

Master's Dissertation at the Div. of Structural Mechanics



SIMULATION OF CREEP IN PAPERBOARD PACKAGES WITH PLASTIC TOPS

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Report

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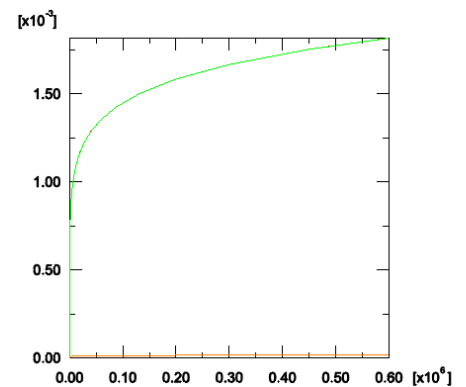
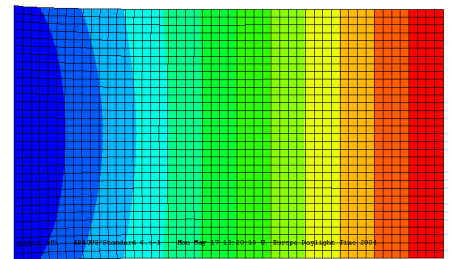
Background

Packages made from paperboard and plastics have many advantages compared to packages made from other materials. A drawback is that packages that are stored for a long time deforms due to creep deformations in the paper and plastic materials. Moreover, the packages are often subjected to varying moisture conditions, a fact that may make the creep deformations to increase substantially.

Project description

A better knowledge of different creep models and variations of material parameters is needed. Long time storage and variations of load is interesting parameters. In the study, various creep models that are suitable for simulating paper and plastic materials may be discussed. Since ABAQUS is the main analysis tool, the available creep models that are available in ABAQUS are preferred. The most suitable creep models will be utilized in a study of the creep in a package.

In order to verify the model, the simulation model will be compared to experimental observations. Material tests are needed in order to determine the material constants in the models and to determine which models that are the most suitable.



The work in the project may be divided into four main subtasks

- Literature study of creep in paper and plastics
- Experimental study of creep with varying materials, loading and time scales
- Development and verification of a FE-model for simulation of creep in beverage packages
- Numerical sensitivity study of the parameters in the creep models