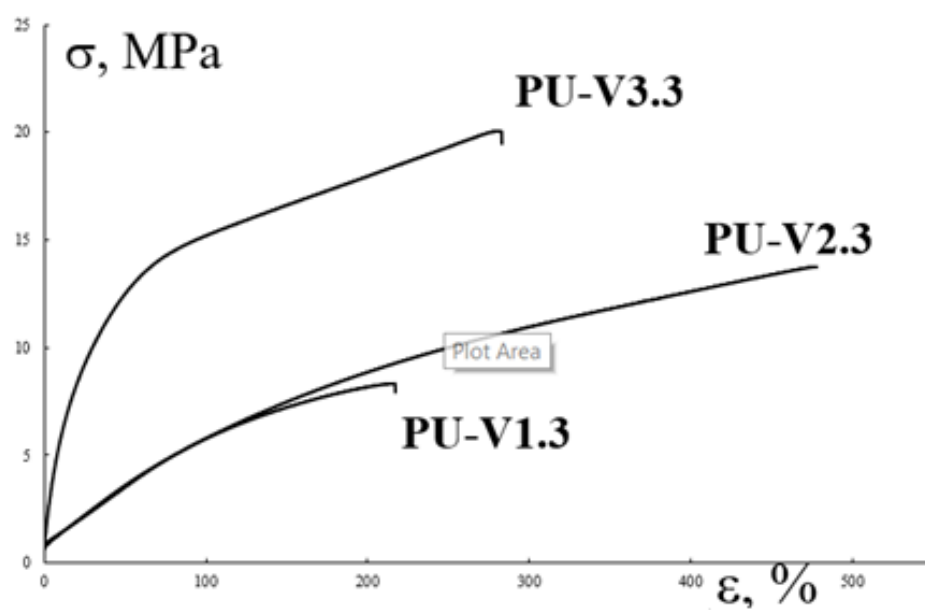


Figure S15. Loading diagrams for samples PU-V1.3-3.3.

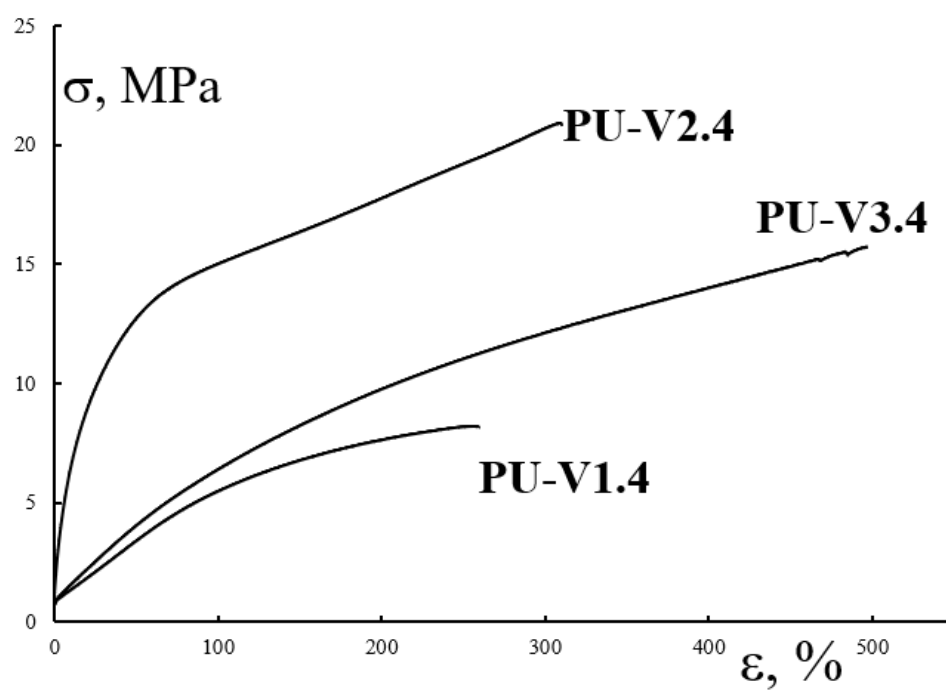
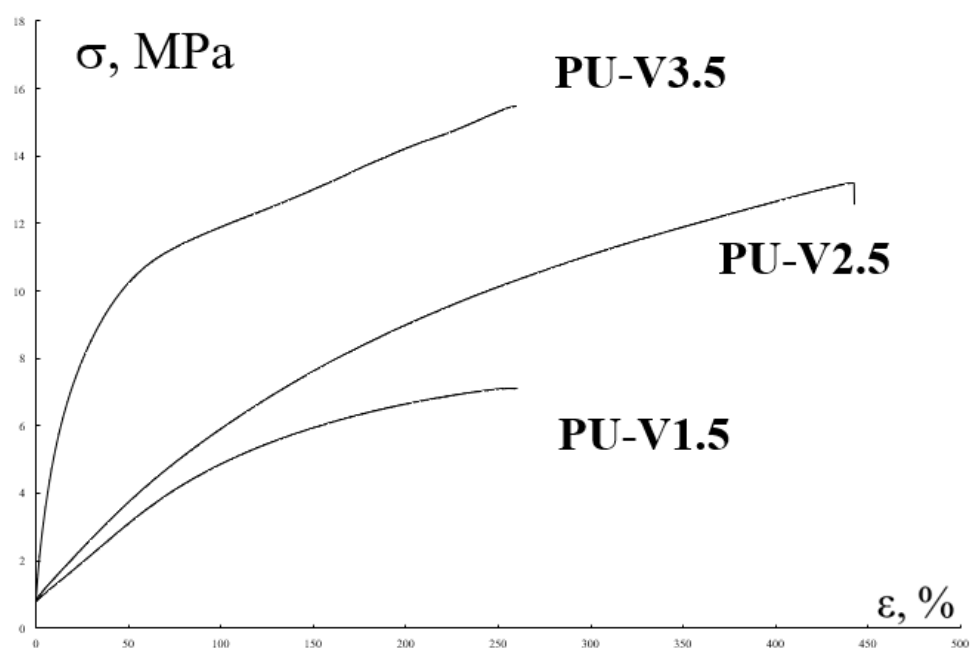


Figure S16. Loading diagrams for samples PU-V1.4-3.4.



**Figure S17.** Loading diagrams for samples PU-V1.5-3.5