Environmental Product Declaration

In accordance with ISO 14025:2006
and EN 15804:2012+A2:2019/AC:2021 for:

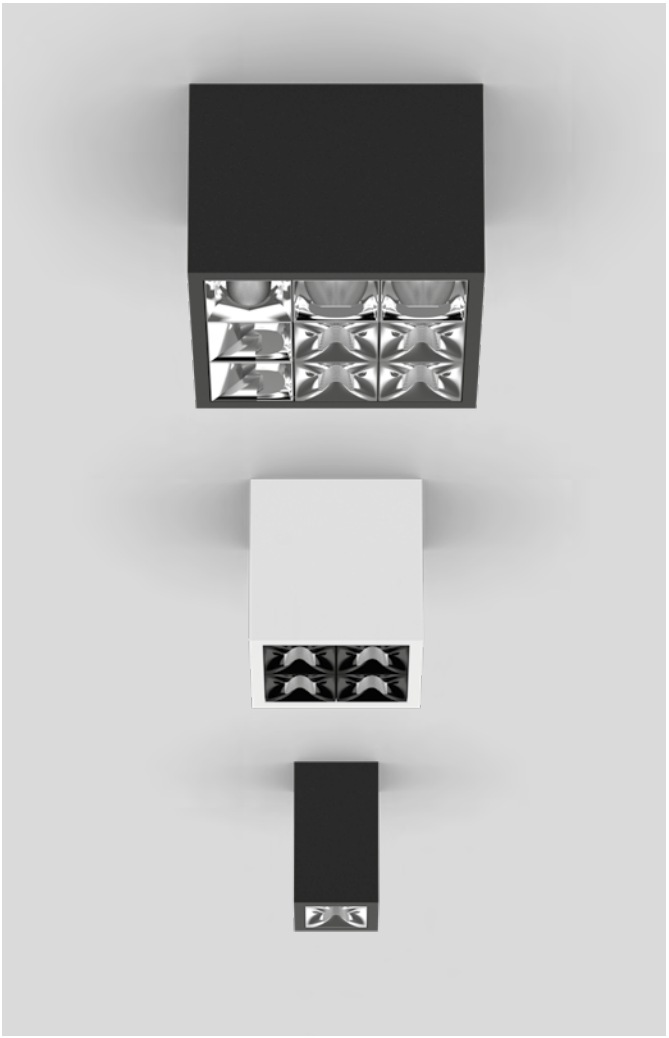
UNICO basic ceiling

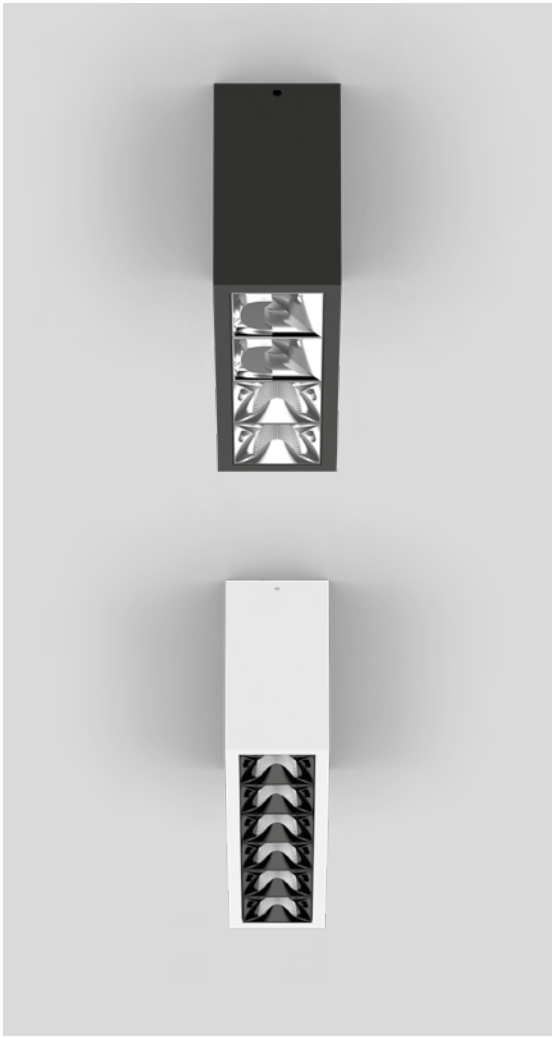
from XAL GmbH

Programme:
The International EPD® System
www.environdec.com

Programme operator:
EPD International AB

EPD registration number:	S-P-09765
Publication date:	2023-07-21
Valid until:	2028-07-20





General information

Programme information

Programme: The International EPD® System

Address: EPD International AB
Box 210 60
SE-100 31 Stockholm
Sweden

Website: www.environdec.com

E-mail: info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR):
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): PCR 2019:14 v.1.2.4 Construction products, valid until 2024-12-20, UN CPC code(s) – 46539 Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thorough-fares)

PCR review was conducted by: The Technical Committee of the International EPD® System, Chair of the PCR review: Claudia A. Peña, info@environdec.com

Life Cycle Assessment (LCA)
LCA accountability: XAL GmbH, Auer-Welsbach-Gasse 36, 8055 Graz, Austria

Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

☒ EPD verification by individual verifier

Third party verifier:
Prof. Ing. Vladimír Kočí, Ph.D., MBA
LCA Studio
Šárecká 5, 16000
Prague 6 - Czech Republic
www.lcastudio.cz

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

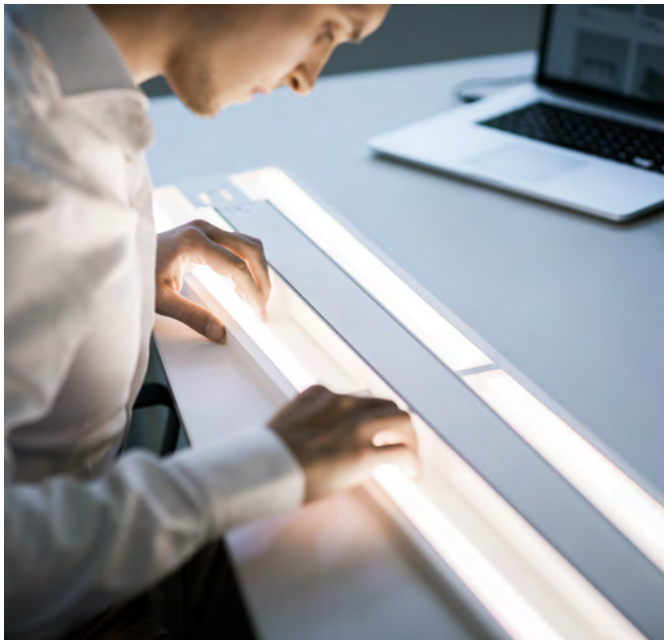
EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD

XAL GmbH
Auer-Welsbach-Gasse 36
8055 Graz
AUSTRIA

epd@xal.com



Description of the organisation

XAL is an internationally operating manufacturer of high-end luminaires and lighting solutions for shop, office, hotel and residential lighting. The headquarters of our company, which was founded in 1989, is located in Graz with production sites and sales subsidiaries in 15 countries and catering to projects worldwide.

It all begins with a passion for light. For 30 years, XAL has been working with lighting designers, architects and planner to develop custom luminaires of the highest technical standard, which impress with their style and aesthetics. There is always one goal: to push the boundaries of the technically feasible, enabling visionary designs. We can meet this challenge because our employees in our design labs as well as production and sales locations around the world deliver top performance. Being on-site for our customers is essential for mutual success. Thanks to organisational efficiency and high inhouse production depth, we can tailor our response to the needs of our customers and continuously expand our existing product portfolio. Meeting seemingly impossible challenges is our daily motivation and inspiration. From novel concept to luminaire innovation: a path created by crossing borders. SEE THE LIGHT.

Product-related or management system-related certifications

XAL is certified according to several management and CSR standards.

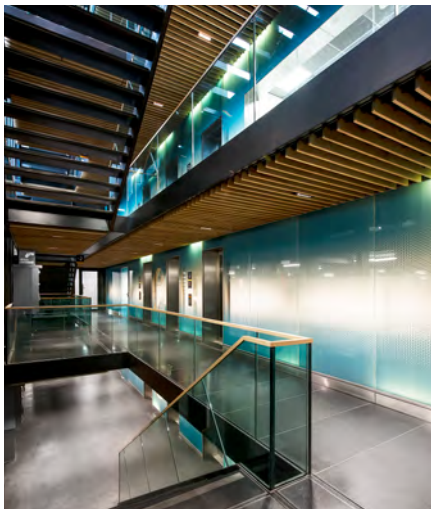
- **ISO 9001** – Quality management systems
- **ISO 14001** – Environmental management systems
- **ISO 45001** – Occupational health and safety management systems
- **Ecovadis** – regular evaluation of our corporate social responsibility based on objective criteria with a focus on the environment, labour and human rights, ethics and responsible procurement.
- **UN Global Compact initiative** – our interactions with each other and our stakeholders, our supply chain management and our resource strategies are guided by the principles of the UN Global compact.

Name and location of production site(s):

The production site is located in Murska Sobota (XAL Svetila d.o.o., Slovenia) and Austria (XAL GmbH, Austria), some parts are processed at Dongguan (To Be Lighting Co. Ltd.,China).

More information: xal.com

Product information



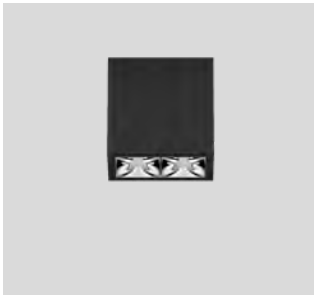
Product name

UNICO basic ceiling

Product identification

The UNICO basic ceiling is a surface-mounted multi-downlight designed with aluminum, offering two distinct shapes (rectangular and square) and varying quantities of light components.

This EPD covers the variations of the UNICO basic ceiling



L2

L3

L4

L6

Q1

Q4

Q9

Product information




Product description

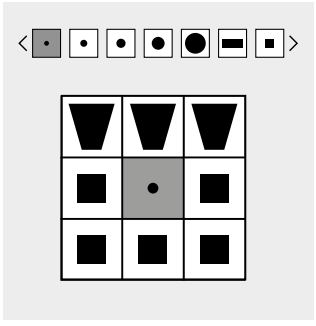
Rectangular surface mounted multi-downlight made of aluminium; equipped with two (L2), three (L3), four (L4), six (L6); or square surface mounted multi-downlight made of aluminium; equipped with one (Q1), four (Q4), nine (Q9) individually selectable or pre-specified, customised light elements; luminaire housing can be attached to mounting plate without tools by interlock; converter integrated into luminaire housing; surface powder coated; high-quality reflector with micro-faceted, aluminum-vaporised surface; precise radiation characteristic with different symmetrical light distributions; or with asymmetric light distribution; energy-efficient high power LEDs with very good colour rendering; clank-free.

The products covered by this EPD are not only thoroughly tested in our externally accredited in-house facilities but are also third-party tested: CB and ENEC are available.

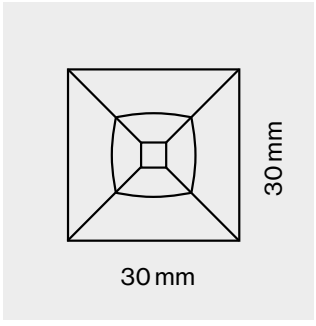
UN CPC code:

- UN CPC Version 2.1
- 46539

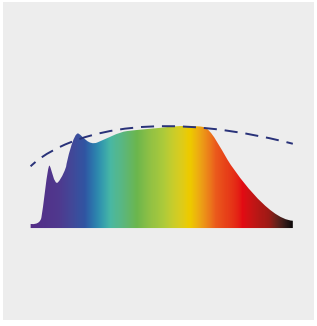
Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thorough-fares)



Intuitive configurator
Flexible configuration of the luminaire



Small and compact
Small dimensions, powerful technology



Full spectrum LED
Healthy and eye-friendly light

LCA information

Functional unit / declared unit

The declared unit is one sales unit of the UNICO basic ceiling L6 including the LED-Converter. The wall spot variants of the UNICO basic ceiling were not taken into account.

The UNICO basic ceiling variants use the same material and production technology, but there are differences in weight for the aluminium profile and packaging. Results can therefore be scaled for the variants The conversion factor for the variants is available in the Annex.

For better comparison with other types of luminaires, conversion factors are also available to convert the results to 1000 lumens during a reference lifetime of 35 000 hours. The conversion factors are available in the Annex.

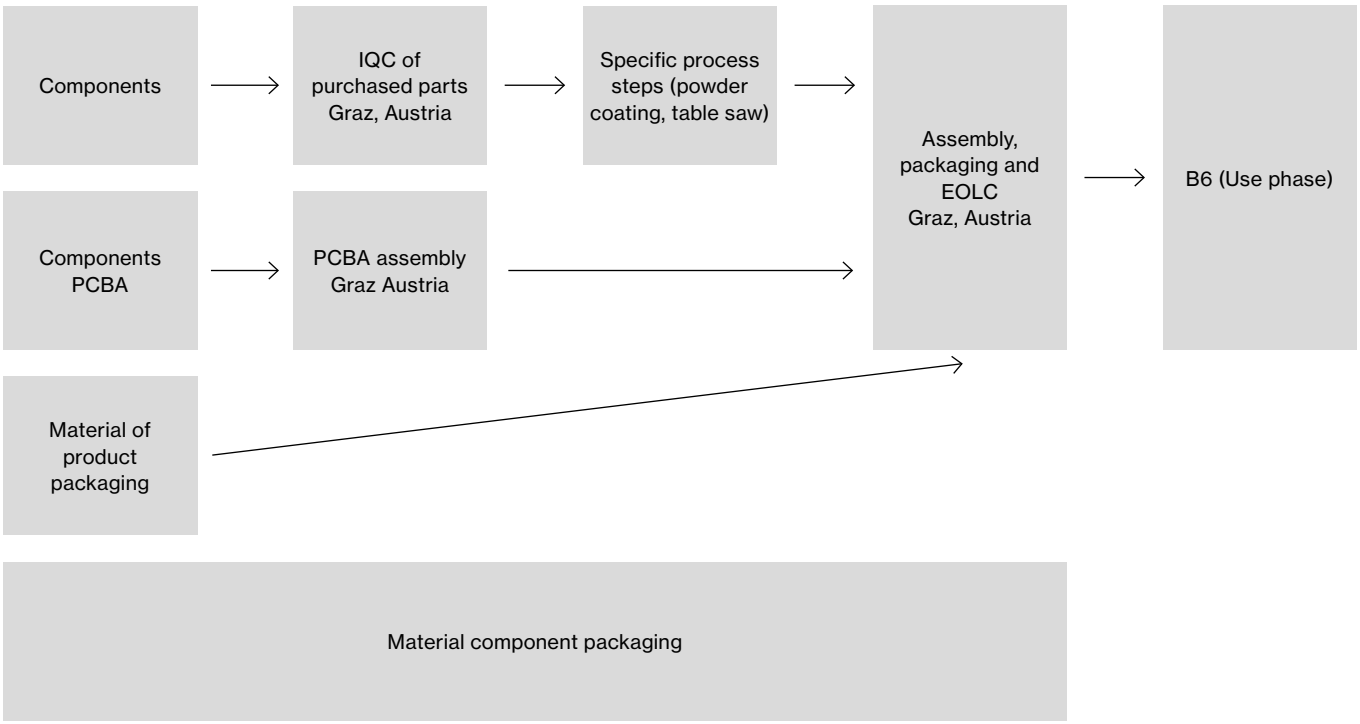
Reference service life:
13.25 years

Time representativeness: 2023

Database(s) and LCA software used:
GaBi 10.7.0.183

Description of system boundaries:
Cradle to gate with options: modules A1-A3, C1–C4, D and optional modules A4, A5 and B6.

System boundaries



Product stage (A1-A3)

Raw materials are used for the component production of the UNICO BASIC CEILING L6. Using GaBi, the raw materials and required process steps have been modeled. The acquired materials are transported to Graz, Austria, and certain parts undergo processing in Murska Sobota, Slovenia. The components required for PCBA (Printed Circuit Board Assembly) are delivered to Graz, where they are assembled. Additionally, the product assembly and packaging stages also occur in Graz. The model simulates the electricity mix specific to the processes in Murska Sobota and the assembly process in Graz. Transportation of all the components is incorporated. For the components which are delivered from China, aggregated data has been used, since transportation involved various routes and transport vehicles. Packaging for the components is accounted using a worst-case approach.

Transport to building (A4)

Transport is modelled for countries where the sales share is more than >4% and modelled to the capital cities (Vienna, Berlin, London, Zurich, Rome, Paris).

Installation into building (A5)

No emissions occur during the installation. This module includes the waste treatment of the packaging.

Use phase (B6)

Electricity consumption during the use stage is modelled based on the technical parameters of the luminaires and is representative for a weighted average of the following applications – office (50%), hospital (5%), hotel (20%), restaurant (20%), and retail (5%). Geography of the electricity mix is modelled by sales shares and is representative for European countries (88.82% - EU-28) and rest of world countries (11.18%). For the rest of world countries, an electricity mix for China is used following a worst-case approach.

End-of-life stage (C1-C4)

The UNICO basic ceiling is presumed to be decomposed manually, therefore no emissions should occur. For the corresponding waste destinations, the following distances are used:

- To recycling facility – 250 km
- To incineration facility – 50 km
- To landfill – 100 km for metal and electronic parts, 20 km for plastic parts and packaging waste

Based on official statistics and literature, waste treatment options are taken into account for Europe and rest of the world countries.

Module D

According to the guidelines of EN 15804+A2 and the PCR from EPD International, calculations are made for Module D. The loads and benefits result from the export of secondary materials and the energy which comes from incineration and landfilling. In Module D also the benefits from the product packaging waste are included.

Cut-off rules

Consistent with the PCR, a minimum of 95% of total inflows (mass and energy) are included. In addition, materials and processes with insignificant contributions of less than 1% are also included. For the use and end-of-life stage, scenarios are used, factoring in geographical conditions (such as electricity mix) and applications (waste treatment practices).

Data quality

Based on site specific information, this LCA study reflects the production for 2022. Components are supplied by external vendors, therefore manufacturing processes are modelled using GaBi, with the best fitting representative geographical conditions and applications.

Electricity grid

For processing in Graz, Austria and Murska Sobota, Slovenia and assembly in Graz, the corresponding electricity grid mix as stated on the invoice is used:

For Murska Sobota, Slovenia, the corresponding electricity grid mix is: coal (46.27%), natural gas (19.11%), nuclear power (12.47%), hydro (10.23%), other fossils (6.42%), solar (2.43%), bioenergy (1.98%), oil (0.73%) and wind (0.36%)

For Graz, Austria, the corresponding electricity grid mix is: hydro (87.3%), wind (8.4%), solar (2.0%), biomass (1.4%) and other RE (0.9%)

Modules declared, geographical scope, share of specific data (in GWP-GHG results) **and data variation** (in GWP-GHG results)

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	x	x	x	x	x						x		x	x	x	x	x
Geography	GLO	GLO	AUT, SLO	RER	RER RoW						RER RoW		RER RoW	RER RoW	RER RoW	RER RoW	RER RoW
Specific data used	>90% GWP-GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10% GWP-GHG difference between product versions					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-
Acronyms	GLO = Global, RER = Europe, RoW = Rest of the World, AUT = Austria, SLO = Slovenia																

Content information

Product components	Weight, kg	Weight-% (versus total weight)	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Aluminium	4.39E-01	56.86%	20%	0%
Copper (unspecified)	9.58E-02	12.41%	0%	0%
Steel	6.94E-02	8.99%	25%	0%
Polycarbonate	4.10E-02	5.31%	0%	0%
Polymer materials (unspecified)	3.62E-02	4.68%	0%	0%
Water (fresh)	2.71E-02	3.51%	0%	0%
Iron	1.89E-02	2.44%	0%	0%
Inert rock	1.85E-02	2.40%	0%	0%
Epoxid-Polyester	1.00E-02	1.30%	0%	0%
Copper	6.49E-03	0.84%	0%	0%
Silicone	2.40E-04	0.03%	0%	0%
Inorganic flame retardants	4.60E-03	0.60%	0%	0%
Polyvinyl chloride (PVC)	2.92E-03	0.38%	0%	0%
Plastic	1.11E-03	0.14%	0%	0%
Hard coal	2.84E-04	0.04%	0%	0%
Silicone rubber	1.53E-04	0.02%	0%	0%
TOTAL	7.77E-01	100.00%	13.53%	0%

Packaging materials	Weight, kg	Weight-% (versus total weight)	Weight biogenic carbon, kg C/kg
Paper	1.34E-02	1.73%	7.36E-03
PET	3.14E-02	4.06%	-
Corrugated paper	1.50E-01	19.43%	1.45E-01
Wood	1.95E-01	25.21%	3.07E-04
TOTAL	3.89E-01	50.44%	19.73%

The products do not contain any REACH and RoHS SVHC substances in amounts greater than 0.1% (1000 ppm).

Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	1,67E+01	7,28E-01	4,60E-01	1,79E+01	1,66E-01	4,33E-02	5,01E+02	0,00E+00	1,69E-02	-1,03E-01	4,29E-03	-3,29E+00
GWP-biogenic	kg CO_2 eq.	-2,60E-01	-4,53E-04	-2,79E-05	-2,60E-01	-3,13E-01	4,08E-01	3,73E+00	0,00E+00	-2,37E-04	-4,59E-04	-4,92E-05	-1,70E-01
GWP-luluc	kg CO_2 eq.	8,49E-03	5,77E-04	2,92E-05	9,10E-03	8,65E-04	7,70E-05	6,53E-02	0,00E+00	1,55E-04	1,77E-05	4,21E-06	-5,25E-04
GWP-total	kg CO_2 eq.	1,64E+01	7,28E-01	4,60E-01	1,76E+01	-1,46E-01	4,51E-01	5,05E+02	0,00E+00	1,69E-02	-1,04E-01	4,24E-03	-3,46E+00
ODP	kg CFC 11 eq.	1,87E-10	6,97E-14	4,66E-12	1,92E-10	1,57E-14	5,01E-14	7,43E-09	0,00E+00	1,47E-15	-7,68E-14	6,84E-15	-2,92E-12
AP	mol H^+ eq.	9,00E-02	4,24E-03	6,70E-04	9,49E-02	6,30E-04	6,20E-05	1,83E+00	0,00E+00	2,41E-05	-1,34E-02	1,33E-05	-1,09E-02
EP-freshwater	kg P eq.	1,07E-04	3,22E-07	3,07E-07	1,08E-04	3,89E-07	5,43E-07	1,53E-03	0,00E+00	6,12E-08	1,45E-07	3,76E-09	-1,62E-06
EP-marine	kg N eq.	1,44E-02	1,60E-03	1,42E-04	1,61E-02	2,64E-04	2,73E-05	3,07E-01	0,00E+00	8,85E-06	-6,35E-04	3,34E-06	-1,98E-03
EP-terrestrial	mol N eq.	1,54E-01	1,75E-02	1,52E-03	1,73E-01	2,39E-03	2,66E-04	3,27E+00	0,00E+00	1,05E-04	-6,83E-03	3,67E-05	-2,16E-02
POCP	kg NMVOC eq.	4,32E-02	4,37E-03	4,24E-04	4,80E-02	1,06E-03	8,12E-05	8,81E-01	0,00E+00	2,11E-05	-2,36E-03	1,05E-05	-5,86E-03
ADP-minerals & metals*	kg Sb eq.	9,39E-04	6,79E-09	6,13E-08	9,39E-04	2,84E-08	1,00E-09	7,60E-05	0,00E+00	1,08E-09	-2,91E-04	1,14E-10	-1,44E-07
ADP-fossil*	MJ	1,85E+02	1,01E+01	5,44E+00	2,01E+02	2,50E+00	2,53E-01	8,96E+03	0,00E+00	2,28E-01	-3,47E+00	6,20E-02	-4,45E+01
WDP*	m^3	3,91E+00	1,20E-03	1,13E-02	3,92E+00	3,37E-02	6,59E-03	1,02E+02	0,00E+00	1,93E-04	-6,74E-02	-5,63E-05	-1,95E-01

Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential. Accumulated Exceedance; EP-freshwater = Eutrophication potential. fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential. fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential. Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential. deprivation-weighted water consumption

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq.	1,61E+01	7,28E-01	4,60E-01	1,73E+01	-4,59E-01	4,30E-02	5,01E+02	0,00E+00	1,67E-02	-1,04E-01	4,19E-03	-3,63E+00
PM	disease inc.	1,66E-06	3,75E-08	4,65E-09	1,70E-06	7,39E-09	7,99E-10	3,51E-05	0,00E+00	1,94E-10	-1,10E-07	1,44E-10	-1,14E-07
IRP_HE**	kg U235-EQ	4,50E-01	6,26E-04	2,21E-02	4,73E-01	3,26E-04	1,29E-03	1,11E+02	0,00E+00	4,27E-05	7,53E-03	1,07E-04	-6,86E-01
ETP-fw*	CTUe	2,23E+02	5,41E+00	1,02E+00	2,29E+02	9,99E-01	1,65E-01	3,31E+03	0,00E+00	1,59E-01	-6,75E-01	1,76E-02	-1,48E+01
HTP-c*	CTUh	2,11E-07	9,27E-11	3,27E-10	2,11E-07	9,81E-11	6,53E-12	1,82E-07	0,00E+00	3,24E-12	-1,56E-10	2,18E-12	-1,45E-09
HTP-nc*	CTUh	2,62E-05	3,80E-09	1,37E-09	2,62E-05	5,88E-09	4,33E-10	4,46E-06	0,00E+00	1,72E-10	-3,25E-09	2,17E-10	-3,12E-08
SQP	dimension-less	3,11E+01	3,72E-01	1,36E+00	3,28E+01	5,34E-01	7,05E-02	3,44E+03	0,00E+00	9,52E-02	-2,16E-02	5,79E-03	2,49E+01

Acronyms	PM = particulate matter emissions. IRP-HE = ionizing radiation potential-human exposure. ETP-fw = ecotoxicity (freshwater). HTP-c = human toxicity potential. cancer effects. HTP-nc = human toxicity potential. non-cancer effects. SQP = land use related impacts

[1] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of resources

Results per functional or declared unit

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	MJ	3,92E+01	8,68E-02	9,63E+00	4,89E+01	9,96E-01	4,16E-02	5,29E+03	0,00E+00	1,61E-02	-2,35E-01	5,57E-03	-1,00E+01
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,92E+01	8,68E-02	9,63E+00	4,89E+01	9,96E-01	4,16E-02	5,29E+03	0,00E+00	1,61E-02	-2,35E-01	5,57E-03	-1,00E+01
PENRE	MJ	1,85E+02	1,01E+01	5,44E+00	2,01E+02	2,50E+00	2,54E-01	8,96E+03	0,00E+00	2,29E-01	-3,47E+00	6,20E-02	-4,46E+01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,85E+02	1,01E+01	5,44E+00	2,01E+02	2,50E+00	2,54E-01	8,96E+03	0,00E+00	2,29E-01	-3,47E+00	6,20E-02	-4,46E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m³	1,10E-01	9,58E-05	6,32E-03	1,16E-01	7,53E-04	1,73E-04	3,07E+00	0,00E+00	1,78E-05	-1,84E-03	6,98E-07	-2,82E-02

Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

Waste production and output flows

Waste production

Results per functional or declared unit

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,57E-06	1,19E-11	-1,12E-09	2,57E-06	3,81E-10	4,59E-11	4,76E-07	0,00E+00	8,46E-13	5,85E-09	5,12E-12	-1,14E-08
Non-hazardous waste disposed	kg	2,16E+00	4,67E-04	4,30E-03	2,16E+00	6,44E-03	4,69E-02	7,28E+00	0,00E+00	3,30E-05	2,39E-01	8,88E-02	-7,23E-01
Radioactive waste disposed	kg	3,82E-03	4,47E-06	3,37E-04	4,16E-03	2,41E-06	7,94E-06	1,19E+00	0,00E+00	2,96E-07	2,45E-05	7,21E-07	-3,13E-03

Output flows

Results per functional or declared unit

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,06E-01	0,00E+00	0,00E+00	0,00E+00	4,26E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,92E-02	0,00E+00	0,00E+00	0,00E+00	5,75E-02	0,00E+00	0,00E+00
Exported energy. electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy. thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Additional environmental information

Reference service life (per application)

	Office	Hospital	Hotel	Restaurant	Retail
RSL, years	50%	5%	20%	20%	5%

Use phase (B6)

Scenario	UNICO basic ceiling L6	Unit
Electricity use (14 years)	1,330.38	kWh
Active power	28.70	W
Passive power	0.20	W
Total active time	45,500	hours
Total passive time	77,140	hours
Dimmable	Non-dimmable, DALI-2 control	-
Presence control	No	-

End-of-Life (C1-C4)

Scenario (product)	UNICO basic ceiling L6	Unit
Collected separately	7,72E-01	kg
Collected with mixed (construction) waste	0.00E+00	kg
For reuse	0.00E+00	kg
For recycling	4,89E-01	kg
For energy recovery	5,75E-02	kg
For final disposal	2,26E-01	kg

Module D

Scenario (contributing materials, incl. packaging)	UNICO basic ceiling L6	Unit
Materials for recycling	5.97E-01	Unit
Materials for export of secondary fuels	0.00E+00	kg
Materials for incineration	8.39E-02	kg
Materials for landfilling	0.00E+00	kg

Annex

The conversion factors can be used for the variants of the UNICO basic ceiling and for converting the results to 1000 lumens during a reference life of 35000 hours. There are various reflector variants available, with the wide flood round being used for calculating the conversion table. The variants use the same materials and components. For this reason, the increase of environmental impact can be scaled using the given conversion factors.

Results for 1 sales unit of UNICO basic ceiling luminaire

UNICO basic ceiling	A1 – A3: Production	A4: Transport	A5: Installation	B6: Use stage	C1-C4: End of life	D: Resource – recovery
L6	1.00	1.00	1.00	1.00	1.00	1.00
L2	0.43	0.43	0.43	0.19	0.43	0.43
L3	0.71	0.71	0.71	0.47	0.71	0.71
L4	0.86	0.86	0.86	0.61	0.86	0.86
Q1	0.29	0.29	0.29	0.06	0.29	0.29
Q4	0.71	0.71	0.71	0.51	0.71	0.71
Q9	1.14	1.14	1.14	1.43	1.14	1.14

Results for 1000 lumens during a reference life of 35000 hours produced by UNICO basic ceiling luminaire

UNICO basic ceiling	A1 – A3: Production	A4: Transport	A5: Installation	B6: Use stage	C1-C4: End of life	D: Resource – recovery
L6	0.38	0.38	0.38	0.32	0.38	0.38
L2	1.12	1.12	1.12	0.94	1.12	1.12
L3	0.61	0.61	0.61	0.52	0.61	0.61
L4	0.59	0.59	0.59	0.50	0.59	0.59
Q1	2.45	2.45	2.45	2.07	2.45	2.45
Q4	0.67	0.67	0.67	0.56	0.67	0.67
Q9	0.33	0.33	0.33	0.28	0.33	0.33

References

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EN 15804:2012+A2:2029 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products

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ISO 14025:2006 - Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO 14040 Environmental management – Life cycle assessment – Principles and framework

ISO 14044 Environmental management – Life cycle assessment – Requirements and guidelines

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Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)

European court of auditors, EU actions and existing challenges on electronic waste, Review No. 4, 2021

Photos

p. 2 **Granitlab Coworking**
St. Martin im Mühlkreis, AT –
by GHT-Plan GmbH with lighting design
by GHT-Plan GmbH, AREA C.I. Design GmbH
Photography by Kurt Kuball

p. 4 **John&Audrey Group**
Dusseldorf, DE – by VONKLIPSTEIN with lighting design by ORB. Atelier für Lichtgestaltung
Photography by Nathalie Zimmermann Fotografie

Babylon
Den Haag, NL – by Studio Linse
Photography by Kris Dekeijser

Granitlab Coworking
St. Martin im Mühlkreis, AT –
by GHT-Plan GmbH with lighting design
by GHT-Plan GmbH, AREA C.I. Design GmbH
Photography by Kurt Kuball