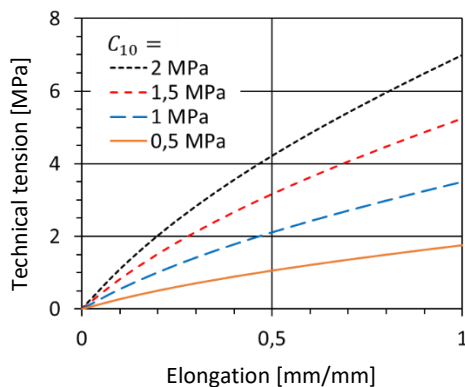
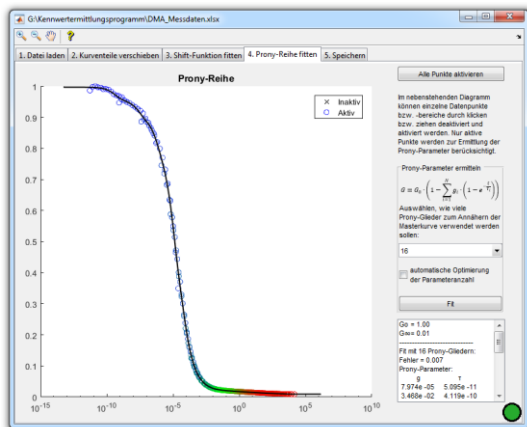


Equilibrium flow curve



Stress-strain diagram  
(Neo-Hooke model)



IMA tool for the calculation of  
viscoelastic material parameters

## Material models for PTFE compounds:

- Objective: Description of a sealing ring made of PTFE compound in the state of equilibrium after assembly and storage on the shaft, i.e. after the decisive radial force drop
- Determination of the equilibrium flow curve in individual relaxation tests at different elongation values on a tensile testing machine
- Reduction of the viscoelastic material behaviour to an elastic-plastic behaviour
- Description of the equilibrium state for a constant temperature

## Material models for elastomers:

- Use of hyperelastic material models to account for the non-linear stress-strain behaviour of elastomers (e.g. Neo-Hooke, Mooney-Rivlin, etc.)
- Use of viscoelastic material models to consider the time dependence in the stress-strain behaviour of elastomers (e.g. Prony series with WLF equation)
- Methods for determining material parameters
  - Calculation from Shore A-hardness
  - Tensile test on universal testing machine
  - Pure shear test on universal testing machine
  - Inflation test for biaxial stress state
  - DMA (Dynamic Mechanical Analysis)