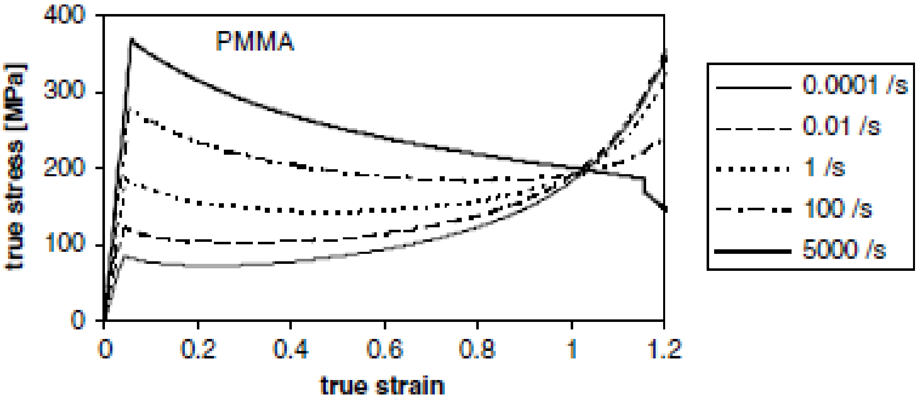
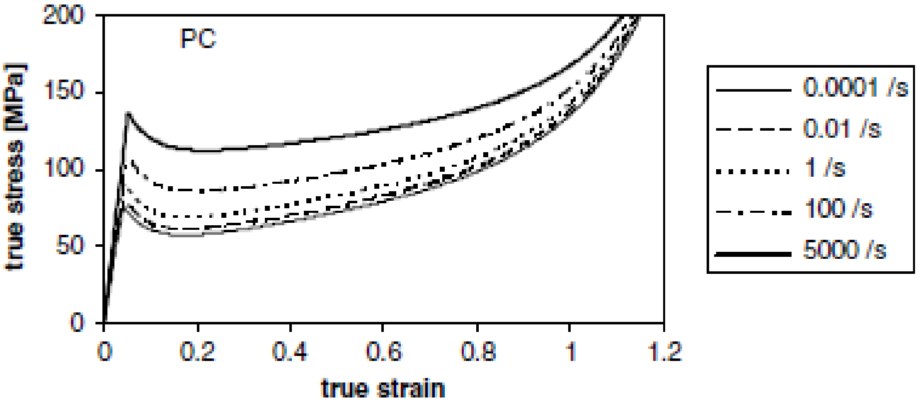
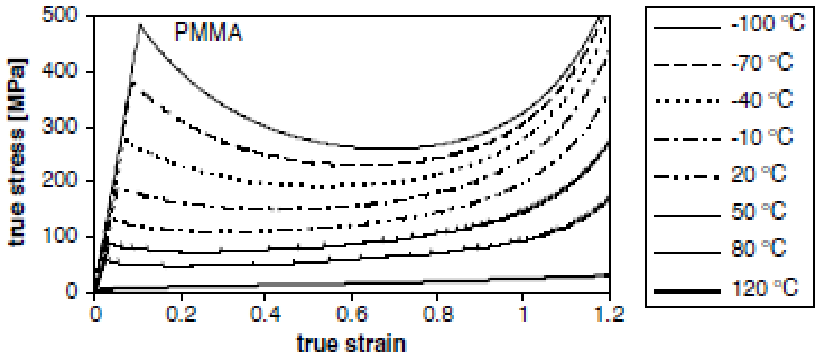
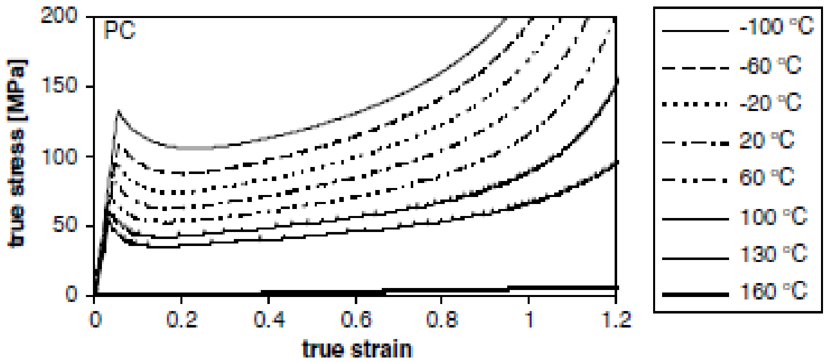
Sıcaklık ve şekil değiştirme hızının PMMA ve PC’ye etkisi









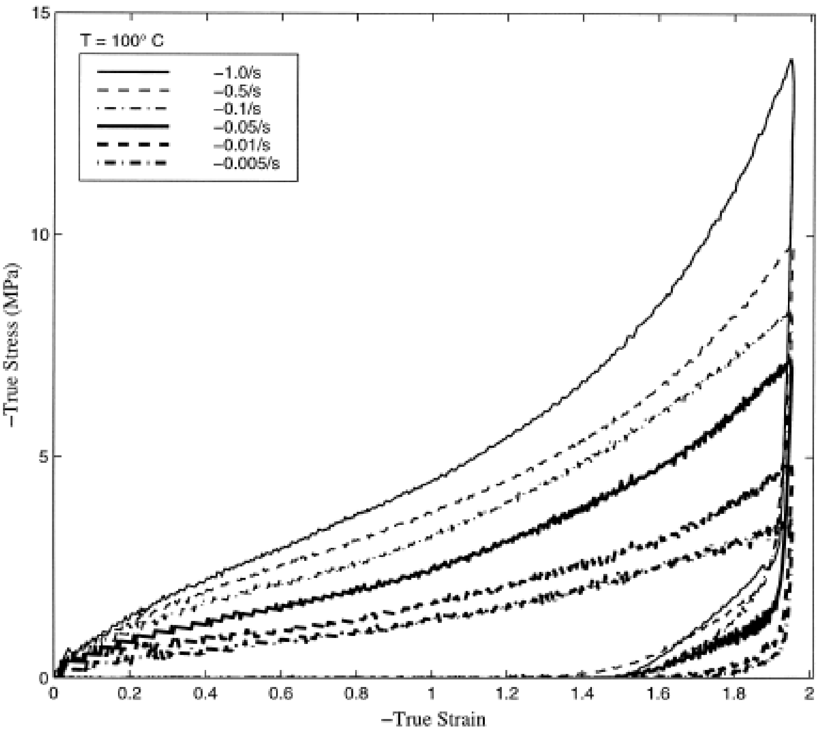


Fig. 2. Uniaxial compression stress–strain behavior of PET at 100°C, for strain rates between −1.0 and −0.005 s^{-1}.

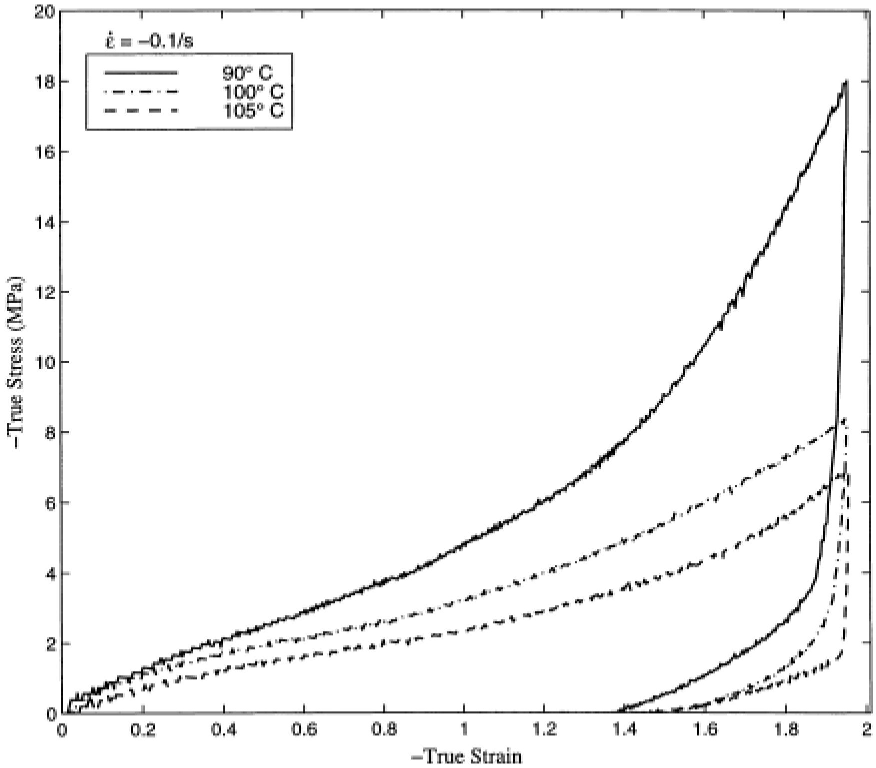
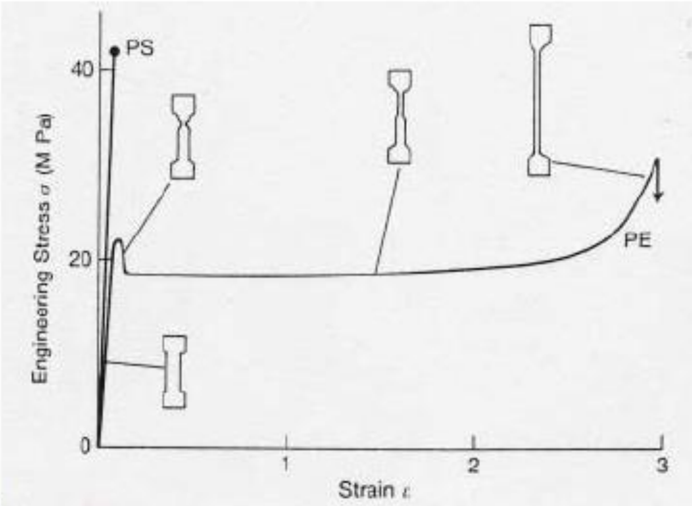


Fig. 4. Uniaxial compression stress–strain behavior of PET at temperatures of 90, 100, and 105°C, for a strain rate of −0.1 s^{-1}.

M. Boyce (2000)



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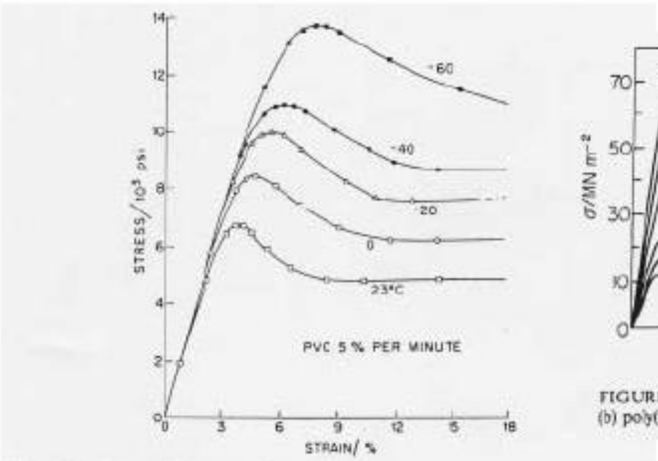
Glassy Polymers: Thermoplastics



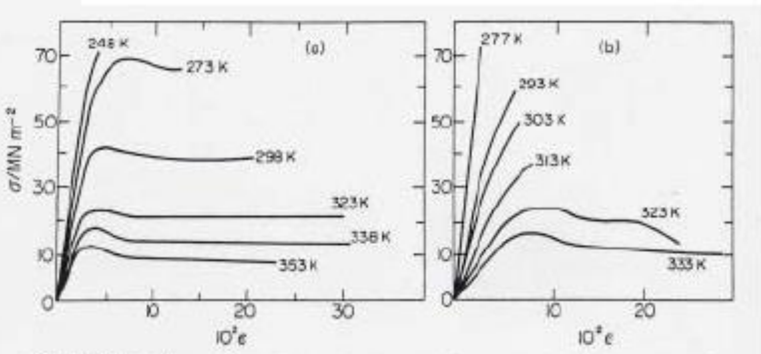
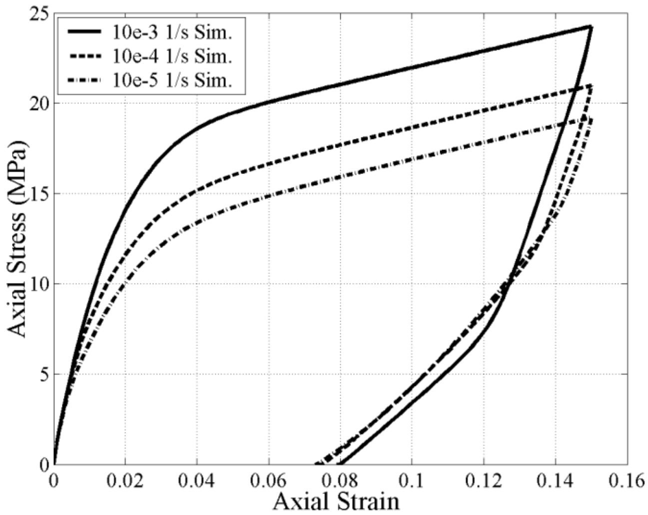
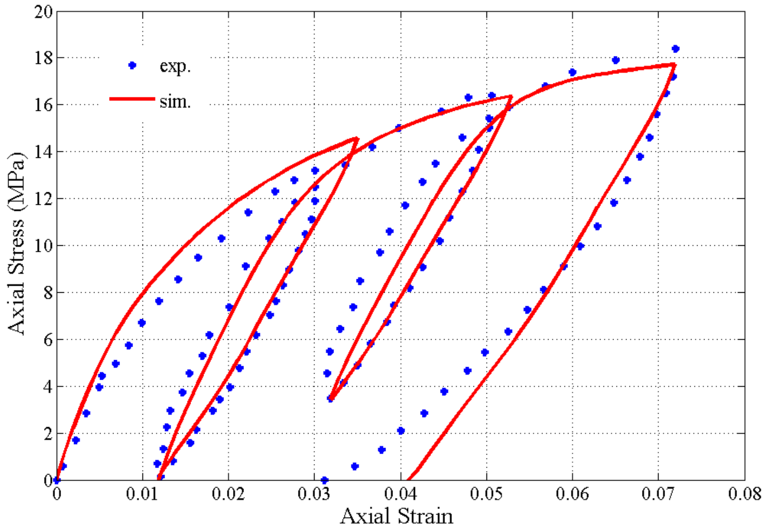


FIGURE 13.7. Influence of temperature on the stress-strain response of (a) cellulose acetate and (b) poly(methyl methacrylate). (From data by Carswell and Nason.)

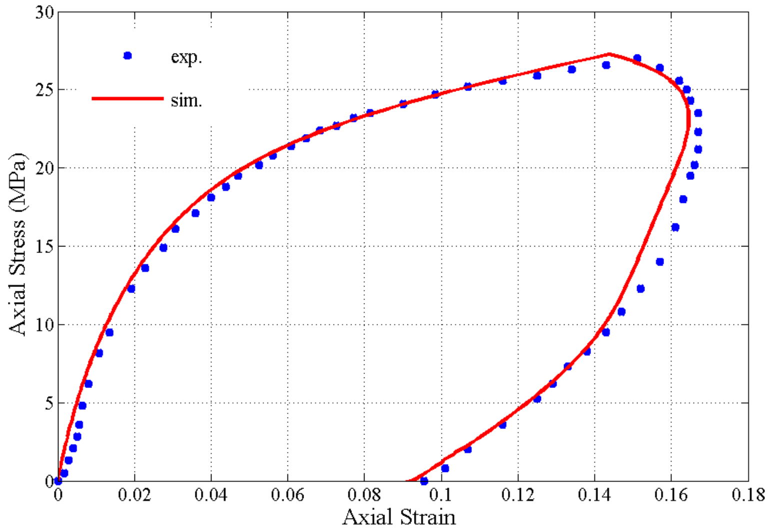


The simulation results of HDPE under uniaxial compression tests at the strain rates of 1.E-3, 1.E-4 and 1.E-5 /s.

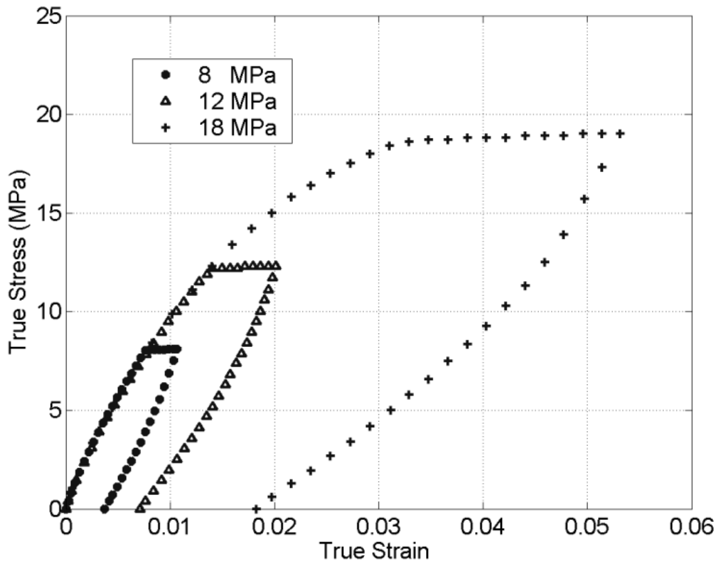


Prediction result of a cyclic test of HDPE at the strain rate of 1.E-4 /s .

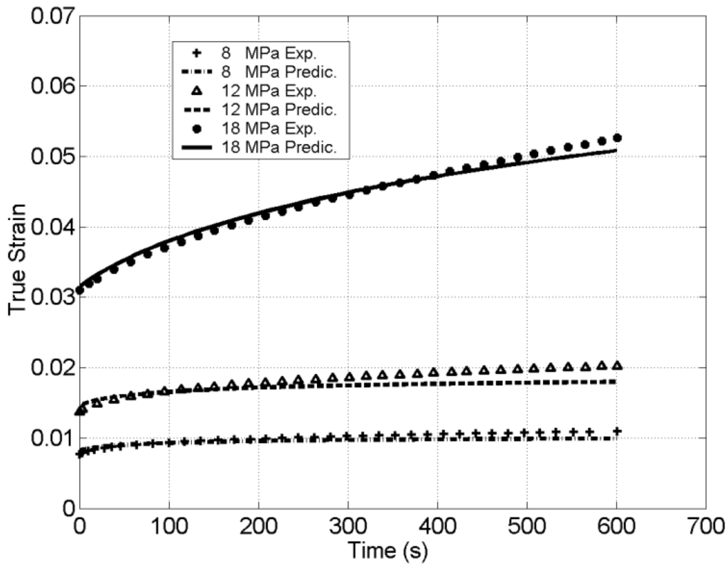
Experimental data is obtained from Zhang and Moore [3].



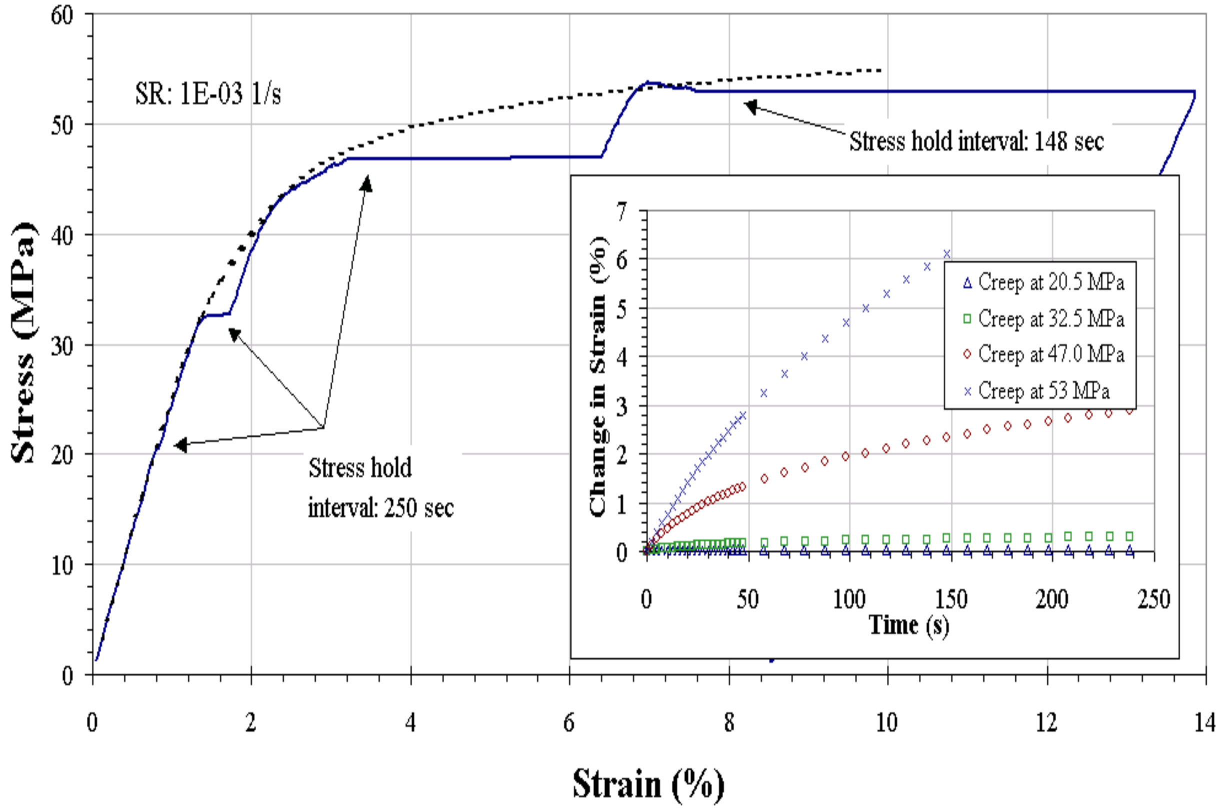
Prediction result of HDPE under uniaxial compression test at the stress rate of 26.5 N/s. “•” denotes the experimental data.



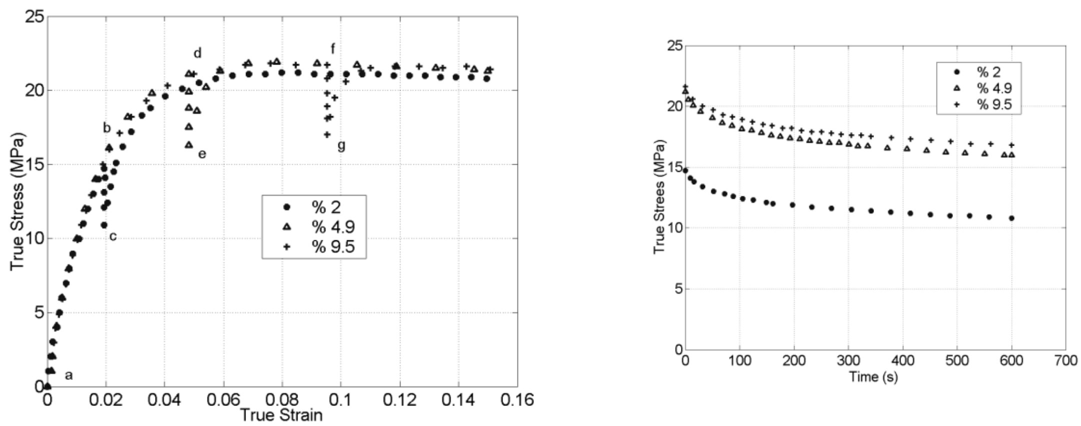
Stress-strain curves in the creep experiments at three different stress levels at the strain rate of 1. E-4 /s. Creep duration is 600 sec.



True strain versus time curves in the creep experiments at three different stress levels at the strain rate of 1. E-4 /s. Simulation and prediction results are obtained using VBO.



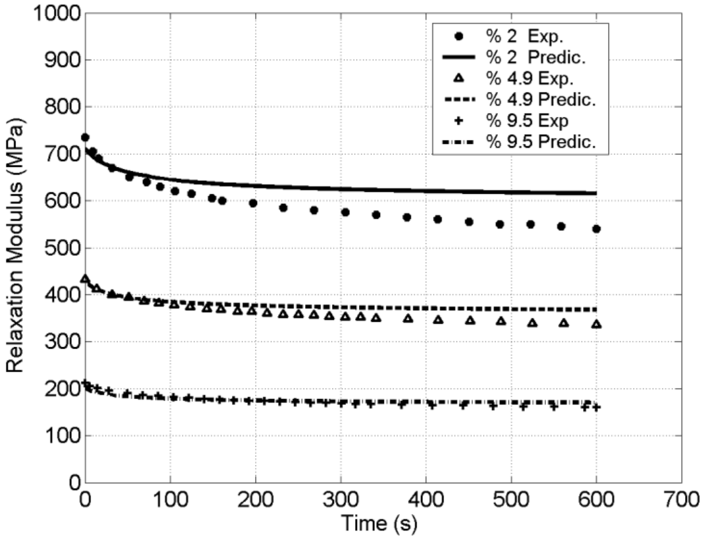
Multiple creep tests on a PPO specimen. The dashed line indicates an uninterrupted stress-strain curve for the same strain rate, i.e. 1E-3 /s. Reproduced from Fig. 5.15 of Khan (2002).



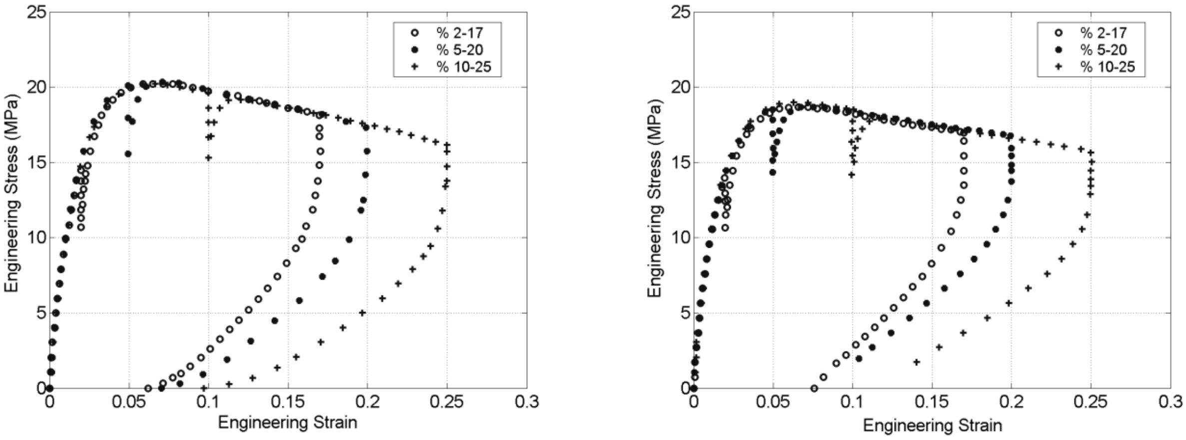
(a)

(b)

True stress-strain and stress versus time curves during relaxation experiments at 2, 4.9 and 9.5% strain levels.



Relaxation modulus versus time. Relaxations are at the strain levels of %2, %4.9, %9.5 at the strain rate of 1.E-4 /s. Simulation and prediction results are obtained using VBO.



(a) **(b)**

Comparison of multiple relaxation behavior of HDPE on stress-strain curves at 1.e-4 1/s strain rate using

a) extruded specimens.
b) compression molded specimens.

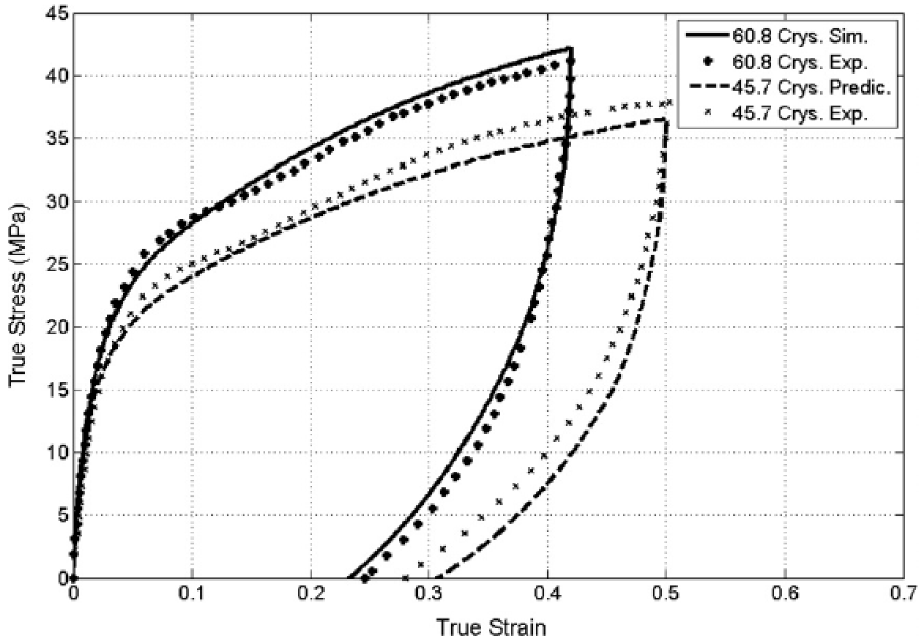
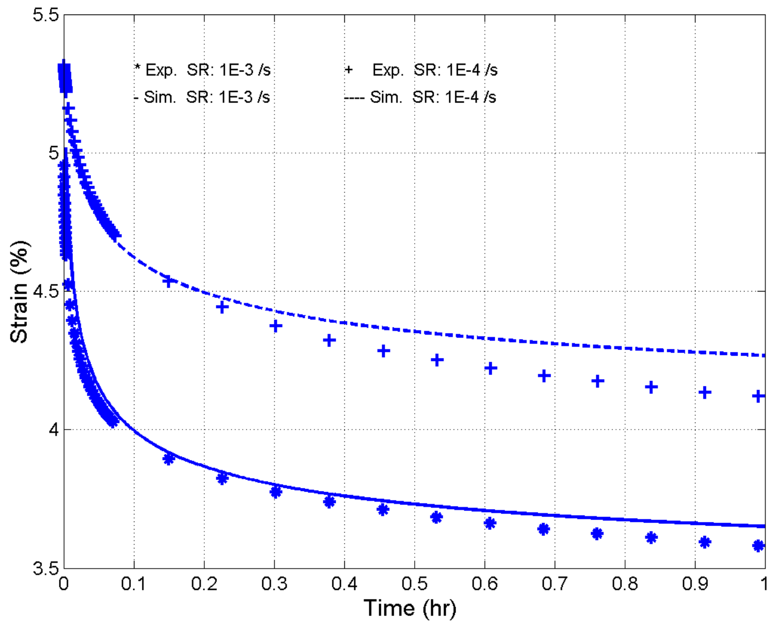


Fig. 11. Modeling uniaxial compression loading–unloading behavior of ultra-high molecular weight polyethylene (UHMWPE) with different degrees of crystallinity. The proposed model: the amorphous and crystalline phases are in parallel. Strain rate is 0.1/s.



Prediction of recovery at zero stress using the modified VBO.

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1. Düşünceli, N., Çolak, Ö. Ü., (2008). The Effects of Manufacturing Techniques on Visco-Elastic And Viscoplastic Behavior of High Density Polyethylene (HDPE). Materials and Design, 29(6), 1117-1124.

2. Düşünceli, N., Çolak, Ö. Ü., (2006). High Denstiy Polyethylene (HDPE): Experiments and Modeling. Mechanics of Time Dependent Materials, 10, 331-335.

3. Çolak Ö., Düşünceli N., (2006). Modeling viscoelastic and viscoplastic behavior of high density polyethylene (HDPE). Journal of Engineering Materials and Technology, Transactions of the ASME, 128, 572-578.
4. Çolak, Ö. Ü., (2005). Modeling Deformation Behavior Of Polymers With Viscoplasticity Theory Based On Overstress. International Journal of Plasticity, 21, 145-160.
5. Düşünceli, N., Çolak, Ö. Ü., (2008). Modelling Effects of Degree of Crystallinity on Mechanical Behavior of Semicrystalline Polymers. International Journal of Plasticity, 24, 1224-1242.