

### Guideline of the Round Table "Eco Design of Plastic Packaging" Practical Example "Soup Vegetables"



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### Practical Example "Soup Vegetables"





**Situation:** An existing packaging for 500g soup vegetables is to be redesigned. Negative environmental impacts should be minimised.

- PET tray, black, weight 18g
- PVC stretch film, weight 1-2g
- PP label printed with permanent adhesive



# **Step 1:** Defining environmental goals for the packaging design project

| Question  | Documentation of Results  |
|---|---|
|   |   |
| Does the environmental strategy of the              | Yes. Environmental goals: Climate protection, recyclability, weight (as |
| company include clearly formulated                  | an indicator of waste reduction and resource protection)                |
| environmental goals?                                |   |
| Can specific environmental messages and             | No.   |
| environmental goals be derived from the             |   |
| <b>brand message</b> (of the packaged good)?        |   |
| Have relevant environmental goals been              | Yes.  |
| selected for this packaging design <b>project</b> ? | Waste reduction and resource protection (indicated by weight)           |
|   | Recyclability   |
|   | Reduction of GHG-Emissions (contribution to climate protection)         |
| Has the type and order of priority of the           | Yes, priorities:  |
| environmental goals been established?               | 1. Reyclability   |
|   | 2. Resource protection / Waste reduction (indicated by weight)          |
|   | 3. Climate protection   |



### **Step 2**: Developing the Eco Design strategy

| Question  | Documentation of Results   |  |
|---|--|--|
|   |  |  |
| Have "suitable" Eco Design<br>strategy elements been selected?  | Selected Eco Design strategy elements:<br>o Design for Recycling<br>o Optimised Ressource Use  |  |
| Has design leeway for the project been established?   | Requirements:<br><ul> <li>Packaging has to keep vegetables safely together</li> <li>Cost neutrality as far as possible</li> <li>No fundamenal changes in the logistics system possible.</li> </ul> |  |
| Are all environmental goals<br>measurable? (Have all<br>environmental goals been made<br>measurable?) | Reference case for optimisation goals: Initial packaging as specified<br>above<br>Minimum requirements:  |  |



#### APPROACHES

## **STRATEGY ELEMENTS**

#### **APPROACHES**





### Step 3: Application of the Eco Design Strategy





### Step 3: Application of the Eco Design Strategy

**Step 1:** Defining environmental goals



**Step 2:** Developing the Eco Design Strategy

Cross check the achieved optimisation effects



### Step 3:

Application of the Eco Design Strategy



### **Step 3**: Application of the Eco Design Strategy

| Question                                   | Documentation of Results  |
|--|---|
| Was the checklist for the relevant         | See Checklist Design for Optimised Ressource Use and Checklist    |
| strategy element used?                     | Design for Recycling  |
| What selection or modification of the      | Checklist Design for Recycling:                                   |
| packaging options results from this?       | PP-tray (see previous page) with PE-stretch film.                 |
|  | Checklist Optimised Resource Use:                                 |
|  | PP-strap, white   |
| What difficulties became apparent?         | The resulting option from the first strategy element, which is an |
|  | additional input for the second strategy element (Optimised       |
|  | Resource Use), is "erased" in the second strategy element. That   |
| Are there any conflicting goals that arise | means the optimisations regarding recyclability that were         |
| from optimising the other strategy         | conducted in the first place are (possibly) lost here.            |
| elements reviewed?                         |   |



## Step 3: Packaging Options

### **PP-Thermoformed Tray**

- Weight <15g
- PE-Stretch Film 1-2 g
- Paper Label with watersoluable Adhesive



### **PP-Strap**

- White
- printed
- Weight <1g





# **Step 4:** Cross check the achieved optimisation effects and solving of conflicting issues

| Question                         | Documentation of Results          |
|----------------------------------|-----------------------------------|
| Have the 'optimised' packaging   | Yes. See following documentation. |
| alternatives (results of step 3) |                                   |
| been evaluated in terms of their |                                   |
| environmental impacts?           |                                   |

| Option                          | Climate contribution<br>(CO2-eq) (calc. with<br>PIQET) | Recyclability (after<br>RecyClass) | Weight<br>[g] |
|---------------------------------|--|------------------------------------|---------------|
| Initial Packaging<br>(PET-Tray) | 0,11   | F                                  | 18            |
| Minimum requirements            | 0,10   | С                                  | 17,1          |
| Optimisation target             | <0,10  | В                                  | 16,2          |
| PP-Tray                         | 0,034  | В                                  | 15            |
| PP-Strap                        | 0,0011   | С                                  | 1             |



# **Step 4:** Cross check the achieved optimisation effects and solution of conflicting issues

| Question                         | Documentation of Results                                    |
|----------------------------------|---|
| Have the 'optimised' packaging   | Yes.  |
| alternatives (results of step 3) |   |
| been evaluated in terms of their |   |
| environmental impacts?           |   |
| Is there one or several          | Yes, both options are permissible.                          |
| permissible options?             |   |
| 1) Does one or do several        | <b>Yes</b> . See Documentation of Results.                  |
| resulting options meet the       |   |
| previously established           |   |
| optimisation goals?              |   |
| 2) Was the checklist "Dealing    | Yes; see following Note "Checklist Dealing with Conflicting |
| with Conflicting Issues" used    | Issues".  |
| and a possible solution opted    |   |
| for?                             |   |



**Step 4:** Cross check the achieved optimisation effects and solution of conflicting issues **Step 3:** 

Application of the Eco Design Strategy **Resulting Options** Step 4: Cross check the achieved optimisation effects



| Question   | Documentation of Results          |
|--|-----------------------------------|
| Have the results of the assessment been visualized | YES. See following visualization. |
| in an appropriate form?                            |                                   |





| Question   | Documentation of Results          |
|--|-----------------------------------|
| Have the results of the assessment been visualized | YES. See following visualization. |
| in an appropriate form?                            |                                   |

| Options                         | Climate contribution<br>(CO2-eq) | Recyclability | Weight<br>[g] |
|---------------------------------|----------------------------------|---------------|---------------|
| Initial packaging<br>(PET-tray) | 0,11                             | F             | 18            |
| Minimum<br>requirements         | 0,10                             | С             | 17,1          |
| <b>Optimisation target</b>      | <0,10                            | В             | 16,2          |
| PP-tray                         | 0,034                            | В             | 15            |
| PP-strap                        | 0,0011                           | С             | 1             |



| Question  | Documentation of results   |
|---|--|
| Is there a packaging option that performs best in the highest priority category(s)? | <b>Yes</b> , the PP thermoformed tray performs best in prio 1 category <i>"Recyclability"</i> .                          |
| Are the results of this option in the other categories "sufficient"?                | <b>No</b> . Performance in the other<br>categories (also compared with<br>other resulting options) is not<br>sufficient. |



| Step B: Reviewing possibilities to solve conflicts   |   |  |
|--|---|--|
| Question   | Documentation of Results  |  |
| <u>Consider Re-Design</u><br>Should it be re-examined whether a (partial) re-<br>design may solve the conflicts? | <ul> <li>YES. Targeted iteration.</li> <li>→ Design for Optimised Resource Use<br/>Design for Recycling</li> <li>→ One new resulting solution.</li> </ul> |  |



### Iteration





## Iteration

 $\rightarrow$  New resulting option

#### LDPE-sack

- Weight 3g
- (Laser-) printed



→ Re-apply the checklist "Dealing with Conflicting Issues".



| Question   | Documentation of Results          |
|--|-----------------------------------|
| Have the results of the assessment been visualized | YES. See following visualization. |
| in an appropriate form?                            |                                   |





| Question   | Documentation of Results          |
|--|-----------------------------------|
| Have the results of the assessment been visualized | YES. See following visualization. |
| in an appropriate form?                            |                                   |

| Options                    | Climate contribution<br>(CO2-eq) | Recyclability | Weight<br>[g] |
|----------------------------|----------------------------------|---------------|---------------|
| Initial packaging          | 0,11                             | F             | 18            |
| (PET-tray)                 |                                  |               |               |
| Minimum                    | 0,10                             | С             | 17,1          |
| requirements               |                                  |               |               |
| <b>Optimisation target</b> | <0,10                            | В             | 16,2          |
| PP-tray                    | 0,034                            | В             | 15            |
| PP-strap                   | 0,0011                           | С             | 1             |
| LDPE sack                  | 0,0071                           | В             | 3             |



| Question  | Documentation of Results   |
|---|--|
| Is there a packaging option that performs best in the highest priority category(s)? | <b>Yes</b> , the new resulting option (LDPE-sack)<br>performs best in prio 1 category<br>"Recyclability" (identical to PP<br>thermoformed tray). |
| Are the results of this option in the other categories "sufficient"?                | <b>YES</b> . Performance in the other categories is considered as sufficient.  |





### Back to the Management Checklist





### **Step 5:** Using transparent and effective communication

| Question   | Documentation of Results  |
|--|---|
| Have aspects been selected and processed that can/should be used as part of proactive communication with the end customer?   | Message (e.g.):<br>"The packaging is recyclable and makes a<br>significant contribution to climate<br>protection" |
| Is the preparation and external communication of the improved environmental properties in line with communication standards? | (not done in this example)  |
| Have aspects been selected and processed that are needed to respond to (any) critical queries?                               | At this point, the documentation of the completed project is considered sufficient.                               |