RE:ME reuse return recycle by Cathy Wolter

Semester Project: One material One Product

MA Product Design - UdK Berlin, 2021/22

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Cooperation Partners BASF Creation Center and Designfabrik



"Nowadays many end products are made from a combination of different plastic groups. This often improves the performance of the goods, but makes recycling difficult or impossible. Which products, that are now made of different materials, can be made from one material or... can you come up with alternatives and new product typologies from one material?

You pick a material group from the BASF plastic families that are presented at the BASF Creation Center and design a product that is relevant. Material groups: Ultramid, Ultrason, Elastollan.

The project research and cooperation project by Prof. Ineke Hans in the context of her Climate Change projects (CCC / ECCC) and the BASF Creation Center." (1)





TABLE OF CONTENTS

| VISIT BASF | 06 |
|-----------------|----|
| RESEARCH | 08 |
| RE:ME | 16 |
| MATERIAL LAYERS | 18 |
| BOX FEATURES | 20 |
| FOOD VARIETY | 22 |
| SYSTEM | 24 |
| BRANDING | 28 |
| PRODUCTION | 30 |
| VARIATIONS | 32 |
| PROTOTYPE | 34 |
| APPENDIX | 40 |
| | |





1.3 billion tons of food are thrown away worldwide. 90 million tons in the EU and 18 million T per year in Germany alone. This corresponds to one third of the current food consumption of 54.5 million tons. Every second, 313kg of edible food ends up in the trash."All of this could be avoided through better management, more sustainable marketing strategies and changing consumption habits." (2)

40% of the waste on streets are generated by single used food packaging (3). 770 tons of packaging waste is generated every day just in the takeaway sector in Germany (4). Due to the low value, they are more often carelessly thrown away and pollute our environment.

Disposable products seem cheap and make life easier. However, in the long term, the purchase and disposal are a major cost factor. The production of disposable products consumes an extraordinary amount of resources, which end up as trash and are hardly used.

ENJOY THE TASTE

From July 2021, the EU Commission has introduced a regulation banning products made from single-use plastic for which environmentally friendly alternatives already exist. These include to-go food containers and beverage cups made of Styrofoam. The reason for this ban is the obsolescence of many plastic products and the unsustainable use of resources. The ban is intended to promote innovative and environmentally friendly solutions and support the reusable system (4).

According to the EU Commission, the products that have been banned are those most commonly found on our beaches. It is assumed that these products account for between 10 and 20% of the waste in the environment. To-go packaging made of expanded polystyrene accounts for the largest share.

Plastics consisting of microparticles (e.g. Styrofoam) are particularly difficult to dispose of, as they break down into tiny particles and are easily released into the environment and water (5).

RE:ME reuse return recycle

RE:ME provides a reusable solution for Styrofoam boxes and all other disposable containers. The box is made from a uncoloured mono- material, Ultrason®, designed to make recycling processes easier.

MATERIAL LAYERS



The container consists of a layered wall system. The outside of the box is made of food grade, high transparent, odour/taste neutral hard plastic, chemical resistant tough plastic. PPSU particle foam, which is mainly used in transporation design, is sandwiched in between. The layering enables to keep hot and cold food in the container which keeps the temperature.

STERILISATION

The box can be sterilsed in a diswasher about 1000-1500 times. This is 3 times more than a PP reusable food container.

BOX FEATURES

STACKING

A recess in the lid allows safe stacking for transportation.

FRIDGE/FREEZER

Leftover food can be stored in the fridge or freezer as low as -40° C.

MONO-MATERIAL

The mono-material makes the recycling process easier. No material seperation needed.

GREAT MATERIAL ^{*}

The box is shatter and scratch proof, odour and taste neutral, anti-sticking and discolouring, oil, acid and alkaline resistant. This makes the box perfect for long duration use. **LEAK SAFE**

A well-fitting lic prevents rapid leakage.

MICROWAVE/OVEN

The food can be heated up in the box, which can endure a temperature up to 180° C.

ISOLATION

The box is able to keep hot or cold food temperated. In addition, the box can be touched with bare hands, even when the food is freshly heated.

FOOD VARIETY





1. TO-GO OR DELIVERY

Pack up your leftover-food from the restaurant, take your food to-go or let it deliver to your door using RE:ME.

2. ENJOY FOOD

You can store your leftovers in the fridge or freezer and reheat it either in the mircowave or oven.

3. RETURN

Retrun your box to any restaurant or leave it at a deposit station.

4. CLEAN

The box will be sterilized and reused. This process can be repeated around 1000-1500 times.

5. RECYCLE

When the lifespan of the material is achieved, the box can be recycled and the material reused for new products. The process can be repeated around four times until the material loses on quality.

BRANDING

The branding is embedded in the particle foam. Due to the clear PPSU layer surrounding the entire box, a smooth surface remains that is easy to sterilize.

PRODUCTION

STEAM INJECTION

INJECTION MOULDING

The transparent outer sides of the box are produced by injection molding. The interior, made of particle foam, is pressed into a mold with hot steam. Both are then joined together in an ultrasonic welding process.

VARIATIONS



The different variants of boxes are laid out in a grid that fits perfectly into the delivery backpacks. They can each be placed space-efficiently next to each other but also on top of each other. In addition, the different sizes include an even wider range of restaurants and so food variety.



PROTOYPING















APPENDIX

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All information about the Material Ultrason was recevied by BASF.

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