

Supplementary material

Thermo-mechanical behavior of poly(ether ether ketone):
experiments and modeling

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S-1 Accuracy of fitting observations

To assess the ability of the model to describe observations on PEEK specimens, experimental data in selected tensile tests, relaxation tests and creep tests (at temperatures $T = 20$ and 170 °C) are presented with error bars (indicating standard deviations of measurements on different specimens) together with results of numerical analysis. Figs. S-1 to S-4 demonstrate good agreement between the data and results of simulation, which implies that the model predicts adequately observations of PEEK specimens.

S-2 Supplementary figures

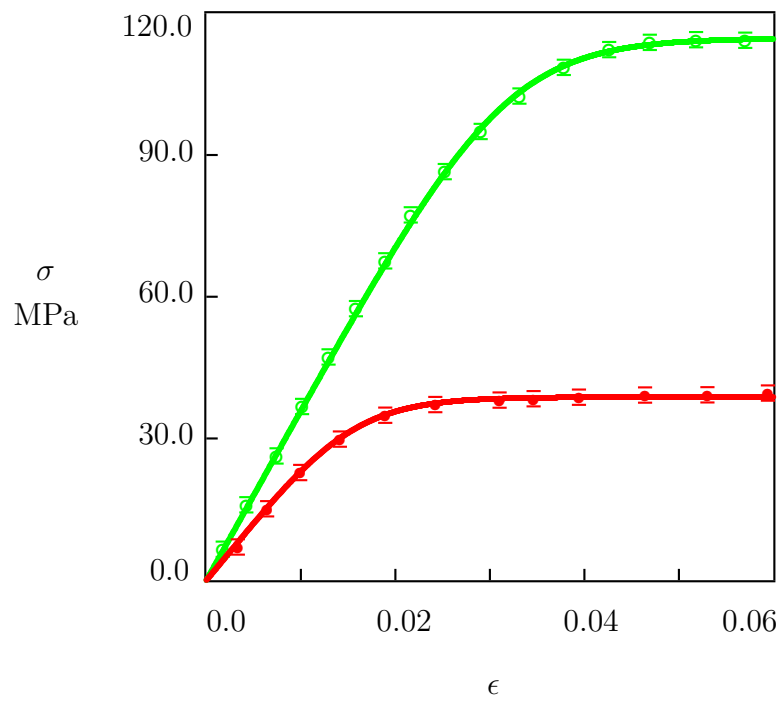


Figure S1: Stress σ versus strain ϵ . Symbols: experimental data in tensile tests at temperatures $T = 20$ (\circ) and 170 (\bullet) °C. Bars stand for the standard deviations. Solid lines: results of simulation.

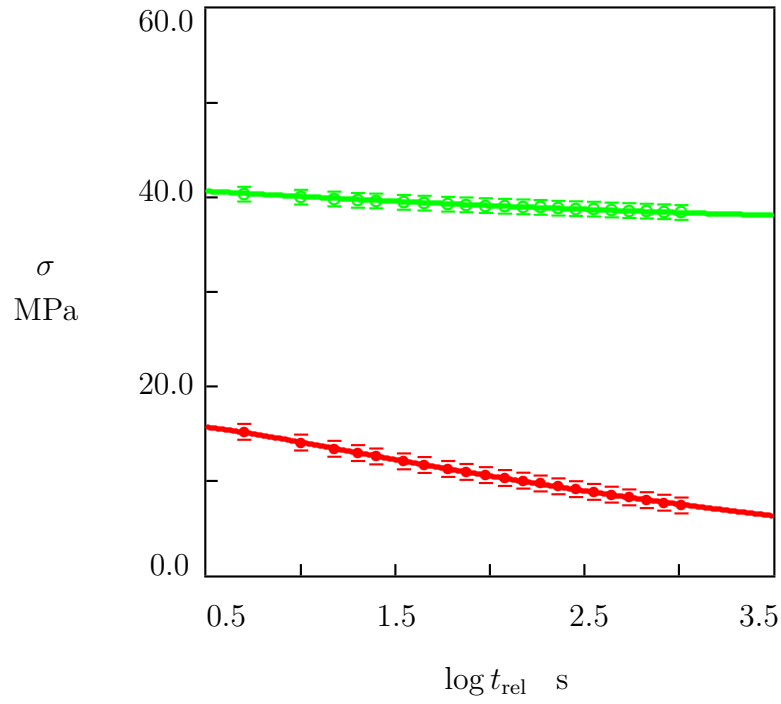


Figure S2: Stress σ versus relaxation time t_{rel} . Symbols: experimental data in tensile relaxation tests with strain $\epsilon_0 = 0.01$ at temperatures $T = 20$ (\circ) and 170 (\bullet) $^\circ\text{C}$. Bars stand for the standard deviations. Solid lines: results of simulation.

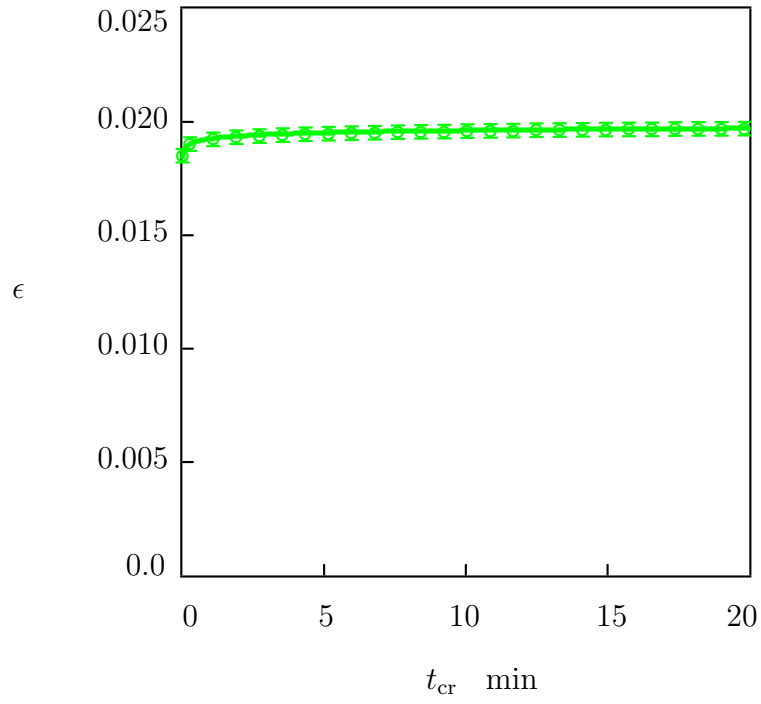


Figure S3: Strain ϵ versus creep time t_{cr} . Circles: experimental data in creep test with stress $\sigma_0 = 70.0$ MPa at temperature $T = 20$ °C. Bars stand for the standard deviations. Solid line: results of simulation.

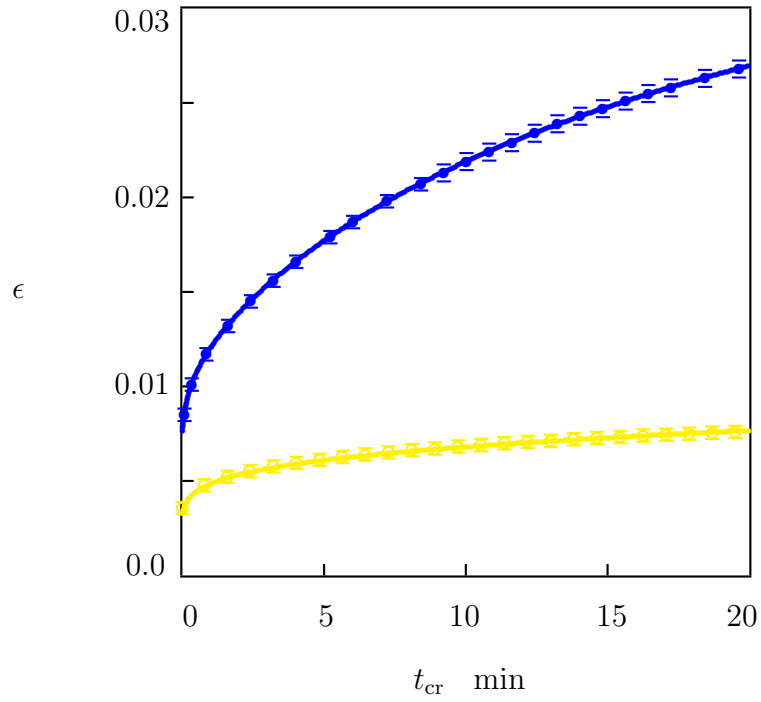


Figure S4: Strain ϵ versus creep time t_{cr} . Symbols: experimental data in creep tests with stresses $\sigma_0 = 10$ (\circ) and 20 (\bullet) MPa at temperature $T = 170$ °C. Bars stand for the standard deviations. Solid lines: results of simulation.