

Subject: FEM optimisation – look for the stress of the box

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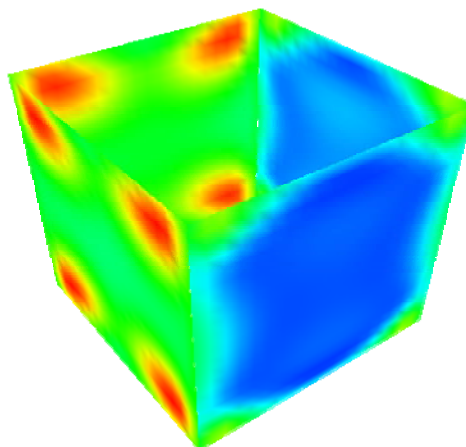


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Packaging in general are characterised by having a rather small mass relative to the applied loads that the packaging experience in the distribution chain. The mass, i.e. dimensions and material, are determined through an optimisation process (design process) and is about using the smallest amount of material necessary to fulfil the purpose, which means minimised environmental impact.

Optimised packaging solutions maximise business but also minimise environmental impact.

Finite element analysis (FEA) in the design (optimisation) process is a very effective tool to look into the structure of the packaging, taking out the unnecessary parts, replace them by more sustainable materials or restructure the packaging design.



Failure plot of a packaging solution (corrugated board box), red indicates failure and blue farthest from failure.

For example, cut-outs are best placed in low stress areas (blue). Consider a typical corrugated board box with normal hand holes, placed close to the top on two opposite panels, loses more compression strength compared to a box without the hand holes. If the hand holes instead are placed closer to the middle of panels, the loss is less.

