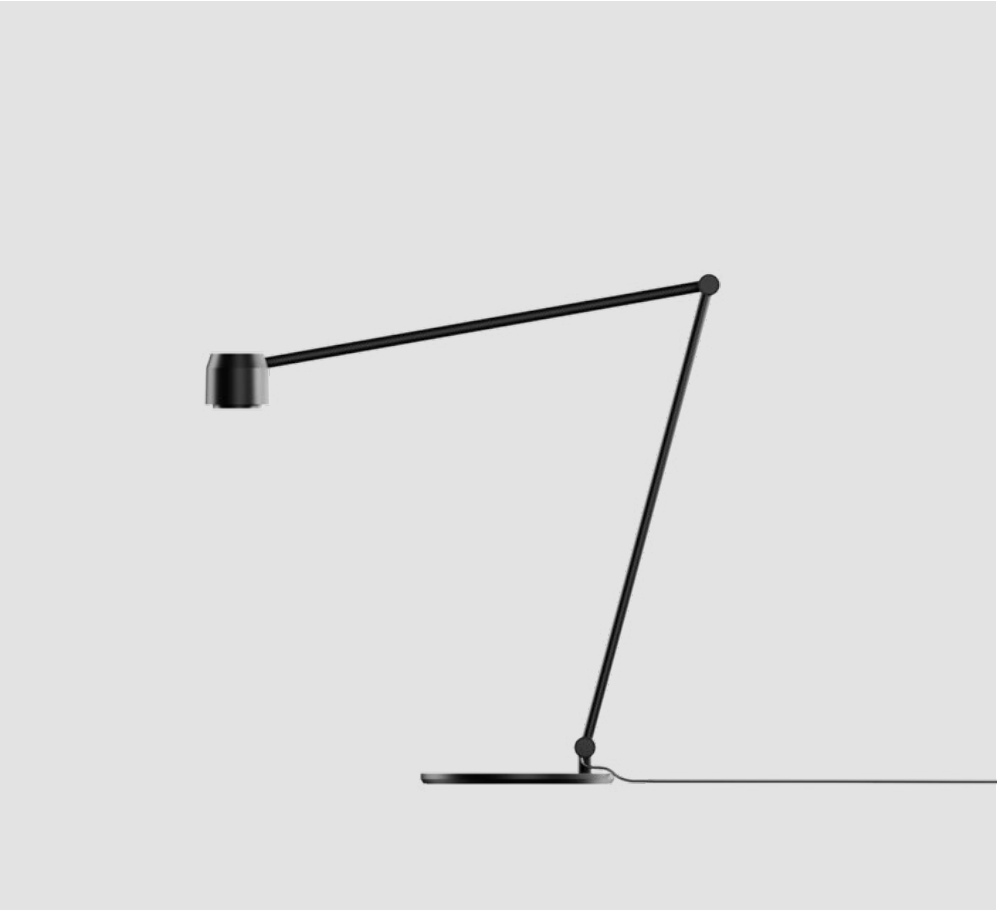


EPD of multiple products, based on a representative product in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

ION
W225

from W+

Including multiple products of ION collection. Included products are specified on page 4.

Programme	The International EPD System www.environdec.com
Programme operator	EPD International AB
EPD Registration number	EPD-IES-0034420:001
Version date	2026-10-08
Validity date	2031-10-07

Wastberg+
T +46 10 16 15 010
info@wastberg.com
wastberg.com

This EPD follows additional requirements for construction products considered as Electronic or Electric Equipment. 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.

EPD INTERNATIONAL EPD SYSTEM

ECO PLATFORM EPD VERIFIED

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

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

Product Category Rules (PCR)
PCR 2019:14 Construction products version 2.0.1, 2025-06-05.
UN CPC code(s): 4653 (Ver. 2.1) Lighting Equipment

PCR review was conducted by
The Technical Committee of the International EPD® System.
See www.environdec.com for a list of members.

Review Chair: Rob Rouwette (chair), Noa Meron (co-chair).

The review panel may be contacted via support@environdec.com

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

Individual EPD verification without a pre-verified LCA/EPD tool.
Third-party verifier:

Itxaso Trabudua
IK INGENIERIA
Avd. Cervantes, 51 - 5º - Dpto 7
48970 Basauri (Bizkaia)
i.trabudua@ik-ingenieria.com

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

☐ Yes ☒ No

Approved by
The International EPD® System
The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Owner of the EPD
Wastberg+
Box 5085
200 71 Malmö
Sweden

Contact
epd@wastberg.com

Description of the organisation:
Wastberg+ is a Swedish lighting brand based in Malmö and part of the XAL Group. The company develops luminaires and LED-based lighting solutions for interior applications in workplace, hospitality, residential and public environments. Its products are developed in collaboration with architects and designers, combining Wastberg+'s design background with lighting technology and engineering resources within the XAL Group.

Name and location of production site:
The production site is located in Dongguan, China.

More information:
wastberg.com

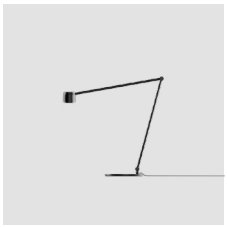
Product Name
Ion W225

Product Identification
This EPD covers multiple products of the Ion collection:

– Ion Base W225B2 (reference product)
– Ion Pin W225P2
– Ion Bracket W225BR2
– Ion Bracket W225BR0
– Ion Floor W225F2

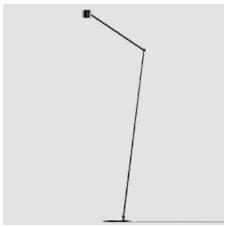
All variants are available in different colours with jet black, raw aluminium, and traffic white, with the exception of the Ion Floor W225F2, which is not available in raw aluminium. Scaling factors for all variants can be found in the Annex of the EPD.

This EPD covers multiple variants of the Ion collection:



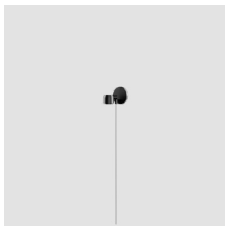
ION
BASE
W225B2

ION
PIN
W225P2



ION
FLOOR
W225F2

ION
BRACKET
W225BR2



ION
BRACKET
W225BR0

FLUID PRECISION

Don't let Ion's delicate lines deceive you – behind its almost weightless appearance lie serious engineering and high-performance light. The clever friction joint allows for free 360° positioning with both accuracy and staying power, enabling smooth shifts between focused task lighting and more ambient use.

The Ion series includes five variants: the Ion Base W225B2, a base version featuring two 40 cm arm sections and a narrower beam angle, well suited for reading corners and defining spaces; the Ion Pin W225P2, a pin-mounted version for discreet desk integration with minimal footprint, featuring two 40 cm arm sections and a wide beam angle for flexibility; the Ion Bracket W225BR2, a wall-mounted version with two 40 cm arm sections and a wide beam angle, allowing flexible and precise lighting positioning; the Ion Bracket W225BR0, a minimalist wall version with the lamp head attached directly to the bracket and a narrow beam angle for focused light; and the Ion Floor W225F2, a floor version pairing two different arm lengths with a narrower beam angle, well suited for reading corners and defining spaces.

Design: Dirk Winkel

TECHNICAL SPECIFICATIONS	**ION** BASE W225B2	**ION** PIN W225P2	**ION** FLOOR W225F2
Power	8.0 W	8.0 W	8.0 W
Luminous efficiency	Up to 66 lm/W	Up to 66 lm/W	Up to 66 lm/W
Colour temperature	3000 K	3000 K	2700 K, 3000 K
Light control	Integrated dimmer switch	Integrated dimmer switch	Integrated dimmer switch
Physical	Diameter 56 mm Max Height 800 mm	Diameter 56 mm Max Height 800 mm	Diameter 56 mm Max Height 1300 mm

TECHNICAL SPECIFICATIONS	**ION** BRACKET W225BR2	**ION** BRACKET W225BR0
Power	8.0 W	8.0 W
Luminous efficiency	Up to 66 lm/W	Up to 64 lm/W
Colour temperature	3000 K	2700 K, 3000 K
Light control	Integrated dimmer switch	Integrated dimmer switch
Physical	Diameter 56 mm Max Height 800 mm	Diameter 56 mm Max Height 90 mm

Technical data was tested in house according to following standards:
EN 13032-1: 2004 +A1: 2012
EN 13032-4: 2015 +A1: 2019
CIE S 025/E: 2015
IES LM-79-19: 2019

UN CPC code(s):
4653 (Ver. 2.1) Lighting Equipment

CONTENT DECLARATION PER DECLARED UNIT

PRODUCT COMPONENTS	WEIGHT, KG	WEIGHT-% (VERSUS TOTAL WEIGHT)	RANGE OF WEIGHT, KG	POST-CONSUMER MATERIAL, WEIGHT-%	BIOGENIC MATERIAL, WEIGHT-% / DECLARED UNIT	BIOGENIC MATERIAL, KG C / DECLARED UNIT
Steel	2.827	88.23%	0.081 - 2.827	0.00	0.00	0.00
Aluminum	0.172	5.38%	0.137 - 0.231	40.2%	0.00	0.00
Polycarbonate	0.047	1.45%	0.046 - 0.047	0.00	0.00	0.00
Natural rubber (NR)	0.041	1.29%	0.000 - 0.041	0.00	0.00	0.00
Others (<1%)	0.117	3.64%	0.101 - 0.119	0.00	0.00	0.00
TOTAL	**3.204**	**100.00%**	**0.367 - 3.245**	**2.16%**	**0.00**	**0.00**

PACKAGING MATERIALS*	WEIGHT, KG	WEIGHT-% (VERSUS THE PRODUCT)	RANGE OF WEIGHT, KG	RANGE WEIGHT-% (VERSUS THE PRODUCT)	WEIGHT BIOGENIC CARBON, KG C / DECLARED UNIT
Cardboard	2.125	66.31%	0.254 - 4.305	66.31% - 434.24%	1.075
Paper	0.141	4.40%	0.007 - 0.141	1.81% - 10.65%	0.073
Plastic	0.002	0.06%	0.000 - 0.002	0.00% - 0.06%	0.000
Total	**2.268**	**70.76%**	**0.260 - 4.448**	**71.25% - 443.51%**	**1.148**

*Disclaimer: The packaging material table includes only product packaging. Transport packaging also included in the LCA.
The products do not contain any REACH and RoHS SVHC substances in amounts greater than 0.1 % (1000 ppm).

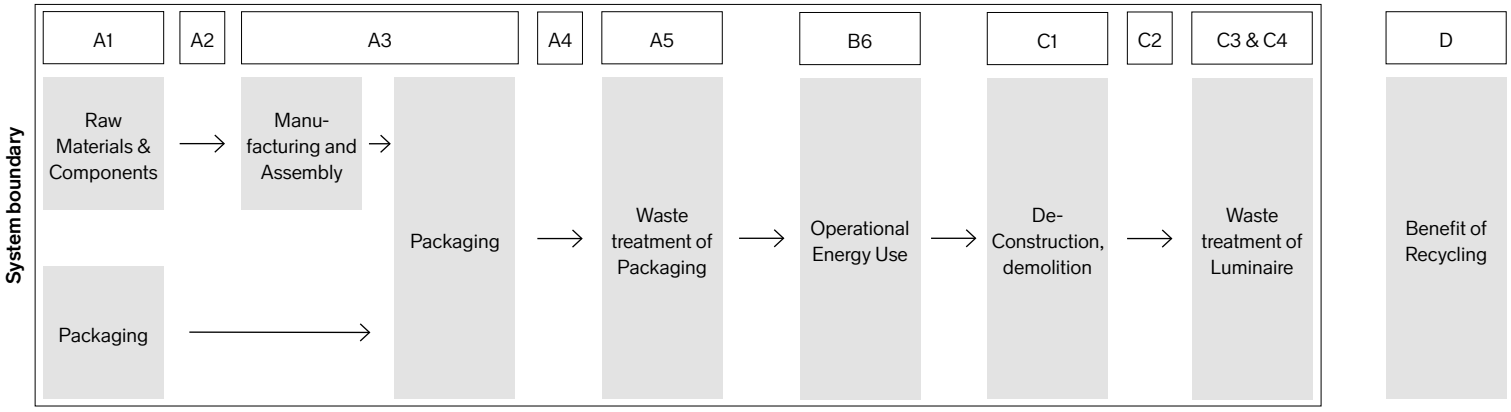
Declared unit
The declared unit is one piece of Ion Base W225B2, CCT 3000 K. This product has been chosen as the reference due to the highest share of sales. The weight of the product per declared unit is 3.204 kg.

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 35000 hours. This reference value is proposed by the PEP Category rules (PSR-0014-ed2.0-EN-2023 07 13). The conversion factors are available under "Additional environmental information".

The principles of "Modularity" and "polluter pay" have been followed.

Reference service life
10.3 years
Time representativeness
2025.2 - 2026.1
Database and LCA software used
LCA for Experts 10.9.6.1
System boundaries
Cradle to gate with options, modules C1-C4, module D and with optional modules A4, A5, B6

System diagram



Allocation
Raw materials are assigned directly based on the specific Bill of Materials. Factory-wide shared inputs such as electricity and natural gas are allocated to products using internal sales data. Transport packaging is modelled using average packaging data.

Product stage (A1-A3)
The raw materials and corresponding manufacturing processes were modelled using LCA for Experts. Transportation of raw materials, components, and packaging materials to the production sites is included in the assessment. Average transport distances and appropriate transport modes were applied.
Manufacturing and final assembly take place in Dongguan, China. The main manufacturing operations include metal cutting, CNC machining, surface treatment and painting, component assembly, testing, quality control and packaging. The finished products are then transported to Belgium, where final packaging and distribution to costumers take place. Due to varying transport routes, aggregated transportation data was used for the shipment from China to Belgium. It was assumed that 24% of products are transported by air freight and 76% by sea freight.
Electricity consumption associated with all manufacturing processes was modelled using the respective regional electricity mixes.
Recycled content is based on supplier-specific data. In accordance with the EN 15804 cut-off approach, post-consumer recycled materials enter the product system burden-free, with only the impacts associated with the recycling processes being considered.

Transport to building (A4)
The transport is calculated from Brussel to the capitals of the countries with expected sales shares >4% (Sweden, Germany, Denmark, United Kingdom, Belgium, Switzerland).

Weighted distance	936 km
Truck used	Class EURO 6, 26-28 t
Fuel type	Diesel (0.00287 l/100 kkm)

Installation into building (A5)
No emissions occur during the installation. This module includes the waste treatment of the packaging.
Packaging waste incl. transport packaging:

Material	Weight (kg)
Cardboard	2.344
Paper	0.155
Plastic	0.002

Operational energy use (B6)
Electricity consumption during the use stage is modelled based on the technical parameters and reference service life of 10.3 years. The operating hours are based on the average application areas in accordance with EN 15193-1:2017+A1:2021. The products are mainly installed in residentials, restaurants, shops, offices and other commercial premises. An average European Electricity grid mix has been used to calculate B6.

The electricity consumption per product unit is calculated using the formula:
Energy consumption [kWh] = {Pa × 1 kW / 1000 W x operating hours p/a [h] x reference service lifetime [y]}

The results and additional Use Phase Information is presented in the table below:

SCENARIO	**ION** BASE W225B2	**UNIT**
Electricity use (10.3 years)	284.28	kWh
Power	8.0	W
Operating hours (h/y)	3450	hours
Dimmable	Integrated dimmer switch	-
Presence control	No	-

End-of-life stage (C1-C4)
The product is presumed to be decomposed manually; therefore, no emissions occur in C1. In accordance with PCR 2.0.1, the following transport distances are used for end-of-life waste treatment:

– Waste not destined for incineration: 80 km
– Waste destined for incineration: 130 km

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

SCENARIO	ION BASE W225B2	UNIT
Collected separately	3.204	kg
Collected with mixed (construction) waste	-	kg
For reuse	-	kg
For recycling	1.602	kg
For energy recovery	0.417	kg
For final disposal	1.186	kg

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. The post-consumer recycled content of components is not included in module D to avoid double-counting. In Module D also the benefits from the product packaging waste are included.

SCENARIO	ION BASE W225B2	UNIT
Materials for recycling	3.605	kg
Materials for export of secondary fuels	-	kg
Materials for incineration	0.490	kg

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).

The following processes have been excluded:

– Manufacture of equipment used in production, buildings or any other capital goods;
– The transportation of personnel to the plant;
– Transportation of personnel within the plant;
– Research and development activities;
– Long-term emissions.

The following modules have been excluded:

– B1: For the use stage (B1), no energy and material inputs, or emissions are involved.
– B2-B5: During the reference service life no maintenance (B2), repair (B3), replacement (B4) or refurbishment (B5) is expected.
– B7: The use of the product does not require water consumption (B7).

Data quality
This LCA study reflects the production for 2025-2026, while overhead electricity consumption is based on 2025 data. Components are sourced from external suppliers, and their manufacturing processes are modeled using LCA for Experts, applying the most suitable representative geographical conditions and applications. Geographical representativeness is global, mainly China. Results of this EPD shall be used with care. Besides production data, data quality is very good / good.

Electricity grid
For the manufacturing in Dongguan, China, the corresponding electricity grid mix as stated on the invoice is used: Hard coal (32.2%), Hydro (22.4 %), Photovoltaic (28.8 %), Wind (9.2 %), Nuclear (3.8 %), other RE (3.6 %).

ENVIRONMENTAL IMPACT OF THE ELECTRICITY USED IN CN	
CO_2 eq. [kg/kWh]	0.382

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	ND	ND	ND	ND	ND	x	ND	x	x	x	x	x
Geography	GLO	GLO	CN, BEL	EUR	EUR	-	-	-	-	-	EUR	-	EUR	EUR	EUR	EUR	EUR
Share of primary data	36.59%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-77% / +24%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acronyms	GLO = Global, CN = China, BEL = Belgium, EUR = Europe																

Primary data used

The share of primary data is calculated based on GWP-GHG results. 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.

Calculation of primary data used for module A1-A3:

PROCESS	SOURCE TYPE	SOURCE	REFERENCE YEAR	DATA CATEGORY	SHARE OF PRIMARY DATA OF GWP-GHG RESULTS FOR A1-A3
Transport of raw materials to manufacturing site	Collected Data	EPD Owner, Suppliers	2025-2026	Primary data	28.78%
Electricity used in manufacturing	Collected Data	EPD Owner	2025-2026	Primary data	7.51%
Others	Collected Data	EPD Owner	2025-2026	Primary data	0.31%
Total share of primary data of GWP-GHG results for A1-A3					**36.59%**

Variation of impact indicators

In accordance with PCR 2019:14, the maximum variation between product variants is reported for environmental impact indicators where the deviation exceeds 10%. The variation is determined from the aggregated results of all declared life-cycle stages per declared unit. Module D is excluded from this assessment.

INDICATOR	UNIT	MAX.VARIATION	INDICATOR	UNIT	MAX.VARIATION
GWP-fossil	kg CO2 eq.	18%	EP-freshwater	kg P eq.	73%
GWP-biogenic	kg CO2 eq.	0%	EP-marine	kg N eq.	32%
GWP-luluc	kg CO2 eq.	6%	EP-terrestrial	mol N eq.	30%
GWP-total	kg CO2 eq.	18%	POCP	kg NMVOC eq.	35%
ODP	kg CFC 11 eq.	28%	ADP-minerals&metals	kg Sb eq.	84%
AP	mol H+ eq.	36%	ADP-fossil	kg CO2 eq.	14%
WDP	kg CO2 eq.	16%			

The maximum variation of impact indicators is primarily attributed to the weight of the lightest product, Ion Bracket W225BR0. This directly correlates with the variation in resource use and emissions.

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. Usage of results from A1-A3 without considering the results of module C is not encouraged.

MANDATORY IMPACT CATEGORY INDICATORS ACCORDING TO EN 15804+A2 (BASED ON EF 3.1)

		Results per declared unit								
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
GWP – fossil	kg CO_2 eq.	2.70E+01	5.69E-01	1.23E+00	9.47E+01	0.00E+00	2.79E-02	5.75E-01	2.39E-02	-6.31E+00
GWP – biogenic	kg CO_2 eq.	-4.64E+00	0.00E+00	4.64E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP – luluc	kg CO_2 eq.	1.32E-02	6.32E-03	3.69E-03	2.81E-01	0.00E+00	1.22E-04	7.17E-05	3.56E-05	-4.24E-03
GWP – total	**kg CO_2 eq.**	**2.23E+01**	**5.75E-01**	**5.88E+00**	**9.49E+01**	**0.00E+00**	**2.80E-02**	**5.75E-01**	**2.39E-02**	**-6.32E+00**
ODP	kg CFC 11 eq.	1.99E-09	2.82E-13	6.49E-12	4.12E-09	0.00E+00	5.86E-15	8.26E-13	1.41E-13	-4.56E-11
AP	mol H+ eq.	1.91E-01	8.27E-04	2.91E-03	2.25E-01	0.00E+00	4.43E-05	3.24E-04	1.53E-04	-3.00E-02
EP – freshwater	kg P eq.	4.71E-04	1.14E-06	2.87E-05	9.94E-05	0.00E+00	7.27E-08	1.37E-07	5.12E-07	-1.92E-04
EP – marine	kg N eq.	3.58E-02	3.37E-04	1.51E-03	5.50E-02	0.00E+00	1.79E-05	1.21E-04	3.72E-05	-5.28E-03
EP – terrestrial	mol N eq.	3.87E-01	3.72E-03	1.25E-02	6.49E-01	0.00E+00	1.93E-04	1.41E-03	4.08E-04	-5.43E-02
POCP	kg NMVOC eq.	1.04E-01	7.87E-04	2.38E-03	1.29E-01	0.00E+00	3.91E-05	3.14E-04	1.15E-04	-1.69E-02
ADP – minerals & metals*	kg Sb eq.	4.54E-04	4.88E-08	9.67E-07	2.35E-05	0.00E+00	2.08E-09	6.89E-09	1.92E-09	-2.90E-04
ADP – fossil*	MJ	3.64E+02	7.28E+00	1.66E+01	1.77E+03	0.00E+00	3.71E-01	5.58E-01	3.85E-01	-8.35E+01
WDP*	m^3	5.62E+00	1.99E-03	1.32E-01	1.83E+01	0.00E+00	9.89E-05	7.37E-02	2.82E-03	-8.24E-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.

MANDATORY AND VOLUNTARY IMPACT CATEGORY INDICATORS

		Results per declared unit								
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
GWP – GHG1	kg CO_2 eq.	2.70E+01	5.75E-01	1.24E+00	9.49E+01	0.00E+00	2.80E-02	5.75E-01	2.39E-02	-6.32E+00
PM	disease inc.	2.75E-06	8.25E-09	2.19E-08	1.84E-06	0.00E+00	4.37E-10	2.46E-09	1.77E-09	-3.39E-07
IRP – HE**	kBq U235 eq.	6.21E-01	7.31E-04	5.62E-02	3.73E+01	0.00E+00	4.93E-05	6.70E-03	5.18E-04	-9.05E-02
ETP – fw*	CTUe	2.25E+02	6.31E+00	4.79E+00	4.14E+02	0.00E+00	3.17E-01	2.17E-01	2.82E-01	-3.69E+01
HTP – c*	CTUh	1.95E-08	1.13E-10	2.32E-10	2.80E-08	0.00E+00	6.31E-12	1.50E-11	5.88E-12	-7.43E-09
HTP – nc*	CTUh	2.33E-07	4.33E-09	2.02E-08	8.75E-07	0.00E+00	3.30E-10	9.76E-10	2.35E-10	-1.91E-08
SQP	dimensionless	7.65E+02	2.11E+00	1.85E+01	7.37E+02	0.00E+00	1.00E-01	1.80E-01	8.80E-02	-6.44E+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.

RESOURCE USE INDICATORS

		Results per declared unit								
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.61E+02	5.71E-01	5.07E+00	1.35E+03	0.00E+00	2.57E-02	2.77E-01	6.76E-02	-3.67E+01
PERM	MJ	4.59E+01	0.00E+00	-4.45E+01	0.00E+00	0.00E+00	0.00E+00	-1.37E+00	0.00E+00	0.00E+00
PERT	MJ	2.07E+02	5.71E-01	-3.94E+01	1.35E+03	0.00E+00	2.57E-02	-1.09E+00	6.76E-02	-3.67E+01
PENRE	MJ	3.64E+02	7.28E+00	1.66E+01	1.77E+03	0.00E+00	3.71E-01	8.97E-01	3.85E-01	-8.35E+01
PENRM	MJ	2.02E+00	0.00E+00	-8.30E-02	0.00E+00	0.00E+00	0.00E+00	-1.93E+00	0.00E+00	0.00E+00
PENRT	MJ	3.66E+02	7.28E+00	1.65E+01	1.77E+03	0.00E+00	3.71E-01	-1.04E+00	3.85E-01	-8.35E+01
SM	kg	6.92E-02	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
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
FW	m^3	1.55E-01	2.17E-04	1.03E-02	8.53E-01	0.00E+00	7.50E-06	1.80E-03	8.19E-05	-2.66E-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 INDICATORS

		Results per declared unit								
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.49E-07	4.17E-10	2.76E-07	2.66E-06	0.00E+00	1.57E-11	5.08E-09	9.31E-11	-3.24E-08
Non-hazardous waste disposed	kg	2.50E+00	1.38E-03	3.31E-01	1.54E+00	0.00E+00	6.83E-05	8.27E-02	1.16E+00	-5.73E-01
Radioactive waste disposed	kg	5.35E-03	7.89E-06	3.70E-04	2.44E-01	0.00E+00	3.91E-07	4.48E-05	4.01E-06	-9.79E-04

OUTPUT FLOW INDICATORS

		Results per declared unit								
Indicator	**Unit**	**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
Material for recycling	kg	8.08E-01	0.00E+00	2.04E+00	0.00E+00	0.00E+00	0.00E+00	1.60E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy. electricity	MJ	0.00E+00	0.00E+00	1.78E-01	0.00E+00	0.00E+00	0.00E+00	9.76E-02	0.00E+00	0.00E+00
Exported energy. thermal	MJ	0.00E+00	0.00E+00	3.23E-01	0.00E+00	0.00E+00	0.00E+00	2.27E-01	0.00E+00	0.00E+00

Additional LCA results

Results for additional scenarios for End-of-Life modules.
Mandatory impact category indicators according to EN 15804 + A2 (based on EF 3.1)

		100% RECYCLING			**100% INCINERATION**			**100% LANDFILL**		
Indicator	**Unit**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**
GWP – fossil	kg CO_2 eq.	2.58E-02	1.05E-01	0.00E+00	4.19E-02	4.10E+00	0.00E+00	2.58E-02	0.00E+00	6.45E-02
GWP – biogenic	kg CO_2 eq.	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
GWP – luluc	kg CO_2 eq.	1.13E-04	9.14E-05	0.00E+00	1.83E-04	2.11E-04	0.00E+00	1.13E-04	0.00E+00	9.61E-05
GWP – total	kg CO_2 eq.	2.59E-02	1.05E-01	0.00E+00	4.21E-02	4.10E+00	0.00E+00	2.59E-02	0.00E+00	6.46E-02
ODP	kg CFC 11 eq.	5.42E-15	1.29E-12	0.00E+00	8.80E-15	1.49E-12	0.00E+00	5.42E-15	0.00E+00	3.81E-13
AP	mol H+ eq.	4.10E-05	1.26E-04	0.00E+00	6.66E-05	2.08E-03	0.00E+00	4.10E-05	0.00E+00	4.13E-04
EP – freshwater	kg P eq.	6.73E-08	2.00E-07	0.00E+00	1.09E-07	2.99E-07	0.00E+00	6.73E-08	0.00E+00	1.38E-06
EP – marine	kg N eq.	1.65E-05	4.27E-05	0.00E+00	2.69E-05	8.03E-04	0.00E+00	1.65E-05	0.00E+00	1.01E-04
EP – terrestrial	mol N eq.	1.79E-04	5.03E-04	0.00E+00	2.91E-04	9.28E-03	0.00E+00	1.79E-04	0.00E+00	1.10E-03
POCP	kg NMVOC eq.	3.62E-05	1.06E-04	0.00E+00	5.88E-05	2.09E-03	0.00E+00	3.62E-05	0.00E+00	3.10E-04
ADP – minerals & metals*	kg Sb eq.	1.92E-09	1.00E-08	0.00E+00	3.13E-09	1.51E-08	0.00E+00	1.92E-09	0.00E+00	5.18E-09
ADP – fossil*	MJ	3.44E-01	6.23E-01	0.00E+00	5.58E-01	1.98E+00	0.00E+00	3.44E-01	0.00E+00	1.04E+00
WDP*	m^3	9.15E-05	2.12E-02	0.00E+00	1.49E-04	5.05E-01	0.00E+00	9.15E-05	0.00E+00	7.63E-03

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.

Additional mandatory and voluntary impact category indicators

		100% RECYCLING			**100% INCINERATION**			**100% LANDFILL**		
Indicator	**Unit**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**
GWP-GHG[1]	kg CO2 eq.	2.59E-02	1.05E-01	0.00E+00	4.21E-02	4.10E+00	0.00E+00	2.59E-02	0.00E+00	6.46E-02
PM	disease inc.	4.04E-10	1.23E-09	0.00E+00	6.56E-10	1.50E-08	0.00E+00	4.04E-10	0.00E+00	4.79E-09
IRP_HE*	kBq U235 eq.	4.56E-05	1.11E-02	0.00E+00	7.40E-05	9.00E-03	0.00E+00	4.56E-05	0.00E+00	1.40E-03
ETP-fw*	CTUe	2.94E-01	1.71E-01	0.00E+00	4.77E-01	1.06E+00	0.00E+00	2.94E-01	0.00E+00	7.64E-01
HTP-c*	CTUh	5.84E-12	1.30E-11	0.00E+00	9.48E-12	7.10E-11	0.00E+00	5.84E-12	0.00E+00	1.59E-11
HTP-nc*	CTUh	3.06E-10	5.36E-10	0.00E+00	4.97E-10	5.77E-09	0.00E+00	3.06E-10	0.00E+00	6.36E-10
SQP	dimensionless	9.25E-02	2.36E-01	0.00E+00	1.50E-01	4.97E-01	0.00E+00	9.25E-02	0.00E+00	2.38E-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.

Additional LCA results
Resource use indicators

		100% RECYCLING			100% INCINERATION			100% LANDFILL		
Indicator	**Unit**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**
PERE	MJ	2.38E-02	4.26E-01	0.00E+00	3.86E-02	5.24E-01	0.00E+00	2.38E-02	0.00E+00	1.83E-01
PERM	MJ	0.00E+00	-1.37E+00	0.00E+00	0.00E+00	-1.37E+00	0.00E+00	0.00E+00	-1.37E+00	0.00E+00
PERT	MJ	2.38E-02	-9.40E-01	0.00E+00	3.86E-02	-8.42E-01	0.00E+00	2.38E-02	-1.37E+00	1.83E-01
PENRE	MJ	3.44E-01	1.66E+00	0.00E+00	5.58E-01	1.98E+00	0.00E+00	3.44E-01	0.00E+00	1.04E+00
PENRM	MJ	0.00E+00	-1.93E+00	0.00E+00	0.00E+00	-1.93E+00	0.00E+00	0.00E+00	-1.93E+00	0.00E+00
PENRT	MJ	3.44E-01	-2.72E-01	0.00E+00	5.58E-01	4.30E-02	0.00E+00	3.44E-01	-1.93E+00	1.04E+00
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
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
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
FW	m3	6.93E-06	6.25E-04	0.00E+00	1.13E-05	1.19E-02	0.00E+00	6.93E-06	0.00E+00	2.21E-04

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 indicators

		100% RECYCLING			100% INCINERATION			100% LANDFILL		
Indicator	**Unit**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**
Hazardous waste disposed	kg	1.45E-11	9.91E-09	0.00E+00	2.36E-11	9.88E-10	0.00E+00	1.45E-11	0.00E+00	2.52E-10
Non-hazardous waste disposed	kg	6.31E-05	2.40E-02	0.00E+00	1.03E-04	5.64E-01	0.00E+00	6.31E-05	0.00E+00	3.14E+00
Radioactive waste disposed	kg	3.62E-07	7.32E-05	0.00E+00	5.88E-07	6.43E-05	0.00E+00	3.62E-07	0.00E+00	1.08E-05

Output flow indicators

		100% RECYCLING			100% INCINERATION			100% LANDFILL		
Indicator	**Unit**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**	**C2**	**C3**	**C4**
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
Material for recycling	kg	0.00E+00	3.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy. electricity	MJ	0.00E+00	1.17E-01	0.00E+00	0.00E+00	4.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy. thermal	MJ	0.00E+00	2.73E-01	0.00E+00	0.00E+00	1.03E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Scaling factors for other variants
The different variants of Ion are very similar but show some differences in their construction. Those differences have been accounted for in the LCA. The results of the GWP-GHG above can be scaled to the corresponding variants with the following conversion factors:

VARIANT	A1 – A3	A4	A5	B6	C1-C4	D
Ion Base W225B2	1.00	1.00	1.00	1.00	1.00	1.00
Ion Pin W225P2	0.42	0.46	0.87	1.00	0.18	0.50
Ion Bracket W225BR2	0.46	0.48	0.89	1.00	0.19	0.53
Ion Bracket W225BR0	0.23	0.12	0.12	1.00	0.16	0.19
Ion Floor W225F2	1.24	1.43	1.97	1.00	1.01	1.38

The lowest scaling factor is 0.23 for the A1–A3 stages, corresponding to a variation of –77% relative to the representative product. This is primarily attributed to the weight of the lightest product, Ion Bracket W225BR0. This directly correlates with the variation in resource use and emissions.

Results for 1000 lumens during a reference life of 35000 hours (As per reference of PEP-ECO Passport PSR-0014-ed2.0-EN-2023 07 13).
A conversion factor can be used for converting the results to 1000 lumens during a reference life of 35000 hours.

VARIANT	CCT	A1-A3	A4	A5	B6	C1-C4	D
Ion Base W225B2	3000K	1.90	1.90	1.90	2.07	1.90	1.90
Ion Pin W225P2	3000K	1.90	1.90	1.90	2.07	1.90	1.90
Ion Bracket W225BR2	3000K	1.90	1.90	1.90	2.07	1.90	1.90
Ion Bracket W225BR0	2700K	2.10	2.10	2.10	2.28	2.10	2.10
Ion Bracket W225BR0	3000K	1.95	1.95	1.95	2.12	1.95	1.95
Ion Floor W225F2	2700K	2.04	2.04	2.04	2.22	2.04	2.04
Ion Floor W225F2	3000K	1.90	1.90	1.90	2.07	1.90	1.90

Information related to the sectorial EPD
This EPD is not sectoral.

Version History
This is the first version of the EPD.

ADPE – Abiotic depletion potential non-fossil resources
ADPF – Abiotic depletion potential fossil resources
AP – Acidification potential, accumulated exceedance
AUT – Austria
CB – Certification Body
CRU – Components for re-use
d/i – direct / indirect
DALI – Digital Adressable Lighting Interface
EEE – Exported electrical energy
EET – Exported thermal energy
EPD – Environmental Product Declaration
EP-freshwater – Eutrophication potential freshwater
EP-marine – Eutrophication potential marine
EP-terrestrial – Eutrophication potential terrestrial
ETP-fw – Eco toxicity freshwater
FW – Net use of fresh water
GLO – Global
GWP-biogenic – Global warming potential biogenic
GWP-fossil – Global warming potential fossil fuels
GWP-GHG – Global warming potential
GWP-luluc – Global warming potential land use and land use change
GWP-total – Global warming potential total
HTTP-c – Human toxicity, cancer effect
HTTP-nc – Human toxicity, non-cancer effects
HWD – Hazardous waste disposed
IRP – Ionizing radiation, human health
LCA – Life Cycle Assessment
MER – Materials for energy recovery
MFR – Materials for recycling
NHWD – Non–harzardous waste disposed
NRSF – Use of non–renewable secondary fuels
ODP – Depletion potential of the stratospheric ozone layer
PCR – Product Category Rules
PENRE – Use of non renewable primary energy as energy carrier
PENRM – Use of non renewable primary energy resources used as raw materials
PENRT – Total use of non renewable primary energy resource
PERE – Use of renewable primary energy as energy carrier
PERM – Use of renewable primary energy resources used as raw materials
PERT – Total use of renewable primary energy
PM – Particulate matter emissions
PMMA – Polymethylmetacrylate
POCP – Photochemical ozone creation potential
PSR – Product Specific Rules
RE – Renewable Energy
RSF – Use of renewable secondary fuels
RWD – Radioactive waste disposed
SLO – Slovenia
SM – Use of secondary material
SQP – Land use related impacts/Soil quality
UN CPC – United Nations Central Product Classification
WDP – Water (user) deprivation potential

EN 15804:2012+A2:2019 /AC:2021 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.

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General Programme Instructions of the International EPD. System. Version 5.0.1.

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ISO 14040:2021 Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2021 Environmental management — Life cycle assessment — Requirements and guidelines

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