Quad Pixel

Environmental Product Declaration

EPD of multiple products, based on a representative product (Power-rating 15W, 31W, 45W)
Product dimensions: Height: 110mm, Width: 595mm

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021
ateljé Lyktan AB, Fyrvaktaregatan 7, SE-296 35, Sweden

Programme:	The International EPD® System, www.environdec.com
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	An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

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:	support@environdec.com

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR2019-14 Construction products v2.0.1 and UN CPC code(s) 4653 Together with EN 15804:2012+A2:2019
PCR review was conducted by: *The Technical Committee of the International EPD® System.* *Review chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via support@environdec.com.*

Verification

External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via EPD verification through: ☒ Individual EPD verification without a pre-verified LCA/EPD tool ☐ Individual EPD verification with a pre-verified LCA/EPD tool ☐ EPD process certification* without a pre-verified LCA/EPD tool ☐ EPD process certification* with a pre-verified LCA/EPD tool ☐ Fully pre-verified EPD tool
Third-party verifier: Viktor Hakkarainen, CHM Analytics AB, Viktor.hakkarainen@chm-analytics.com *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 programs, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

The LCA approach harmonizes with the Product Category Rules for building products, PCR 2019:14 v2.0.1. The Life Cycle Assessment report (Roos, 2025) is available to EPD-auditor on request and include all the detailed information required according to ISO 14044 (ISO, 2006b).

Company information

Owner of the EPD
ateljé Lyktan AB

Contact
Rasmus Nilsson, rasmus.nilsson@ateljelyktan.se

Description
Ateljé Lyktan develops, produces and markets lighting products – with a focus on energy efficiency, sustainability and circularity. We design our products to be used, upgraded and reused in a well-thought-out and flexible way. We make it possible to extend the life of the product by upgrading both hardware and software. The company was founded in 1934. The head office and factory are located in Åhus, located on the shores of the Baltic Sea in the southern Sweden.

Name and location of production site(s)
Ateljé Lyktan AB, Fyrvaktaregatan 7, SE-296 35, Sweden

Product-related or management system-related certifications
ateljé Lyktan AB is certified according to ISO 9001 and ISO 14001. All products are produced in accordance with the requirements for CE-marking.

Product information

Product name
Quad Pixel

Product identification
Quad Pixel, Height 110mm, width 595mm,

Product description
Quad Pixel is a lighting luminaire for offices, showrooms and other open spaces. Placed on ceiling or walls, with ideal placement being high level open exposed ceilings or walls.

Quad Pixel is designed for a new reality—where visual comfort, contrast reduction, and glare control are non-negotiable. With a carefully balanced light distribution and advanced side-lighting, it enhances the ceiling plane and creates a soft transition between luminaire and surface. Quad is an elegant ceiling luminaire with a decorative lacquered decoration ring to enhance the shape. Quad provides an even and well-dimmed light.

Including LED light source with colour temperature of 3000K or 4000K, a CRI 90 colour rendering and SDCM 3. Lifetime LED L100 100

Equipped with LED driver that regulate the light with amplitude modulation creating a flicker-free light. Dimming 10-100%. The luminaire is delivered as standard with pre-programmed Constant Lumen Output.

Integrated base/ceiling plate in partly recycled (30%) injection-moulded ABS/PC. Injection-moulded light cone in frosted acrylic glass (PMMA). Bracket for LED in aluminium. Frame in steel. Diffuser in acrylic glass (PMMA). The materials are recyclable.

For this report, the system studied was the life cycle of Quad Pixel, cradle to grave, and its function is to act as a light source in an office environment. The representative product for this report is the Quad Pixel version with a height of 110mm, a width of 595mm, a weight of 4,10 kg that is used for 20 years (and 2500 hours per year) with a power-rating of 13W and a luminous flux of 1500lm.

The results will represent the baseline luminaire with a power-rating 13W and luminous flux of 1500lm. However, conversion factors can be calculated that enable converting the results for the use phase into environmental impacts for the other variations with a power-rating of 31W and 45W, see Summary and Additional Environmental Information.

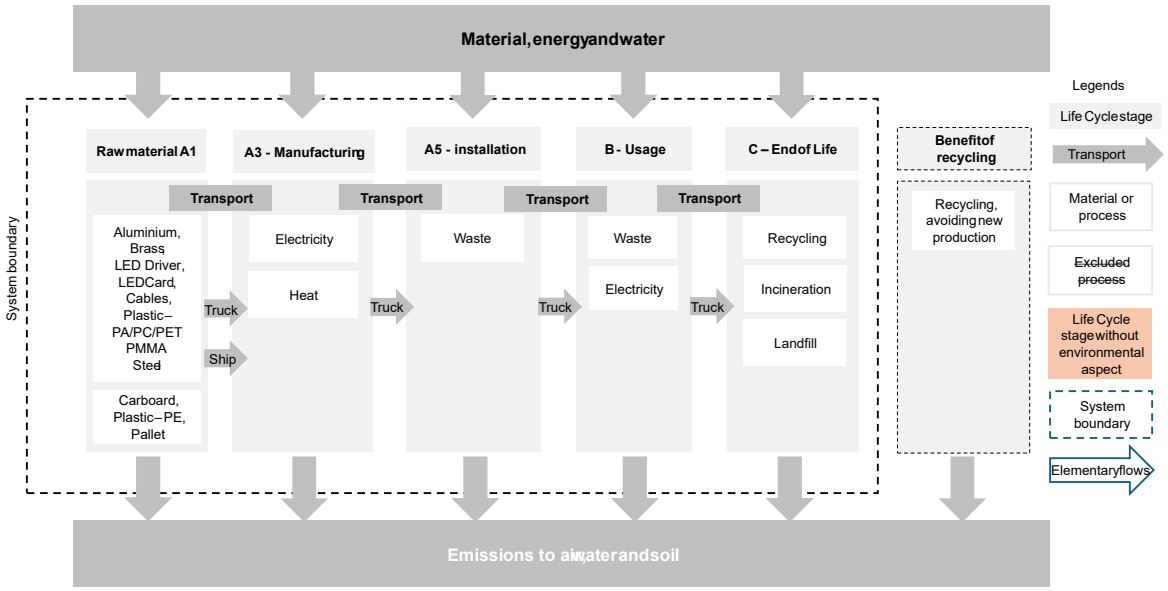
LCA information

Declared Unit	**One (1) Quad Pixel luminaire with the width 595mm, height 110mm, and a weight of 4,10 kg used for 20 years (and 2500 hours per year) with a power-rating of 13W and a luminous flux of 1500lm.**
Function	Office light during the lifetime of one luminaire.
Technical Lifetime	Minimum of 50 000 of operating hours. Implies that no parts needs to be replaced during the assumed lifetime, which therefore gives a Reference Service Life (RSL) of 20 years.
Product group classification	UN CPC 4653
Goal and Scope	Understanding the product's environmental impact during the life cycle, for internal product development to reduce the impact but also to our stakeholders when selecting luminaires.
Audience	Primarily purchasers of luminaires but also lighting installers, lighting designers, architects and constructors.
Manufacturing Site	Ateljé Lyktan, Åhus, Sweden.
Geographical Area	Results represent Sweden. The product's main market is Europe.
Compliant with	This EPD follows the "Book-keeping" LCA approach which is defined as attributional LCA in the ISO 14040 standard. In accordance with ISO 14025, ISO 14040 – ISO 140 44 and EN 15804:2012+A2:2019 This EPD follows the Product Category Rules PCR2019-14 Construction products v2.0.1
Cut-Off Rules	The following procedure is followed for the exclusion of inputs and output: - Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts shall be included - Infrastructure/capital goods have been excluded in this assessment except for direct electricity-datasets that's been used. The chosen electricity-datasets has therefore been modelled with system-processes to still capture the impact caused by infrastructure/capital goods as infrastructure are deemed to be of importance in electricity-datasets. A screening and expert judgement showed that the following aspects contribute less than 1% and could be cut-off: - Various supplier packaging - Manufacturing waste - Energy and material use in installation
Background data	The data quality is considered fair. All site-specific data for raw materials, auxiliary materials as well as energy and emissions in the manufacturing process is from 2024 and have been represented with Ecoinvent datasets. All other relevant environmental aspects have been represented by generic Ecoinvent data. Ecoinvent is a LCI (Life cycle inventory) data library. Ecoinvent contains data for the specific geographical regions relevant for this study. The background data from Ecoinvent 3.10 are from 2017-2023. EN 15804 reference package 3.1 has been used.
Foreground data - primary	Weight of articles and composition of raw materials and supplied EPDs for steel raw materials. Suppliers' location for transport and some specific data on energy and material use Packaging, rest materials, electricity, heat and waste.
Electricity data	Electricity consumption in the A3 module is GoO-certified hydro power and B6 electricity is represented by data for national production mix in Ecoinvent 3.10 regionalized for Sweden.
Allocations	Polluter Pays / Allocation by Classification One allocation rule is applied: the energy and fuel necessary for the manufacture is allocated in kWh by production of the declared unit
Impact Assessment methods	Potential environmental impacts are calculated with Environmental Footprint 3.1 method as implemented in SimaPro 10.2 Resource use values are calculated from Cumulative Energy Demand V1.12.

Based on LCA Report	Miljögiraff LCA Report 1667 Quad Pixel - (Roos, Miljögiraff AB, 2025)
Software	SimaPro 10.2

System diagram

This study has system boundaries of type b, cradle-to-gate with options, modules C1-C4 + D and with optional module (A1-A3 + C + D and additional modules A4-A5 and B1-B7). That means that all processes needed for raw material extraction, manufacturing, transport, usage and end-of-life are included in the study. All modules (A1-D) are declared, although some modules (B1-B5 and B7) do not have any environmental aspects. Infrastructure is excluded except for the energy modelled with primary data in the EPD.



Detailed information on Life cycle

(A1-A2) Primary data have been gathered by ateljé Lyktan from their main suppliers of plastic and metal components, which reflects their type and amount of electricity use. For the one of the steel components, EPDs has been gathered from its two suppliers, SSAB, EPD: *EPD-S-P-01920,* and Voestalpine, EPD: *EPD-VOE-20220069-IBA1-EN*. Suppliers are located in Europe and transport of raw materials are done by truck from suppliers' sites to ateljé Lyktan's manufacturing site in Åhus.

(A3) ateljé Lyktan's manufacturing takes place in Åhus, Sweden, where the components or product are sawed into the desired size, drilling of holes and manual assembly of the armature and the electronic components. During this process electricity is used. The finished products are then packaged into boxes, then palletized before being sent to customers.

The electricity mix for ateljé Lyktan's manufacturing has been modelled using hydro-power electricity for Sweden according to certifications. This is represented using the ecoinvent dataset "*Electricity, high voltage {SE}| electricity production, hydro, run-of-river | Cut-off, S*". The carbon footprint of the electricity mix is 4,36 g $CO_{2\text{-eq}}$ per kWh. Allocation of specific data was done for the manufacturing processes in the A3 module. All the data was obtained per year and allocated by number of produced Quad Pixels compared to the total yearly production of luminaires.

(A4) ateljé Lykan's main customers are located in southern and middle parts of Sweden, and therefore Stockholm was used as approximation to represent the location of the company's main customers. The finished products are therefore transported a distance of 560 km to customers from ateljé Lykan's facility located in Åhus to Stockholm. This was represented by the ecoinvent dataset "*Transport, freight, lorry 16-32 metric ton, EURO6 {RER}| transport, freight, lorry 16-32 metric ton, EURO6 | Cut-off, U*".

Other mandatory information from table 10 from section 7.3.2.1 in EN15804+A2 is declared here:

- Fuel type and amount: diesel, 0,0366 per tkm,
- Capacity utilization: ca 50%
- Bulk density of transported goods: ca 400 kg/m3
- Volume capacity utilization factor: <1

(A5) Installation of the product is assumed to occur in a way that has no environmental impact, e.g. by hand. What is considered for the installation is the waste treatment of the packaging materials that comes with the product, which follows the end-of-life treatment in module C.

(B1-B7) It is assumed that there are no significant environmental aspects during the installation of the products, but as the products are a luminaire to be used to illuminate an office space, the products electricity use will be accounted for in module B4. For the use phase, the luminaire is assumed to be installed in Sweden (ateljé Lyktan's main market) in an office environment. The lifetime energy consumption of 650 kWh was calculated by multiplying the reference service life (RSL=20 years) with the number of use hours per year (2500 hours in an office environment, according to EN15193) and the power draw of Quad Pixel (13W). The energy source was average electricity on the Swedish grid (37,5 g CO_2-eq/kWh), which was modelled with the ecoinvent database "*Electricity, low voltage {SE}| market for electricity, low voltage | Cut-off, S"*.

(C1-C4) After use the product is transported to waste processing. In the C module, default values provided by the PCR 2019:14 v.2.0.1 were used for demolition/deconstruction (C1) as no specific data was obtained. The default values for transport distances to waste treatment (C2) were also used, 80 km for materials not to be incinerated and 130 km for materials to be incinerated. The transport is modelled using the ecoinvent 3.10 dataset "*Transport, freight, lorry 16-32 metric ton, EURO5 {RER}| transport, freight, lorry 16-32 metric ton, EURO5 | Cut-off, U*".

Other mandatory information from table 10 from section 7.3.2.1 in EN15804+A2 is declared here:

- Fuel type and amount: diesel, 0,0375 per tkm,
- Capacity utilization: ca 50%
- Bulk density of transported goods: ca 400 kg/m3
- Volume capacity utilization factor: <1

Since the majority of customers exists in Sweden, the relevant end-of-life scenario has been represented with a Swedish case. As this scenario is a mix of recycling and incineration, a 100% scenario for each waste scenario will also be declared as per PCR rules. The results for the 100% scenarios can be found in "Additional LCA results".

For the waste treatment (C3), the raw materials follow the collection and recovery rate according to recycling rates (R2) used in the Circular footprint formula of PEF, as found in Annex C2. The environmental impact from recycling is not considered following the cut-off approach applied. The remaining waste follows the Swedish average scenario stated in PEF Annex C, meaning that 99% of the materials are sent to incineration, and 1% going to landfilling.

Instead of declaring table 15 from section 7.3.4 in EN15804+A2, the relevant information is included here: The amount of waste collected separately is the entire weight of the product (see content declaration).

The amount of materials (in kg) collected for recycling can be found in the indicator "Materials for recycling" in module C3 under the Output flow indicators under the section for Environmental performance. The amount of materials (in kg) collected for energy recovery is 3,38 kg. The amount of materials (in kg) collected for disposal (sanitary landfill) is 0,034 kg.

(D) Module D accounts for the potential environmental benefits or burdens resulting from material recycling and energy recovery during incineration.

Data quality summary according to EN 15491:

The EPD is based on data collected by ateljé Lyktan from their site in Åhus, Sweden during the year 2024. The EPD is representative of the production of Quad Pixel produced in Åhus, Sweden and data are collected directly from supplier and production site. The end-of-life stage of the EPD covers Sweden. The EPD uses representative secondary data from the Ecoinvent database, version 3.10, for the period 2011-2024, and EPD data for the steel raw material. Primary data was gathered from main suppliers of plastic components, which correspond to the largest weight of the product. The quality of the relevant data used for the EPD in terms of its time, geography and technology representativeness using EN 15804:2012+A2:2019, Annex E, E.1 is "Very good" or "Good".

One process in total was scored as "Poor" for technology, which corresponded to assembly of electronics components in upstream processes at suppliers. In this instance available dataset was used to represent assembly of LED-strip from supplier, which corresponded to average global market dataset. No further improvements were done for the model due to limited availability of high-quality datasets for production of electronic components and equipment's, as well as limitation in gathering information from supplier due to sensitive nature of their production data. Process used to represent assembly of LED also scored as "Fair" for geography, but no adjustments was performed due limited understanding of primary production settings of upstream suppliers. Similarly, copper materials acquired in the upstream processes to be used in electronics was scored as "Fair" for geography and technology due to being based on average market material. No further adjustments were made as primary data from suppliers was limited on second tier suppliers and specific type of upstream production methods. No process scored as "Fair" for time, geography and technology representativeness, contributed to more than 30% to any declared environmental indicator results.

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

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	X	X	X	X	X	X
Geography	Europe	Europe	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Share of primary data, %	3,5%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation products, %	No variation			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation site, %	No variation																

Modules declared: (X = included; ND = not declared), geographical scope, share of primary data (in GWP-GHG indicator) EPD modules included (RS = representative secondary data, P = primary data).

Process	Source type	Source	Reference year	Data category	Contribution to GWP-GHG result A1-A3 (including raw materials from ecoinvent)	Share of primary data of GWP-GHG results for A1-A3
Transport of raw materials/components to core manufacturing	Collected data	EPD owner	2024	Primary data	1,0%	0,0%
Core manufacturing	Collected data	EPD owner	2024	Primary data	3,6%	0,3%
Base component	Collected data	Supplier, Database	2024	Primary data, Representative secondary data	22%	1,6%
Steel component (Cover-ring outside)	Collected data	Supplier, Database	2024	Primary data, Representative secondary data	1,4%	0,6%
Cone component	Collected data	Supplier, Database	2024	Representative secondary data	15,8%	1,0%
Anti-glare component	Generic data	Database	2023	Representative secondary data	20%	0%
LED component	Collected, Generic data	Supplier, Database	2011–2022	Representative secondary data	16%	0%
Aluminium component	Generic data	Database	2023	Representative secondary data	11%	0%
Other component and processes	Generic data	Database	2015–2022	Representative secondary data	10%	0%
Total share of Primary data of GWP-GHG results for A1-A3						3,5%

Share of primary data has been calculated according to the rules defined in the PCR. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories

More specifically it has been calculated for the GWP-GHG indicator using the Sankey Diagram-function in SimaPro and checking the input and output-flows of every process taking place in modules A1-A3. The energy used in manufacturing (A3) and supplier-specific processes (A1), has been considered as primary data while all other data is considered as representative or proxy data. If an EPD has been used as input, its stated share of primary data has been used. The variation of products shows how the GWP-GHG climate impact indicator varies for the included products for the modules A1-A3. As seen in the table for modules declared, there is no variation in results between the products in modules A1-A3 as they all contain the same weights and components, and the only difference between the products is the energy used in the use phase. If one only studies the use-phase the climate impact scales linearly with the conversion factor.

Content and life cycle information

The following table shows the material content of the Quad Pixel luminaire and the percentage of recycled and biogenic material in the product, for the representative product with a width of 595mm, a height of 110mm, a weight of 4.10kg, a luminous flux of 1500lm and a power-rating of 13W. One of the steel suppliers claims that 25% of its raw material is recycled material, however it is not known if this share reflects pre- or post-consumer recycled material. The steel is therefore presented as having 0% post-consumer recycled material to give a conservative representation.

Product components	**Weight (kg)**	**Post-consumer material, weight-%**	**Biogenic material**	
			Weight -%	**Kg C/product**
Aluminium	0,51	0,0%	0,0%	0,0%
Cable	0,19	0,0%	0,0%	0,0%
Driver	0,23	0,0%	0,0%	0,0%
LED Strip	0,11	0,0%	0,0%	0,0%
Plastics (PC)	0,73	0,0%	0,0%	0,0%
PMMA	0,86	0,0%	0,0%	0,0%
Rubber	1,3	0,0%	0,0%	0,0%
Steel	0,17	0,0%	0,0%	0,0%
Other	0,033	0,0%	0,0%	0,0%
Total	4,10	0,0%	0,0%	0,0%
Packaging materials	**Weight (kg)**	**Weight-% (versus the product)**	**Biogenic material**	
			Weight -%	**Kg C/product**
Cardboard	1,1	27%	100%	0,500
Pallet	0,023	1%	100%	0,010
Total	1,1	28%	100%	0,510
Dangerous substances from the candidate list of SVHC for Authorisation	**EC No.**	**CAS No.**	**Weight-% per functional or declared unit**	
(No dangerous substances exceeding 0,1 wt%)				

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO2.

The majority of the product weight comes from rubber (ABS), plastic (PC), polymethyl methacrylate (PMMA), aluminum, and electronic components, including a Driver, LED strip and various cables.

Environmental information

All results are for the representative product Quad Pixel with a width of 595mm, a height of 110mm, a weight of 4,10 kg that is used for 20 years (and 2500 hours per year) with a power-rating of 13W and a luminous flux of 1500lm. To see results for the Quad Pixel variations with different power-ratings, see conversion factors under Summary and Additional Environmental Information. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. See disclaimers below.

Potential environmental impact – mandatory indicators according to EN 15804

Results per declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-Total	kg CO_2 eq.	3,3E+01	4,4E-01	1,9E+00	0	0	0	0	0	2,4E+01	0	4,2E-04	7,7E-02	9,1E+00	8,9E-03	-3,0E+00
GWP-Fossil	kg CO_2 eq.	3,5E+01	4,4E-01	2,3E-02	0	0	0	0	0	2,2E+01	0	4,2E-04	7,7E-02	9,0E+00	2,0E-03	-3,0E+00
GWP-Biogenic	kg CO_2 eq.	-1,8E+00	1,7E-05	1,9E+00	0	0	0	0	0	4,3E-01	0	1,8E-08	2,9E-06	1,1E-04	6,9E-03	4,2E-02
GWP-LULUC	kg CO_2 eq.	1,2E-01	1,1E-05	1,1E-05	0	0	0	0	0	2,4E+00	0	1,5E-08	1,9E-06	1,6E-04	2,6E-08	-9,5E-02
ODP	kg CFC 11 eq.	5,4E-07	9,0E-09	4,2E-10	0	0	0	0	0	6,4E-07	0	6,7E-12	1,6E-09	3,0E-09	9,8E-12	-3,8E-08
AP	mol H^+ eq.	3,5E-01	5,2E-04	1,2E-04	0	0	0	0	0	2,6E-01	0	4,0E-06	1,9E-04	1,8E-03	2,5E-06	-4,3E-02
EP-freshwater	kg P eq	2,6E-03	3,7E-07	7,7E-08	0	0	0	0	0	1,4E-03	0	4,0E-10	6,4E-08	1,5E-06	2,8E-08	-2,6E-04
EP-marine	kg N eq.	3,4E-02	1,1E-04	5,4E-05	0	0	0	0	0	3,1E-02	0	1,9E-06	7,3E-05	8,6E-04	1,2E-05	-2,4E-03
EP-terrestrial	mol N eq.	3,7E-01	1,3E-03	5,4E-04	0	0	0	0	0	4,0E-01	0	2,0E-05	8,0E-04	9,0E-03	9,8E-06	-3,9E-02
POCP	kg NMVOC eq.	1,5E-01	1,1E-03	1,6E-04	0	0	0	0	0	1,1E-01	0	6,1E-06	3,3E-04	2,3E-03	6,3E-06	-1,5E-02
ADP-minerals&metals	kg Sb eq.	2,8E-03	1,5E-08	4,5E-09	0	0	0	0	0	2,6E-03	0	1,8E-11	2,5E-09	4,8E-08	1,3E-10	-3,4E-04
ADP-fossil	MJ	6,4E+02	5,8E+00	2,6E-01	0	0	0	0	0	2,9E+03	0	5,6E-03	1,0E+00	1,6E+00	6,9E-03	-8,2E+01
WDP	m^3	1,1E+01	2,5E-03	8,5E-03	0	0	0	0	0	4,2E+01	0	4,4E-06	4,3E-04	7,5E-03	0,0E+00	-6,5E-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 1: The results of the environmental impact indicators Abiotic depletion for fossil and non-fossil resources, Water depletion potential, Ecotoxicity-freshwater, Human toxicity-cancer, Human toxicity-non-cancer and Land use shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Disclaimer 2: The indicator GWP-GHG 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 equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Disclaimer 3: The use of the results of modules A1-A3 without considering the results of module C is discouraged.

Disclaimer 4: The indicator Ionising radiation deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit																
Indicator	**Unit**	**Tot. A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO_2 eq.	3,5E+01	4,4E-01	2,7E-02	0	0	0	0	0	2,4E+01	0	4,2E-04	7,7E-02	9,1E+00	8,9E-03	-3,0E+00
Particulate matter	disease inc.	2,0E-06	2,6E-08	1,8E-09	0	0	0	0	0	1,5E-06	0	1,1E-10	5,0E-09	1,2E-08	4,6E-11	-2,6E-07
Ionising radiation	kBq U-235 eq	3,3E+00	8,0E-04	4,3E-04	0	0	0	0	0	1,0E+02	0	5,0E-07	1,4E-04	7,0E-03	8,6E-06	-1,6E+00
Ecotoxicity, freshwater	CTUe	5,3E+02	2,0E-01	6,0E-01	0	0	0	0	0	4,3E+02	0	1,9E-04	3,4E-02	2,7E+01	6,8E-02	-4,9E+01
Human toxicity, cancer	CTUh	2,1E-07	3,1E-11	3,2E-11	0	0	0	0	0	2,8E-07	0	3,0E-14	5,8E-12	3,8E-10	4,6E-13	-6,8E-08
Human toxicity, non-cancer	CTUh	1,1E-06	2,9E-09	1,0E-09	0	0	0	0	0	2,2E-06	0	4,2E-13	5,0E-10	3,1E-08	3,2E-11	-2,9E-07
Land use	Pt	1,4E+02	1,3E-02	1,1E-02	0	0	0	0	0	6,8E+02	0	1,2E-05	2,3E-03	1,9E-01	1,6E-02	-5,9E+01

Use of resources

Calculated according to option B in Annex 3 of the PCR.

Results per declared unit																
Indicator	**Unit**	**Tot. A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,1E+02	2,1E-02	9,5E-03	0	0	0	0	0	2,0E+03	0	1,2E-05	3,6E-03	1,7E-01	4,2E-04	-5,5E+01
PERM	MJ	1,8E+01	0,0E+00	-1,4E+01	0	0	0	0	0	0,0E+00	0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
PERT	MJ	1,3E+02	2,1E-02	-1,4E+01	0	0	0	0	0	2,0E+03	0	1,2E-05	3,6E-03	1,7E-01	4,2E-04	-5,5E+01
PENRE	MJ	5,8E+02	6,2E+00	2,8E-01	0	0	0	0	0	2,9E+03	0	5,9E-03	1,1E+00	1,7E+00	7,3E-03	-8,4E+01
PENRM	MJ.	9,6E+01	0,0E+00	0,0E+00	0	0	0	0	0	0,0E+00	0	0,0E+00	0,0E+00	-7,7E+01	0,0E+00	0,0E+00
PENRT	MJ	6,8E+02	6,2E+00	2,8E-01	0	0	0	0	0	2,9E+03	0	5,9E-03	1,1E+00	-7,5E+01	7,3E-03	-8,4E+01
SM	kg	5,4E-01	0,0E+00	0,0E+00	0	0	0	0	0	0,0E+00	0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
RSF	MJ	0,0E+00	0,0E+00	0,0E+00	0	0	0	0	0	0,0E+00	0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
NRSF	MJ	0,0E+00	0,0E+00	0,0E+00	0	0	0	0	0	0,0E+00	0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
FW	m^3	3,3E-01	1,0E-04	4,6E-04	0	0	0	0	0	8,3E-01	0	1,1E-07	1,8E-05	1,3E-02	7,0E-06	-4,3E-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[1]

Results per declared unit																
Indicator	**Unit**	**Tot. A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0,0011	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Non-hazardous waste disposed	kg	0,0083	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Radioactive waste disposed	kg	0,000061	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Output flows

Results per declared unit																
Indicator	**Unit**	**Tot. A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00	0,00	0,54	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Material for recycling	kg	0,00	0,00	0,83	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,68	0,00	0,00
Materials for energy recovery	kg	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Exported energy, electricity	MJ	0,00	0,00	1,1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	24,6	0,00	0,00
Exported energy, thermal	MJ	0,00	0,00	2,65	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	57,3	0,00	0,00

[1] The reported waste production are flows leaving the system boundary. Since waste treatment processes are part of the system boundary, the indicators are here reported as zero, according to Environdec's "guidance on the resource use and waste indicators" (https://environdec.com/resources/indicators)

100% Recycling/Incineration/landfilling Scenarios for Modules A5, C1-C4 & D

Potential environmental impact – mandatory indicators according to EN 15804

Results per declared unit with 100% Recycling							
Indicator	**Unit**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-Total	kg CO_2 eq.	1,9E+00	4,2E-04	5,1E-02	2,7E-02	0,0E+00	-4,7E+00
GWP-Fossil	kg CO_2 eq.	1,5E-02	4,2E-04	5,1E-02	2,6E-02	0,0E+00	-4,6E+00
GWP-Biogenic	kg CO_2 eq.	1,9E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
GWP-LULUC	kg CO_2 eq.	9,2E-06	1,5E-08	1,2E-06	1,4E-04	0,0E+00	-7,4E-02
ODP	kg CFC 11 eq.	3,1E-10	6,7E-12	1,0E-09	3,7E-10	0,0E+00	-1,2E-07
AP	mol H^+ eq.	4,8E-05	4,0E-06	1,3E-04	2,2E-04	0,0E+00	-4,8E-02
EP-freshwater	kg P eq	1,6E-08	4,0E-10	4,2E-08	2,4E-07	0,0E+00	-2,9E-04
EP-marine	kg N eq.	2,0E-05	1,9E-06	4,8E-05	1,0E-04	0,0E+00	-2,9E-03
EP-terrestrial	mol N eq.	2,2E-04	2,0E-05	5,3E-04	1,1E-03	0,0E+00	-4,5E-02
POCP	kg NMVOC eq.	8,1E-05	6,1E-06	2,2E-04	3,2E-04	0,0E+00	-2,5E-02
ADP-minerals&metals	kg Sb eq.	5,7E-10	1,8E-11	1,7E-09	1,5E-09	0,0E+00	-3,3E-04
ADP-fossil	MJ	2,1E-01	5,6E-03	6,7E-01	4,9E-01	0,0E+00	-1,1E+02
WDP	m^3	2,6E-04	4,4E-06	2,8E-04	2,9E-03	0,0E+00	-1,1E+00
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.						

Results per declared unit with 100% Incineration							
Indicator	**Unit**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,9E+00	4,2E-04	8,2E-02	9,1E+00	0,0E+00	-8,5E-02
GWP-biogenic	kg CO_2 eq.	5,5E-02	4,2E-04	8,2E-02	9,1E+00	0,0E+00	-5,3E-02
GWP-luluc	kg CO_2 eq.	1,9E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
GWP-total	kg CO_2 eq.	1,5E-05	1,5E-08	2,0E-06	1,8E-04	0,0E+00	-3,2E-02
ODP	kg CFC 11 eq.	9,3E-10	6,7E-12	1,7E-09	3,0E-09	0,0E+00	-9,4E-10
AP	mol H^+ eq.	3,5E-04	4,0E-06	2,0E-04	1,9E-03	0,0E+00	-3,4E-04
EP-freshwater	kg P eq	2,7E-07	4,0E-10	6,9E-08	1,5E-06	0,0E+00	-1,2E-06
EP-marine	kg N eq.	1,5E-04	1,9E-06	7,8E-05	9,1E-04	0,0E+00	-1,3E-04
EP-terrestrial	mol N eq.	1,6E-03	2,0E-05	8,6E-04	9,5E-03	0,0E+00	-1,8E-03

POCP	kg NMVOC eq.	4,4E-04	6,1E-06	3,6E-04	2,4E-03	0,0E+00	-2,8E-04
ADP-minerals&metals	kg Sb eq.	1,7E-08	1,8E-11	2,7E-09	8,0E-08	0,0E+00	-1,1E-07
ADP-fossil	MJ	5,3E-01	5,6E-03	1,1E+00	1,6E+00	0,0E+00	-3,7E+01
WDP	m^3	3,5E-02	4,4E-06	4,6E-04	1,5E-01	0,0E+00	-4,9E-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.						

Results per declared unit with 100% Landfilling							
Indicator	**Unit**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-Total	kg CO_2 eq.	1,9E+00	4,2E-04	5,1E-02	6,3E-02	2,2E-01	-8,5E-02
GWP-Fossil	kg CO_2 eq.	4,0E-02	4,2E-04	5,1E-02	6,3E-02	2,2E-01	-5,3E-02
GWP-Biogenic	kg CO_2 eq.	1,9E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
GWP-LULUC	kg CO_2 eq.	2,9E-05	1,5E-08	1,2E-06	1,3E-04	3,6E-06	-3,2E-02
ODP	kg CFC 11 eq.	7,0E-10	6,7E-12	1,0E-09	4,9E-10	1,3E-09	-9,4E-10
AP	mol H^+ eq.	3,3E-04	4,0E-06	1,3E-04	2,3E-04	3,6E-04	-3,4E-04
EP-freshwater	kg P eq	4,7E-07	4,0E-10	4,2E-08	5,5E-08	2,9E-06	-1,2E-06
EP-marine	kg N eq.	1,4E-03	1,9E-06	4,8E-05	1,4E-04	1,3E-03	-1,3E-04
EP-terrestrial	mol N eq.	9,0E-04	2,0E-05	5,3E-04	1,2E-03	1,5E-03	-1,8E-03
POCP	kg NMVOC eq.	7,9E-04	6,1E-06	2,2E-04	3,7E-04	8,1E-04	-2,8E-04
ADP-minerals&metals	kg Sb eq.	5,5E-09	1,8E-11	1,7E-09	3,2E-09	1,6E-08	-1,1E-07
ADP-fossil	MJ	6,0E-01	5,6E-03	6,7E-01	5,4E-01	9,4E-01	-3,7E+01
WDP	m^3	0,0E+00	4,4E-06	2,8E-04	0,0E+00	0,0E+00	-4,9E-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.						

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit with 100% Recycling							
Indicator	**Unit**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO_2 eq.	1,5E-02	4,2E-04	5,1E-02	2,7E-02	0,0E+00	-4,6E+00
Particulate matter	disease inc.	1,2E-09	1,1E-10	3,3E-09	6,0E-09	0,0E+00	-3,0E-07
Ionising radiation	kBq U-235 eq	4,0E-04	5,0E-07	9,1E-05	5,7E-03	0,0E+00	-3,8E-01
Ecotoxicity, freshwater	CTUe	9,1E-03	1,9E-04	2,3E-02	2,1E-02	0,0E+00	-5,3E+01
Human toxicity, cancer	CTUh	1,7E-12	3,0E-14	3,8E-12	3,9E-12	0,0E+00	-8,2E-08
Human toxicity, non-cancer	CTUh	1,3E-10	4,2E-13	3,3E-10	1,4E-10	0,0E+00	-2,9E-07
Land use	Pt	1,5E-02	4,2E-04	5,1E-02	2,7E-02	0,0E+00	-4,6E+00

Results per declared unit with 100% Incineration							
Indicator	**Unit**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO_2 eq.	5,5E-02	4,2E-04	8,2E-02	9,1E+00	0,0E+00	-9,1E-02
Particulate matter	disease inc.	3,8E-09	1,1E-10	5,4E-09	1,4E-08	0,0E+00	-1,2E-09
Ionising radiation	kBq U-235 eq	5,5E-04	5,0E-07	1,5E-04	6,6E-03	0,0E+00	-1,4E+00
Ecotoxicity, freshwater	CTUe	1,9E+00	1,9E-04	3,7E-02	2,8E+01	0,0E+00	5,7E+00
Human toxicity, cancer	CTUh	1,2E-10	3,0E-14	6,2E-12	4,6E-10	0,0E+00	2,3E-08
Human toxicity, non-cancer	CTUh	3,7E-09	4,2E-13	5,4E-10	3,1E-08	0,0E+00	-1,4E-09
Land use	Pt	5,5E-02	4,2E-04	8,2E-02	9,1E+00	0,0E+00	-9,1E-02

Results per declared unit with 100% Landfilling							
Indicator	**Unit**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO_2 eq.	1,6E+00	4,2E-04	5,1E-02	6,3E-02	9,0E-01	-9,1E-02
Particulate matter	disease inc.	4,0E-09	1,1E-10	3,3E-09	6,6E-09	7,6E-09	-1,2E-09
Ionising radiation	kBq U-235 eq	8,6E-04	5,0E-07	9,1E-05	5,5E-03	1,2E-03	-1,4E+00
Ecotoxicity, freshwater	CTUe	4,7E+01	1,9E-04	2,3E-02	1,3E-01	3,5E+01	5,7E+00
Human toxicity, cancer	CTUh	4,8E-11	3,0E-14	3,8E-12	7,8E-12	5,6E-11	2,3E-08
Human toxicity, non-cancer	CTUh	6,6E-09	4,2E-13	3,3E-10	2,6E-10	3,5E-09	-1,4E-09
Land use	Pt	1,6E+00	4,2E-04	5,1E-02	6,3E-02	9,0E-01	-9,1E-02

Summary

From a life cycle perspective, the environmental impact of the Quad Pixel luminaire can mainly be attributed to electricity consumption in the use phase. Despite using average electricity from the Swedish grid (which has a low climate impact compared to e.g. European average electricity), the **use phase stood for more than 60%** of total environmental impacts for the indicator Resource use, minerals and metals, or **35% for the climate impact indicator**.

The production of raw materials represents approximately 40% of total environmental impacts. Most of these come from the production of the Driver (13%), LED (8%), Cables (5%), and various plastic components (with an individual contribution from 3-5%).

The model of the product system is sensitive to the source of energy in production of the electricity used in the use phase. If wind power is used instead, the total IPCC climate impact would be 24% lower.

Additional environmental information

The results in this EPD represent the baseline luminaire which have a power-rating of 13W. However, conversion factors can be calculated that enable converting the results into environmental impacts for the other variations which have another power-ratings. Conversion factors can be seen in the table below. The conversion factors are based on the power-rating of the luminaire as the difference in value also reflects the difference in power draw between the different variations of the Quad Pixel Luminaire.

In practice, new results can be generated by multiplying with the conversion factor, which is simply the ratio of the power-rating compared to the baseline which has the power-rating of 13W. The size of the luminaire is the same for all variations, with a width of 595mm, and a height of 110mm, and therefore the defined conversion factor below is only used to scale the results in module B6, while the other modules stay the same for all variations.

Power-rating (W)	Luminous flux (lm)	Conversion factor for module B6	Comment
13	1500	1,0	Baseline
31	3500	2,38	The conversion factors are based on the power-rating of the products.
45	5000	3,46	The conversion factors are based on the power-rating of the products.

Additional results

The main results for the use phase for the representative product Quad Pixel luminaire captures the impact caused over a time horizon of 20 years according to the luminaires RSL. In the table below the results are also shown for the impact for one year of use.

Results for one year of use (Module B6)					
Indicator[2]	**Unit**	**B6 (1 year of use)**	**Indicator[2]**	**Unit**	**B6 (1 year of use)**
GWP Fossil	kg CO2 eq	2,4E+01	ADPE	kg Sb eq	2,6E-03
GWP Biogenic	kg CO2 eq	2,2E+01	ADPF	MJ	2,9E+03
GWP LULUC	kg CO2 eq	4,3E-01	WDP	m3 depriv.	4,2E+01
GWP Total	kg CO2 eq	2,4E+00	PM	disease inc.	1,5E-06
ODP	kg CFC11 eq	6,4E-07	IR	kBq U-235 eq	1,0E+02
AP	mol H+ eq	2,6E-01	ETP – FW	CTUe	4,3E+02
EP - Freshwater	kg P eq	1,4E-03	HTP - C	CTUh	2,8E-07
EP - Marine	kg N eq	3,1E-02	HTP - NC	CTUh	2,2E-06
EP – Terrestrial	mol N eq	4,0E-01	Land use, SQP	Pt	6,8E+02
POCP	kg NMVOC eq	1,1E-01	GWP-GHG	kg CO2 eq	2,4E+01

[2] GWP: Global Warming Potential, LULUC: Land Use and Land Use Change, ODP: Ozone Depletion Potential, AP: Acidification Potential. EP: Eutrophication Potential, POCP: Photochemical Ozone Creation Potential, ADPE: Abiotic Depletion Potential – Elements, ADPF: Abiotic Depletion Potential – Fossil Fuels, WDP: Water Scarcity Footprint, PM: Particulate Matter, IRP: Ionizing Radiation - Human Health, ETP-FW: Ecotoxicity Potential – Freshwater, HTP-C: Human Toxicity Potential – Cancer, HTP-NC: Human Toxicity Potential – Non-Cancer, SQP: Soil Quality Potential Index, GWP GHG: Global Warming Potential, Greenhouse Gases.

Abbreviation

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CPC	Central product classification
GHG	Greenhouse Gas
PEF	Product Environmental Footprint
Environmental Impact Indicators (EN 15804)	
GHG	Greenhouse Gas
GWP	Global Warming Potential (kg CO_2 eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO_2 eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO_2 eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO_2 eq.)
GWP-total	Total Global Warming Potential (kg CO_2 eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO_2 eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H^+ eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m^3)
Resource Use Indicators	
PERE	Renewable primary energy (excluding as raw materials) (MJ)
PERM	Renewable primary energy used as raw materials (MJ)
PERT	Total renewable primary energy (MJ)
PENRE	Non-renewable primary energy (excluding as raw materials) (MJ)
PENRM	Non-renewable primary energy used as raw materials (MJ)
PENRT	Total non-renewable primary energy (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m^3)
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
Output Flow Indicators	
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)
EET	Exported Energy, Thermal (MJ)

Lifecycle Stages / Modules	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
Other Relevant Terms	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2 eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

References

- Roos, Theodor, Miljögiraff AB, LCA report 1667, 2026-01-12

- Nilsson, Rasmus, Sustainability Manager, ateljé Lyktan AB

- General Programme Instructions of the International EPD® System. Version 5.0.

- PCR 2019:14. Construction products. Version 2.0.1

- Ecoinvent 3.10, 'Ecoinvent' https://www.ecoinvent.org/database/database.html

- EN ISO 14025:2014-02 Environmental labels and declarations - Type III environmental declarations - Principles and procedures, Edited in 2010

- EN ISO 14040:2006 Environmental management - Life cycle assessment - Principles and framework, 2006

- EN ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines, 2006

- PRé Consultants, "SimaPro 10.2" (PRé Consultants, 2021), http://www.presustainability.com/simapro

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