

# Food Packaging Design to Support Sorting Behavior

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## Abstract

Due to population growth, urbanization, higher income levels, and intensive use of packaging products, the amount of waste generated by households, including food packaging waste, has been increasing continuously worldwide, posing a massive threat to societies and the environment. Therefore, proper waste management has become a challenging environmental issue and priority for governments. Along with the advances in technical aspects, such as material recovery technologies, more pressure has been placed on the strategies to move from disposal to waste prevention and recycling. Considerable efforts are being made to limit the overall production and the negative impact of waste on the environment and human health, as well as minimize the cost of waste management. Separation of different waste fractions at the source (i.e., source separation) is an integral part of such efforts toward enhancing the homogeneity of collected waste and improving the quality of materials for recycling. Sorting waste as a regular activity can also serve as a practice for improving residents' sorting behavior. However, the benefits of source separation cannot be gained without actively participating in the sorting process, which depends on the perception of convenience and the easy-to-implement nature of the process. Therefore, the design of food packaging has become an interesting concept for research and has received a lot of attention as a means to influence the consumers' sorting behavior. This is because in some way, consumer behavior is shaped by products as much as products are shaped by consumer behavior. Considering the unique characteristics of food packaging, it is expected that different food packages tend to influence a consumer in different ways. Hence, applying proper design strategies requires an in-depth understanding of packaging-consumer interactions throughout the sorting process. However, the research in this field, except for a few, is too general and usually associated with the impractical experiences around packaging material and functions. Instead, a design-oriented approach should be considered, in addition to practical experience. This thesis, therefore, aims to unfold the packaging design potential to support sorting behavior. Furthermore, how is it possible to maintain and empower the user-packaging interaction by applying different design strategies? In this case, the potential of design approaches, namely the user-centered design (UCD), design for sustainable behavior (DfSB), and design affordance, have been discussed. Moreover, the advantages and opportunities of these methods to improve packaging design, thus influencing sorting behavior, are investigated using different research methodologies.

**Keywords:** Household waste, design attributes, packaging waste, design approaches, sorting behavior, sustainability.