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CAD model of the clothes peg
(Patents nº PT103874, PT1012, PT1013)

Integration of Life Cycle Engineering and Multi-Attribute Analysis to Support Product Development: process design and material selection for a clothes peg

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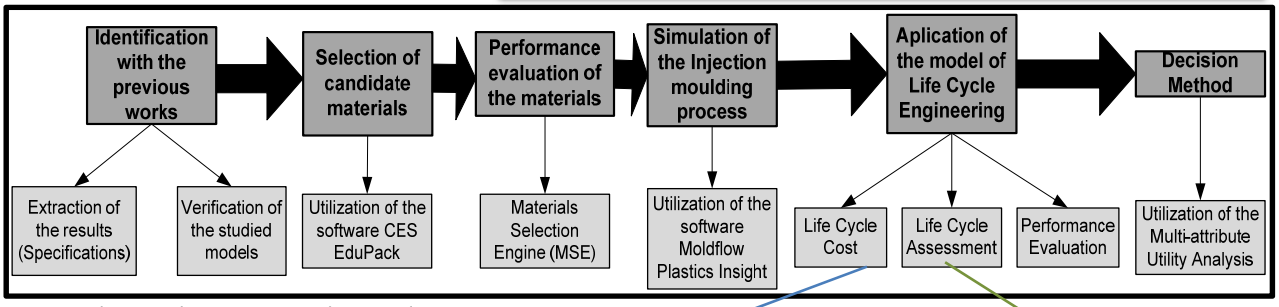
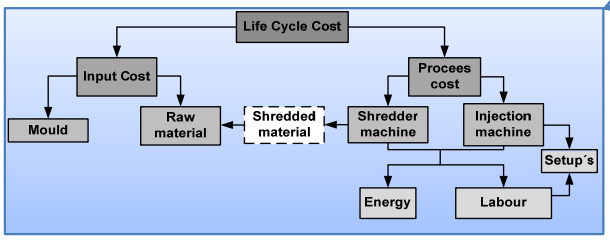
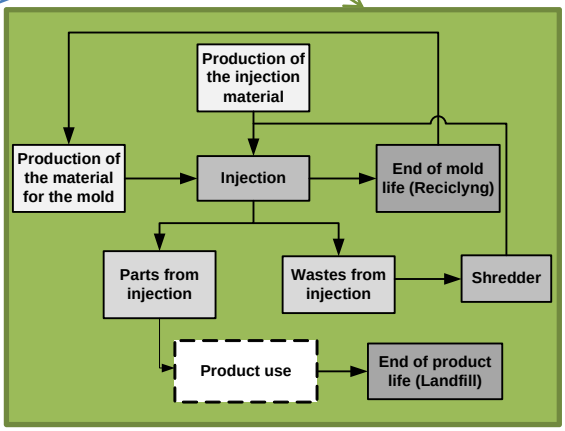


Integrated approach to support Product Development.



Life Cycle Cost model applied.



Life Cycle Impact Assessment model applied.

Materials selection is one of the most important phases in the design of a product. In recent years there have been several methods to help designers in materials selection. Several factors such as the environmental impact of the products have been increasingly valued by the society in general, which has been a drive to include environmental analyses in materials selections methods. The recently arisen methodology Life Cycle Engineering provides just an answer to these needs.

The purpose of this study was to select candidate materials and to design the manufacturing process for a clothes peg applying the LCE methodology. The design alternatives were therefore evaluated based on these three dimensions of analysis. A decision making methodology called Multi-attribute Utility Analysis was used for the final selection of the best material and process. This analysis is based on the consumers' opinion, that in this particular application rely on three factors: the market price, the environmental impact and the quality of the product. The proposed methodology integrates a life cycle analysis (LCE) with the value given by the costumer to each dimension considering a specific product.