

Master's Dissertation at the Div. of Structural Mechanics



PERFORMANCE OF TEAR OPENINGS IN INJECTION MOULDED PLASTIC PARTS

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Presentation

Spring of 2004

Report

will be published as report TVSM-5127

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Div. of Structural Mechanics,
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In cooperation with

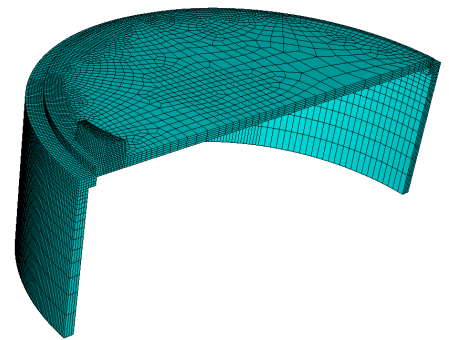
Tetra Pak R&D AB

Background

Some of the packages in the Tetra Pak product line have tear openings in injection moulded plastic parts. The tear opening is mainly a notch in the plastic part to provide a fracture path. The two main criteria that the tear openings must fulfil is to provide a barrier that withstand forces before it is opened and simultaneously they must have the ability to provide an opening that is simple to open by the consumer. The problem lies in designing the geometry of the fracture path when changing the material. There is thus a need to establish a fundamental understanding of the relationship between the material properties and the geometry parameters of the tear opening.

Project description

The main goal in the project is to create an understanding of how the geometry of the tear opening and the material properties of the plastic material interact in a FE-model of an injection moulded plastic part with a tear opening.



FE-model of tear-opening

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

- Literature survey
- Experimental determination of mechanical properties of the plastic material
- FE-simulation of the influence of the geometric and material parameters on the performance of the tear
- Experimental verification of the simulation model.



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