TOGETHER WE MAKE TOMORROW MORE BEAUTIFUL
Using the Ecolizer 2.0

- For different materials:
  - metals
  - plastics
  - wood
  - paper
  - building materials

- And also:
  - energy
  - transport
  - lights
  - electronic components
Using the Ecolizer 2.0

- Environmental impact
  - materials
  - production processes and -manufacturing
  - use
  - waste and recycling
- Score as low as possible
- Estimation of dominant phases
Using the Ecolizer 2.0

- Data Quality
  - **Black:** based on reliable data
  - **Gray:** based on limited data, less reliable
  - **!:** uncertain, based on estimates of generic data, not for specific materials

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**PE Polyethylene**

**PRODUCTION**

- Low Density Polyethylene, LDPE/kg: 285
- High Density Polyethylene, HDPE/kg: 277
- Linear Low Density Polyethylene, LLDPE/kg: 272
- EPE (expanded PE): dna

**PROCESSING**

- Revolving, milling, drilling/cm³: 0.01 (l)
- Extrusion, plastic film/kg: 49
- Extrusion, plastic pipes/kg: 36 (l)
- Stretch blow moulding/kg: 131 (l)
- Hot cement welding (30s): 2 (l)
- Hot element welding (45min): 155 (l)
- Blow moulding/kg: 123 (l)
- Laser welding/m: 0.46 (l)
- Foaming/kg: 60 (l)
- Reaction injection moulding (RIM)/kg, large scale/kg: 21 (l)
- Rotation Forming/kg: 106 (l)
- Mirror-welding: dna
- Injection moulding/kg: 126 (l)
- Ultrasonic welding (15kHz): 0.04 (l)
- Ultrasonic welding (20kHz): 0.02 (l)
- Ultrasonic welding (40kHz): 0.01 (l)
- Vacuum forming/kg: dna

**RECYCLING**

- Process: 25 (l)
- Primary material saved: -285 (l)
- Total: -260 (l)

**WASTE TREATMENT**

- Waste treatment scenario in the EU: 39 (l)

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* Per welding joint of approx. 2.5 cm² (0.5 seconds welding).*
** If sufficiently pure.
Ecolizer 2.0 – example chair

polypropylene seating 2.11 kg - Injection molding

Frame made from steel 1.84 kg – drawing - powder coating of 0.134 m²

4 screws - steel with a total of 0.012 kg

4x connection fittings - Nylon 6, total: 0.008 kg - injection molding

4x anti-slip caps - rubber, total: 0.022 kg - injection molding

The chair has an average lifespan of 8 years and end up in the household waste after use
### Production

<table>
<thead>
<tr>
<th>Material</th>
<th>kg</th>
<th>mpt</th>
<th>Result</th>
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</thead>
<tbody>
<tr>
<td>PP seating</td>
<td>2.11</td>
<td>276</td>
<td>582.36</td>
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<tr>
<td>PP injection moulding</td>
<td>2.11</td>
<td>126</td>
<td>265.86</td>
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<td>Frame steel</td>
<td>1.84</td>
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<td>425.04</td>
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<td>Drawing of pipes</td>
<td>1.84</td>
<td>44</td>
<td>80.96</td>
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<td>Powder coating</td>
<td>0.134</td>
<td>424</td>
<td>56.816</td>
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<td>4 screws steel</td>
<td>0.012</td>
<td>231</td>
<td>2.772</td>
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<tr>
<td>4x connection fittings in PA</td>
<td>0.008</td>
<td>756</td>
<td>6.048</td>
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<td>4 anti-slip caps rubber</td>
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<td>0.548</td>
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<tr>
<td>Injection moulding</td>
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### Use

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### Disposal

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<td>47.84</td>
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<tr>
<td>Waste PP</td>
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<td>75.96</td>
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<td><strong>Total</strong></td>
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</table>
WAVE / SIGN SYSTEM

- underground parkings
- modular
- energy saving
- crash proof
- led lighting
- no rest material
- easy and fast mounting
WAVE / SIGN SYSTEM

- Graphic info is easily replaced
- Each part can be re-used or recycled
- All parts slide into each other or snap together → easy disassembly
- no coatings, glues or seals → optimal recycling
- You can make every size up to 3 meters

crash proof rotating sign
1 part → different functions

Acrylic plate: fixation panels, firmness of the product, diffusion of the light

All PP-parts are produced in one process of injection moulding
- Material matrix based on standard material dimensions
- Multiples of 30 cm
WAVE / SIGN SYSTEM