

MATERIAL MODEL FOR EXPANDING POLYMER

Problem Description

- A material model for a temperature-driven expanding foam needs to be developed and evaluated.
- The formulation needs to be suitable for a 3D implementation in a commercial finite element code, e.g. as "umat" in Abaqus.
- The material shows the following characteristic phenomena:
 - Large strains (thermal and mechanical strains)
 - Pore pressure (theory of porous media)



Objectives & Tasks

- Implementation and evaluation of the material model at integration point level, using Python.
- Transfer of the material model to a commercial FE code by writing a user material subroutine.
- Validation of the material model using experimental results.