The Round Table Guideline Project – Integrating Conflicting Objectives in Eco Design

Forum Eco Design
Düsseldorf, 05 May 2017
Content

• The Round Table Eco Design of Plastics Packaging
• The Round Table Guideline Project
• Timeline and Stakeholder Involvement
The Round Table Eco Design of Plastics Packaging

- Founded in 2014 by IK
- Experts from the plastics packaging supply chain (packaging manufacturers, brand owners, retail), recycling, academia and consumer protection
- Agreed terms of cooperation: Chatham house rules and consensus based decisions
- External moderation by team ewen
Members of the Round Table

- B+K
- Fraunhofer IVV
- Der Grüne Punkt
- Henkel
- IK Industrievereinigung Kunststoffverpackungen e.V.
- Jokey
- mtm plastics
- Nestlé
- Okopol
- REWE Group
- tegut...
- Bundesverband

Guideline Sponsors

- BKV Kunststoff Konzepte Verwertung
- PlasticsEurope
- Borealis
The Round Table Eco Design of Plastics Packaging

Objectives

1. Establish a **competence platform** for plastics packaging eco design

2. Agree on a **common understanding of packaging eco design** and its criteria

3. Develop **recommendations** for plastic packaging manufacturers and other actors of the supply chain
First Achievement: Evaluation of Methods and Tools for Packaging Eco Design

- Study conducted by Öko-Institut e.V., Freiburg, on behalf of the Round Table Eco Design of Plastics Packaging and BKV GmbH

⇒ Lessons learned: Good practical tools available but lack of …
  - definition of Eco Design
  - guidance on how to deal with conflicting design objectives
  - integration of Eco Design into business processes
The Round Table’s Definition of Packaging Eco Design

Packaging Eco Design ...

• aims at minimising the **environmental impact** of the **packed product and its packaging** over the entire **life cycle**

• is **part of the decision-making process** regarding the development and marketing of a packaged product

• includes a holistic view on the **whole packaging system** (primary, secondary, tertiary packaging)

• ranges **from incremental product improvements** (e.g. material reduction) **to process innovation** (e.g. optimised logistics and waste collection)

• is dealing with **conflicting design objectives** at different levels:
  • between different environmental objectives (e.g. material saving versus recyclability)
  • between environmental and non-environmental objectives (e.g. functionality, consumer protection, or costs).
## The Round Table’s Definition of Packaging Eco Design

<table>
<thead>
<tr>
<th>Preceding design aspects (not part of eco design)</th>
<th>Eco design at <strong>system level</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fulfilment of legal requirements</td>
<td>• Reuse</td>
</tr>
<tr>
<td>• Other non-negotiables, e.g. basic requirements with regard to functionality and consumer protection</td>
<td>• (Deposit supported) return systems</td>
</tr>
<tr>
<td></td>
<td>• Improved sorting and recycling systems</td>
</tr>
<tr>
<td></td>
<td>• Resource efficient logistics (e.g. avoidance of transport and cooling)</td>
</tr>
<tr>
<td></td>
<td>• Waste prevention along the supply</td>
</tr>
<tr>
<td></td>
<td>• Avoidance of littering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eco design at <strong>package level</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Extended product protection</td>
</tr>
<tr>
<td>• Avoidance of hazardous substances</td>
</tr>
<tr>
<td>• Residual emptying</td>
</tr>
<tr>
<td>• Needs-based package size</td>
</tr>
<tr>
<td>• Optimising packaging weight and volume</td>
</tr>
<tr>
<td>• Use of recycled materials</td>
</tr>
<tr>
<td>• Use of bio-based plastics</td>
</tr>
<tr>
<td>• Capability of being ascertained, sorted and recycled</td>
</tr>
<tr>
<td>• Anti-Littering (Mindful product design)</td>
</tr>
</tbody>
</table>
Content

- The Round Table Eco Design of Plastics Packaging
- The Round Table Guideline Project
- Timeline and Stakeholder Involvement
The Round Table Guideline Project

• Objective: Development of management guidelines for the Eco Design of consumer plastics packaging

• Special focus:
  • Agenda setting for the early product development phase (ideation phase)
  • Integration of eco design in organisational procedures
  • Practical toolbox for packaging development (with external tool library)
  • Dealing with conflicting objectives
The Round Table Guideline Project

Main target groups:

• **Top management** in the packaging, food, consumer goods and retail industry

• **Product managers**, marketing directors and other decision makers in the product ideation phase

• **Packaging developers** and designers

• Marketing and specialized consulting agencies
Lifecycle Thinking Needed
– But with a Holistic Perspective

**Packaging:** Lifecycle with resource use at each stage

**Packed good:** Lifecycle with resource use at each stage (until unpacking)

**Cumulative resource use** - to be considered with respect to possible under-packing
Eco Design Establishes another Core Requirement
– At the Same Level as Other Core Requirements

Core Requirements for Packaging

• Protect against stress (mechanical, biological, chemical, ...)

• Support optimised logistics

• Provide customer information and promotional functions

• Allow easy product use/handling for consumers

• Guarantee shelf life-time

(Additional) Core Requirement for Eco Designed Packaging

• Minimise environmental impact
Minimise Negative Impact on the Environment
– A Multidimensional Task without Hierarchies

- Contribute to climate change mitigation
- Make sustainable use of natural resources
- Protect natural ecosystems
- Protect biodiversity
- Conserve means of livelihood (drinking water, food resources, ...)

- Environmental protection is a multidimensional target
- No single indicator from scientific perspective
- Priorities of society & politics are dynamic (changing over time and from region to region)

➤ Priorities to be set at corporate and brand level!
Minimise Environmental Impacts
– From Targets to Strategies, Methods and Tools

Environmental Targets
Contribute to climate change mitigation
Make sustainable use of natural resources
Protect natural ecosystems
Conserve means of livelihood
Protect biodiversity

Strategies / Approaches
Design for Optimised Resource Use
Design for Sustainably Sound Sourcing
Design for Resource Recovery
Design for Responsible Use Phase

Methods
Use of less material
Use of secondary materials
Reuse
Source from renewable source
Source from responsible sources
Support recycling
Facilitate energy recovery
Avoid hazardous content
Prevent littering

Tools & Instruments
LCA-Tools
RecyClass

Bringing into reality
Optimisation on Packaging Level
– A Set of “Simple” Eco Design Strategies Available

- Use of less material
- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...

Design for Optimized Resource Use
- ... Design for Sustainably Sound Sourcing
- Source from renewable sources
- Source from responsible sources
- ...

Design for Resource Recovery

Design for Responsible Use Phase
- Avoid hazardous substances
- Prevent littering
- ...

- Support recycling
- Facilitate energy recovery
- ...

- Use of Secondary materials
- Reuse
- ...
Design for Recyclability (DfR)
– An Efficient Strategy with Important Links to Infrastructure

- DfR is much more than just using a recyclable polymer.
- DfR is about taking the capabilities of existing collection, sorting and recycling (infra-) structures into account.

Therefore, DfR criteria are dynamic and may change over time with the quality of the existing infrastructures.

=> DfR is one of the favoured strategies in the EU and other developed regions
Design for Recyclability ("DfR")
– What It Is About and How to Get There

A DfR packaging
- communicates its right way of disposal to the consumer
- is easy to sort
- is composed of materials compatible with established final recycling streams

=> How to do it? – use the available tools from the tool box (e.g. RecyClass)
Design for Responsible Use Phase ("DfrU")
– Avoid Littering to the Environment

The accumulation of plastic residues in the environment has become an issue of high public concern.

Problems discussed in this context are:
• Visual pollution
• Possible leaching of contained hazardous materials into environmental media
• Entanglement and starvation of wildlife
• Contamination via microplastics

Possible ways to deal with this:

⇒ Avoid littering by establishing collection systems
⇒ Avoid consequences of littering
⇒ Avoid littering by design
Design for Responsible Use Phase ("DfrU")
– What Can be Done at Packaging Level?

- Provide clear indications for proper use and disposal, e.g. “tidy man”, indication of right way of disposal
- Raise awareness about consequences of littering
- Prevent e.g. closures from coming loose from the packaging
- Avoid use of hazardous substances
- ...
Different Optimisation Procedures
– Where to Start and How to Proceed

“Stepwise” Optimisation

Existing packaging Design

Design for resource recovery

Design for sustainably sound sourcing

Eco Designed Packaging 1

Trying to Stay with the „Optimum“

Theoretical optimum packaging
(ecological mono-material, cubic, minimised weight, no hazardous substances, …)

Stepwise adaption from theoretical optimum to practical optimum

Eco Designed Packaging 2
Conflicting Objectives
– How to Identify and How to Deal with

1. Systematic check of optimisation options and barriers => e.g. checklists

<table>
<thead>
<tr>
<th>Questions</th>
<th>Results</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recyclability been assessed?</td>
<td>Yes/no</td>
<td>Using RecyClass, using …</td>
</tr>
<tr>
<td>Recyclability check results</td>
<td>Green/yellow/…</td>
<td>Secondary input material not fully recyclable</td>
</tr>
<tr>
<td>Improvement options assessed</td>
<td>Yes/No</td>
<td>Sorting test performed …</td>
</tr>
<tr>
<td>Thermal recovery of sorting rest</td>
<td>Full/limited/…</td>
<td>No problematic substances included</td>
</tr>
<tr>
<td>…</td>
<td>…</td>
<td>…</td>
</tr>
</tbody>
</table>

2. Evaluate alternatives against company’s Eco Design targets ➔ e.g. spider web

2.1 Minimised weight
2.2 Use of secondary materials
2.3 Recyclability
2.4 Absence of hazardous substances
2.5 Reusability
2.6 Responsible source
2.7 Renewable source
2.8 Littering protection

3. Communicate reliably

Eco Packaging, because
- 30 % Secondary material from responsible source
- ……

…
What Will Be in the Box?
– The Round Table Eco Design Guidelines – Structure and Content

- Reminds about the reason for Eco Design
- Identifies issues for management decisions
- Explains main strategies how to bring Eco Design into reality

- Explains the background of Eco Design strategies
- Allows easy access to existing Eco Design tools
- Provides additional checklists
- Describes challenges and gaps of existing data

Round Table
CORE-Guideline

Product Manager

Packing Developers

www.ecodesign-packaging.org

EcoDesign Toolbox
Factsheets
Management of Eco Design?
– Eco Design Within Packing Project Management

**Corps. Env. Policy**

**Briefing**
- Eco Design as (additional) core criteria
- Step 1: Define project environmental targets

**Ideation**
- Step 2: Evaluate poss. system level adaptations
- Step 3: Choose pack-level Eco Design strategy

**Development**
- Step 4: Use methods & tools

**Implementation**
- Step 5: Check & calculate effects
- Step 6: Implement transparent & meaningful communication

**RT Support**
- Core Guide-Line
- Fact sheets
- Check-lists
- Tools

Iterate if necessary
Content

• The Round Table Eco Design of Plastics Packaging
• The Round Table Guideline Project
• Timeline and Stakeholder Involvement
Timeline and Stakeholder Involvement

Project Phases and Timeline

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>- Scoping</td>
<td>completed</td>
</tr>
<tr>
<td>Phase II</td>
<td>- Development of guidelines</td>
<td>Feb – Nov 2017</td>
</tr>
<tr>
<td>Phase III</td>
<td>- Stakeholder consultation and finalization</td>
<td>Jan – April 2018</td>
</tr>
<tr>
<td>Phase IV</td>
<td>- Regular updates</td>
<td>From 2019 ongoing</td>
</tr>
</tbody>
</table>

Stakeholder Involvement

- Workshops
  - For German speaking stakeholders: Frankfurt, January 2018
  - For English speaking stakeholders: Brussels, March 2018
- Possibility of commenting of final draft through website
- Stakeholders interested in receiving project updates and invitations please register on our website [www.ecodesign-packaging.org](http://www.ecodesign-packaging.org)
Further Questions?

Dr. Isabell Schmidt
IK Industrievereinigung Kunststoffverpackungen e.V.
Kaiser-Friedrich-Promenade 43; 61348 Bad Homburg
Phone: +49 (0)6172 9266-64
Mail: i.schmidt@kunststoffverpackungen.de
Internet: www.kunststoffverpackungen.de

Dirk Jepsen
Ökopol – Institut for Environmental strategies
Nernstweg 32-34; 22765 Hamburg
phone: +49 (0)40 39 100 2-0
mail: jepsen@oekopol.de
internet: www.oekopol.de