

Application of the Circular Economy Concept to Packaging Material

Recommendations for the Reuse of Trays

Student



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Definition of Task: To transport injection-molded raw parts internally and externally, Sonova Holding AG uses plastic trays with a special material combination that protects the parts from external influences. The trays are disposed of after a single use, which contradicts the values of the company. The project, therefore, aims to determine the environmental impact over the life cycle of the tray. Considering the concept of the circular economy, recommendations for action for the tray shall be developed to improve the current environmental footprint. These recommendations shall be assessed both from a technical and economical point of view.

Approach: Based on a literature study of circular economy, principles as well as methods for approaching the topic were identified. In a subsequent step, the current situation at the company was analysed. On the one hand, the tray was examined in terms of its dimensions and composition. On the other hand, the life cycle of the tray was analysed in more detail. The knowledge gained was then used to find solutions that were subsequently tested for feasibility. In addition, a life cycle assessment and a cost structure analysis were carried out to be able to make a statement on improvements in economic and environmental terms.

Result: The project showed the impact of the current life cycle of the tray regarding costs and CO2 equivalent. Furthermore, clear requirements on the usage of the trays were worked out. With this basis it was possible to develop three solution variants including less transport volume, reuse and further usage of the trays. It could be shown, that reusing the trays is economically and environmentally worthwhile. To implement the solution, the technical feasibility must be conclusively assessed. The results of this clarification will be crucial to decide in favour or against the implementation of the solution. It is therefore recommended to conduct a field test to allow a straightforward statement on the technical feasibility of the solution by investigating the impact on the final product.

Examiner

Prof. Dr. Katharina Luban

Subject Area

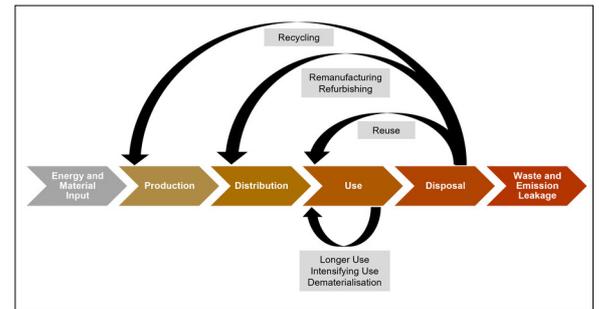
Innovation in Products, Processes and Materials - Business Engineering and Productions

Project Partner

Sonova Holding AG, Stäfa, Zürich

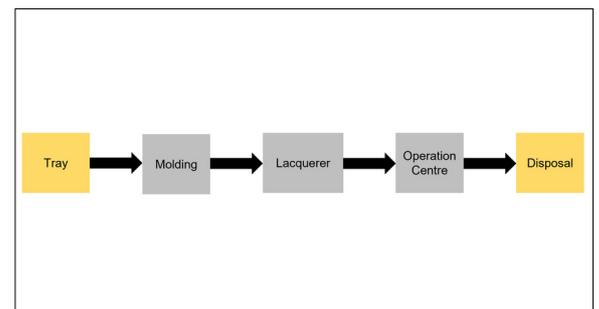
Eco System of Circular Economy

Own presentation based on Geissdoerfer et al., 2020, S. 3



Current Life Cycle of the Tray

Own presentation



Final Solution for Reusing the Trays

Own presentation

