

**TOGETHER WE
MAKE TOMORROW
MORE BEAUTIFUL**



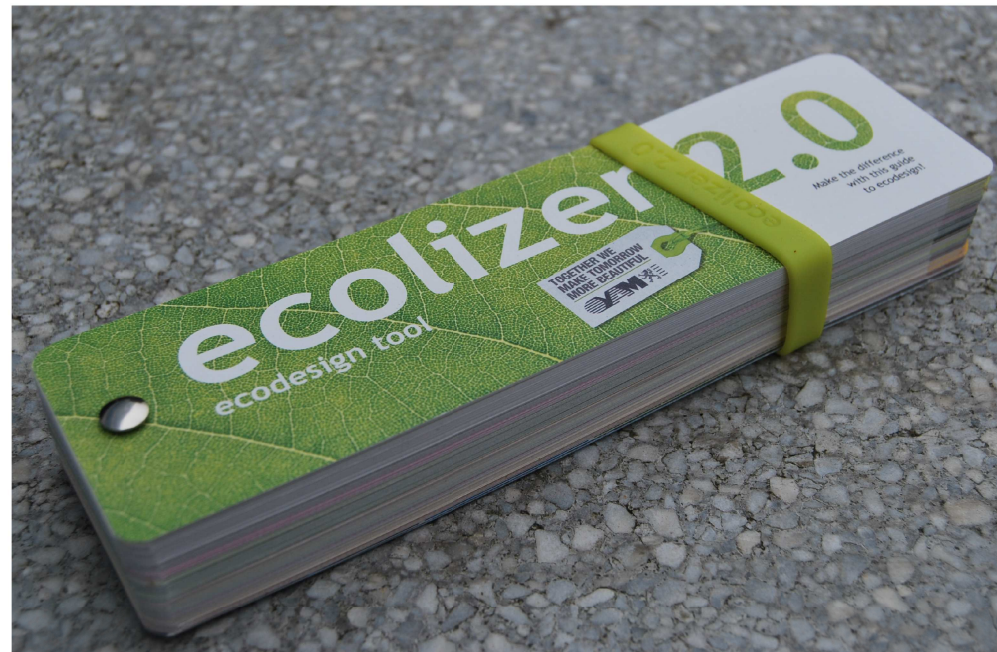
Using the Ecolizer 2.0

■ 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

PE Polyethylene

03.05

PRODUCTION mPt/kg

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

PROCESSING mPt

Revolving, milling, drilling/cm ³	0,01 (!)
Extrusion, plastic film/kg	49
Extrusion, plastic pipes/kg	36 (!)
Stretch blow moulding/kg	131 (!)
Hot element welding (30sec)/welding	2 (!)
Hot element welding (45min)/welding	155 (!)
Blow moulding/kg	123 (!)
Laser welding/m	0,46 (!)
Foaming/kg	60 (!)
Reaction injection moulding (RIM)/kg, large scale/kg	21 (!)
Rotation Forming/kg	106 (!)
Mirror-welding	dna
Injection moulding/kg	126 (!)
Ultrasonic welding (15kHz)/welding*	0,04 (!)
Ultrasonic welding (20kHz)/welding*	0,02 (!)
Ultrasonic welding (40kHz)/welding*	0,01 (!)
Vacuum forming/kg	dna

RECYCLING** mPt/kg

Proces	25 (!)
Primary material saved	-285
Total	-260 (!)

WASTE TREATMENT mPt/kg

Waste treatment scenario in the EU	39 (!)
------------------------------------	--------

* Per welding joint of appr. 2,5 cm² (0,5 seconds welding).

** If sufficiently pure.

Using the Ecolizer 2.0

■ Data Quality

Black: based on reliable data

Gray: based on limited data
less reliable

!: uncertain, based on estimates
generic data, not for specific
materials

PE Polyethylene

03.05

PRODUCTION	mPt/kg
Low Density Polyethylene, LDPE/kg	285
High Density Polyethylene, HDPE/kg (products)	277
Linear Low Density Polyethylene, LLDPE/kg	272
EPE (expanded PE)	dna
PROCESSING	mPt
Revolving, milling, drilling/cm ³	0,01 (!)
Extrusion, plastic film/kg	49
Extrusion, plastic pipes/kg	36 (!)
Stretch blow moulding/kg	131 (!)
Hot element welding (30sec)/welding	2 (!)
Hot element welding (45min)/welding	155 (!)
Blow moulding/kg	123 (!)
Laser welding/m	0,46 (!)
Foaming/kg	60 (!)
Reaction injection moulding (RIM)/kg, large scale/kg	21 (!)
Rotation Forming/kg	106 (!)
Mirror-welding	dna
Injection moulding/kg	126 (!)
Ultrasonic welding (15kHz)/welding*	0,04 (!)
Ultrasonic welding (20kHz)/welding*	0,02 (!)
Ultrasonic welding (40kHz)/welding*	0,01 (!)
Vacuum forming/kg	dna
RECYCLING**	mPt/kg
Proces	25 (!)
Primary material saved	-285
Total	-260 (!)
WASTE TREATMENT	mPt/kg
Waste treatment scenario in the EU	39 (!)

* Per welding joint of appr. 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



Ecolizer 2.0 – example chair

Production	kg	mpt	result
PP seating	2,11	276	582,36
PP injection moulding	2,11	126	265,86
Frame steel	1,84	231	-425,04
Drawing of pipes	1,84	44	80,96
Powder coating	0,134 m ²	424	56,816
4 screws steel	0,012	231	2,772
4x connection fittings in PA	0,008	756	6,048
4 anti- slip caps rubber	0,022	274	0,548
Injection moulding	0,030	126	3,78
		subtotal	1424,184
Use	kg	mpt	result
NA			
Disposal	kg	mpt	result
waste steel	1,84	26	47,84
Waste PP	2,11	36	75,96
		subtotal	123,80
		total	1547,984

Steel 01.03	
PRODUCTION	mPt/kg
<i>Primary</i>	
Low-alloyed (converter)**	231
Un- alloyed (converter)	165
High-alloyed	dna
High strength steel	dna
<i>Secondary</i>	
Low-alloyed (average)	195
Un-alloyed or low-alloyed (elektrosteal)	61
PROCESSING	mPt
Zinc coating, coils (continuous)/m ²	735 (!)
Welding/m	15
Drilling, CNC*/kg	340
Drilling, conventional/kg	311
Bending/cm	1,4
Deep drawing, automode operation/kg	26
Deep drawing, 650 kN press, single stroke operation/kg	28
Deep drawing, 3500 kN press, single stroke operation/kg	30
Deep drawing, 10000 kN press, single stroke operation/kg	36
Deep drawing, 38000 kN press, single stroke operation/kg	38
Wire drawing/kg	40
Turning, CNC*/kg	398
Turning, conventional/kg	318
Sheet rolling/kg	11 (!)
Enamelling/m ²	841 (!)
Milling/kg	337
Welding, gas (autogenous)/m	dna
Hardening/kg	9
Sheet rolling, steel/kg	35
Laser cutting/m (4 mm steel)	17
Stamping/kg	40 (!)
Plasma cutting	dna
Powder coating/m ²	424
Section bar rolling/kg	20
Spot welding/pt	1
Forge	dna
Punching/cutting/cm ²	10700
Drawing of pipes/kg	44
Ultrasonic welding/m	dna

PP Polypropylene 03.08	
PRODUCTION	mPt/kg
PP/kg	276
EPP/kg	dna
PROCESSING	mPt
Revolving, milling, drilling/cm ³	0,01 (!)
Extrusion, plastic film/kg	49 (!)
Extrusion, plastic pipes/kg	36 (!)
Stretch blow moulding/kg	131 (!)
Hot element welding (30sec)/welding	2 (!)
Hot element welding (45min)/welding	155 (!)
Blow moulding/kg	123 (!)
Laser welding/m	0,46 (!)
Reaction injection moulding (RIM)/kg, large scale/kg	21 (!)
Rotation Forming/kg	106 (!)
Mirror-welding	dna
Injection moulding/kg	126 (!)
Ultrasonic welding (15kHz)/welding*	0,04 (!)
Ultrasonic welding (20kHz)/welding*	0,02 (!)
Ultrasonic welding (40kHz)/welding*	0,01 (!)
Vacuum forming/kg	16 (!)
RECYCLING**	mPt/kg
Proces	25 (!)
Primary material saved	-276
Total	-251 (!)
WASTE TREATMENT	mPt/kg
Waste treatment scenario in the EU	36 (!)

* Per welding joint of appr. 2,5 cm² (0,5 seconds welding).

** If sufficiently pure.

WAVE / SIGN SYSTEM

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



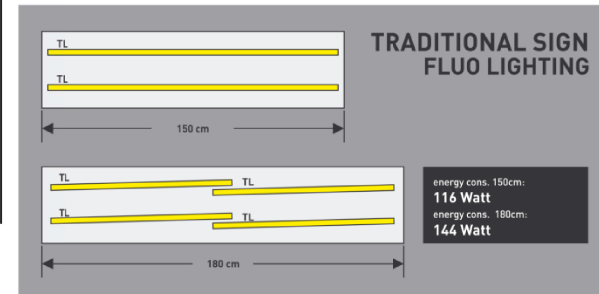
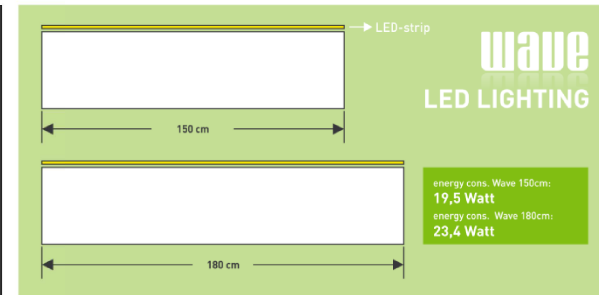
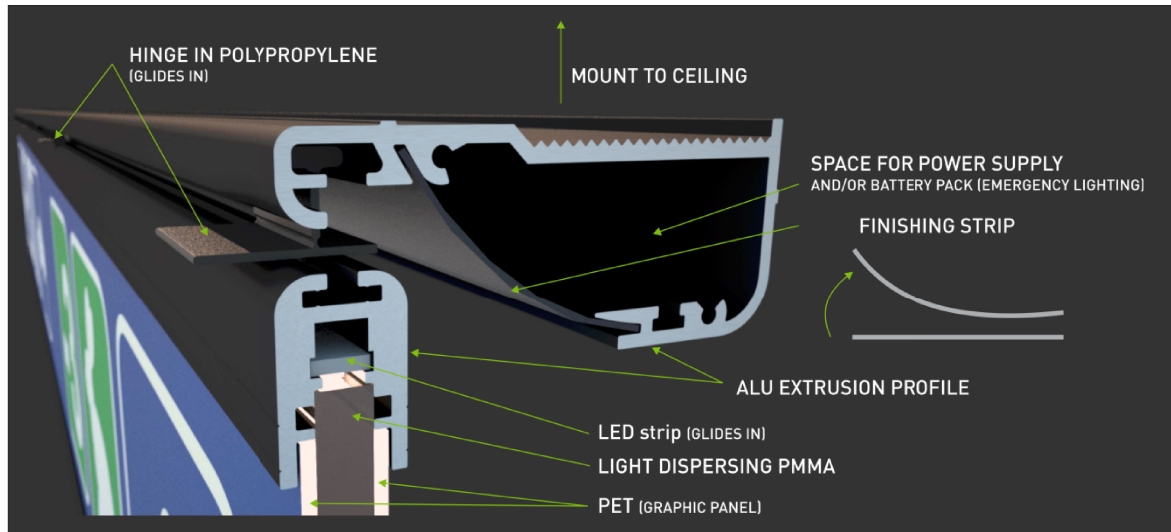
WAVE / SIGN SYSTEM

- 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

WAVE / SIGN SYSTEM

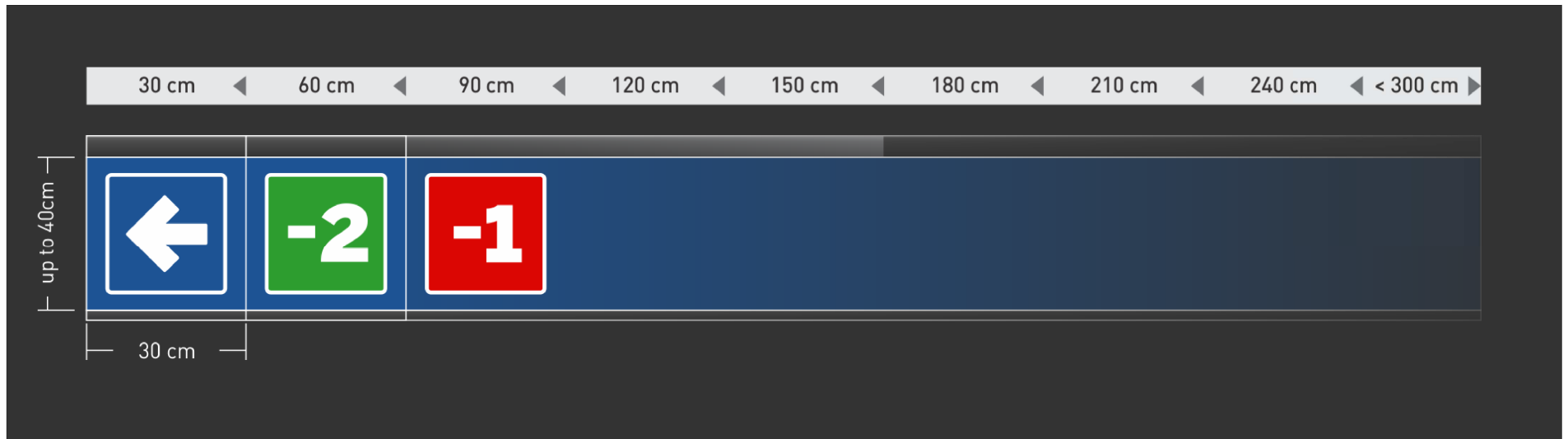


- 1 part → different functions

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

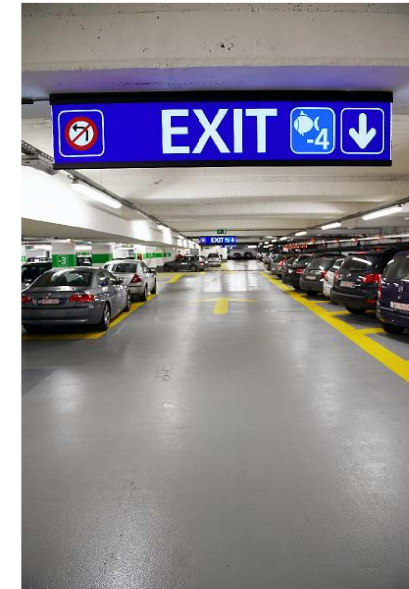
All PP-parts are produced in one process of injection moulding

WAVE / SIGN SYSTEM



- Material matrix based on standard material dimensions
- Multiples of 30 cm

WAVE / SIGN SYSTEM



**TOGETHER WE
MAKE TOMORROW
MORE BEAUTIFUL**



www.ovam.be
info@ovam.be

T: +32 (0) 15 284 284

F: +32 (0) 15 203 275

Public Waste Agency
of Flanders

Stationsstraat 110

B-2800 Mechelen