Environmental Product Report

EURLEDA

EURLEDA G3 1.2 40-840 ET PC APC PA-U

from the *EURLEDA* product family

A self-declared environmental declaration (Type II environmental labelling) according to ISO 14021:2016. Includes an Environmental Life Cycle Assessment based on ISO 14040 and ISO 14044.

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The environmental Life Cycle Assessment was conducted by the University of Zaragoza (i+ research group)

GENERAL INFORMATION

Company information

ZALUX S.A.

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Reference product

Reference product: ***EURLEDA G3 1.2 40-840 ET PC APC PA-U***

ZALUX order code (TK): ***10306938***

This product is a *weatherproof Luminaire* for professional *indoor* lighting applications, mainly used for *Industry applications*.

It is supplied with the following components and accessories, all being included in the environmental Life Cycle Assessment:

- *Injected Luminaire Housing and diffuser*
- *Integrated LED module*
- *Electronic Control Gear*
- *Rapid-mounting tighteners*
- *cardboard packaging*

Technical data:

Luminous flux	*4.000 lm*	Colour temperature	*4.000 K*
Luminous efficiency	*148 lm/W*	Ingress Protection	*IP66*
Electrical power	*27 W*	Impact Resistance	*IK08*
Operating voltage	*220 – 240 V*	Nominal service life	*L70 50.000 h @25ºC*

Methodology

This report presents the environmental impacts caused by producing, using and disposing of a ***EURLEDA*** luminaire. The environmental impacts are determined using the methodology of an environmental Life Cycle Assessment (LCA). ISO 14040 and 14044 provide the principles, framework, requirements and guidelines to properly carry out an LCA.

Software and database

The LCA is carried by the i+ research group of Universidad Zaragoza. For the Life Cycle Inventory, the *Ecoinvent v3.5* database and primary information of ZALUX is used.

Environmental impact methodologies

Two environmental impact indicators are reported. The first one is the global warming potential (GWP100 according to IPCC 2013), measured in kg CO2-equivalents, which describes the impact on climate change. The second one is the ReCiPe 2016 endpoint indicator, measured in milipoints, which is an aggregated measure for a wide range of environmental impacts.

Declared unit, for which the environmental impacts are reported

One luminaire providing a *managed* outgoing luminous flux of *up to 4.000 lm* during its nominal service life of *50.000* hours(L70@25ºC), which has been estandarized to 33000h (L80@25ºC). Results are then normalized and shown for an output of 1000 lm and 35000 h.

System boundaries

The Life Cycle Assessment is conducted from cradle to grave. It includes the stages of raw material acquisition, production processes, distribution to the customer, use phase, and end of life.

Manufacturing

The final manufacturing stage, i.e. the product assembly, is conducted in *Alhama de Aragón, Zaragoza, Spain*.

Distribution scenario

The product is mainly sold within Europe. Therefore, an *intracontinental* transport scenario is assumed with a transportation over *3.500 km by truck*.

Use phase scenario

For the electricity consumption during the use phase, a *European (EU-28, year 2018)* grid mix is assumed.

The total energy consumption is *1 × 27 W × 33.000 h = 891 kWh*.

All luminaire components are designed to survive the entire nominal service life of the luminaire without the need for replacement.

End of life scenario

The transportation of an end-of-life luminaire to a recycling facility is modeled by truck over a distance of *1.000 km*. The luminaire is assumed to be treated according to the flow chart in Figure 1. The material-specific recycling rates are taken from IEC / TR 62635:2012.

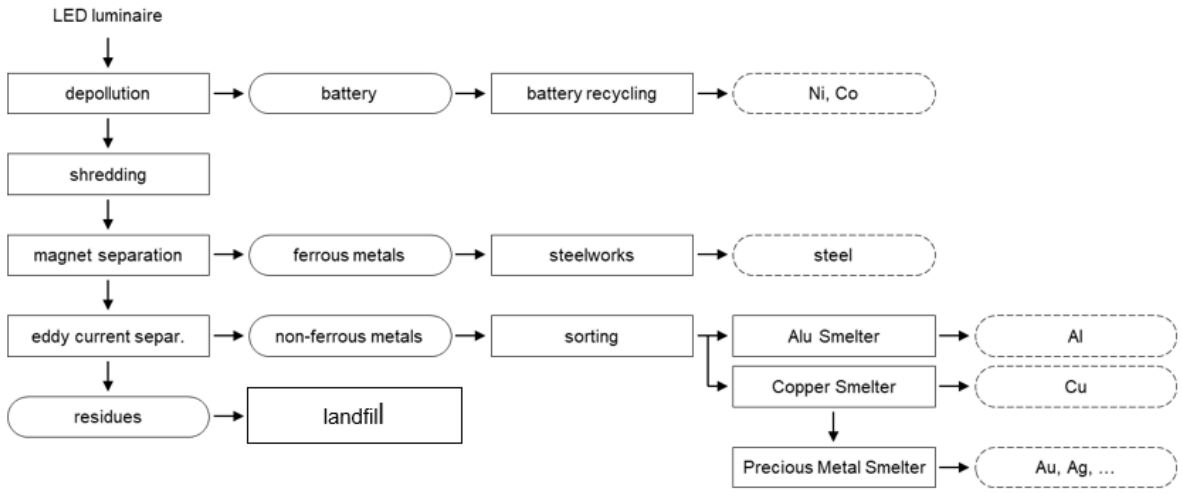

Figure 1: End-of-life treatment scenario of a LED luminaire.

CONSTITUENT MATERIALS

Table 1: Material composition of the assessed luminaire. The diagram represents the weight of the material classes, see colour legend in the table.

Table 1: Material composition of the assessed luminaire

		weight [kg]	share	
Metals	Aluminium	0,000	0,0%	
	Steel	0,766	27,1 %	
Plastics	PC	1,375	48,6 %	
	Other plastics	0,101	3,6 %	
Other	Electronic Control Gear	0,176	6,2 %	
	Cables and Connectors	0,053	1,9 %	
	LED Module	0,086	3,0 %	
	Paper and Cardboard Packaging	0,272	9,6 %	
Total		**2,828**	**100,0 %**	

ENVIRONMENTAL IMPACTS

- 4000 lm, 33000h (*)

	ReCiPe [mPt]	ReCiPe share	GWP [kg CO2-eq.]	GWP share
Raw material acquisition & Manufacturing & End of life	2596,58	13,79%	36,59	8,68%
Distribution	31,42	0,17%	1,14	0,27%
Use phase	16198,45	86,04%	383,96	91,05%
Total	**18826,45**		**421,69**	

- 1000 lm, 35000h

	ReCiPe [mPt]	GWP [kg CO2-eq.]
Raw material acquisition & Manufacturing & End of life	688,49	9,70
Distribution	8,33	0,30
Use phase	4295,04	101,81
Total	**4991,86**	**111,81**

ADDITIONAL ENVIRONMENTAL INFORMATION

End of Life

The assessment of the luminaire with material-specific recycling rates taken from IEC / TR 62635:2012 (*) shows that it can be recycled to *35.12 %* (weight ratio), see the following Table 2 for details.

Table 2: Recyclability assessment of the luminaire's material composition from Table 1. The diagram represents the recycling yield (in kg) on the same scale as the diagram from Table 1 represents the weight of the constituent materials.

		+%R_{cyc}
Metals	Aluminium	0,91
	Steel	0,94
Plastics	PC	0,0
	Other plastics	0,0
Other	Electronic Control Gear	0,14
	Cables and Connectors	0,24
	LED Module	0,14
	Paper and Cardboard Packaging	0,825
%Total		**35.12%**

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(*) assessments based on practical results can show different recyclability values. For example, IEC / TR 62635:2012 assess 0% recyclability to most of the plastics while our recycling partners are recycling nearly 100% our PC and plastic waste.