

Ecodesign in a Life Cycle Perspective*Waste Prevention of Products – a Question of Design and Consumer Patterns***M. Huber, R. Paminger and W. Wimmer***Institute for Engineering Design (E 307), Research Area Sustainable Product Development/ Ecodesign, Vienna, Austria***Abstract**

In the paper the interdependency of product design and waste arising will be portrayed. The generation of waste appears in all stages of the life cycle not only at the end of life when a product turns into waste. In the early stage of product development the majority of the environmental effects are determined – usually unintended referring to lack of knowledge or a lower degree of priority of environmental aspects. There are different Ecodesign strategies which focus on the minimization and prevention of waste. Selecting the right materials, dematerialization and minimizing waste during manufacturing, reducing waste during the use phase and design for recycling or reuse will be discussed. Specific improvement strategies will be generated to optimize the end-of-life performance of selected products.

In the conference paper a practical procedure for implementing environmental aspects into the product development process will be introduced and its application demonstrated. The main focus lies on different Ecodesign improvement strategies on waste prevention and minimization applied on product examples from three Austrian manufacturing companies. This procedure called "ECODE-SIGN Toolbox for Green Product Concepts" is developed in an ongoing research project funded by the Austrian Research Promotion Agency. The examples shown in the paper are preliminary results from this project (Huber, M. et al., 2006).

1 Introduction into Ecodesign - Life Cycle Thinking

Sustainable product design/Ecodesign aims at considering and reducing the environmental impacts of a product along its entire life cycle. These stages include the extraction of the raw materials, the manufacturing of the product, its distribution, the use and finally, the disposal of the product. Design in this respect compiles the engineering design of a product as well as its form and functionality.

The goal of Life Cycle Thinking (LCT) is to identify phases and processes within the whole product life cycle (raw material, manufacturing, distribution, use, end of life) which have or could have significant influence on the environmental impacts. Ecodesign should concentrate on these phases with the highest improvement potential. Ecodesign has to fulfill the customers needs with causing a minimum of environmental impact, merely the amount of raw material used, the energy needed along product life. An Ecodesign product serves its purpose with only a minimum of environmental impact. The question is how to design such products. Green Product Concepts are needed.