Environmental Product Declaration

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

Adjustable pedestals for decking and tiles with accessories

from

DECK-DRY Polska Sp. z o.o.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P 13139
Publication date:	2024-06-18
Valid until:	2029-06-17

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

This EPD shows the average impact of the product range

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): *Construction Products PCR 2019:14 version 1.3.3*
PCR review was conducted by: *Martin Erlandsson, IVL Swedish Environmental Research Institute, Martin.Erlandsson@ivl.se*
Life Cycle Assessment (LCA)
LCA accountability: *Amy Stockwell, Carbonzero AB, Amy.Stockwell@carbonzero.se*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: Third-party verifier: *Stephen Forson, Viridis Pride Ltd, S.Forson@viridispride.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 programmes, 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 characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: DECK-DRY Polska Sp. z o.o.
Contact: Filip Baranowski, filip.baranowski@ddgro.eu
Description of the organisation: We are a dynamic and innovative company dedicated to providing high quality products and system solutions to our customers for decking and terraces. Our team is made up of experienced and qualified specialists who have the knowledge and skills needed to perform their work to the highest standard. From the very beginning, we have focused on development and innovation with high respect for the natural environment. We are not afraid of challenges; on the contrary, we approach them with great enthusiasm and drive. Our projects are always refined and executed with the utmost care.
Location of production site(s): Poland

Product information

Product name: Adjustable pedestals for decking and tiles and their accessories
Product identification: adjustable pedestals series. Full list of products is on page 4 and technical specification on page 5.
Product description: plastic pedestals are an ideal solution for supporting terrace tiles, tile joists, grates and other pavement constructions such as floors, walkways or platforms. They are widely used both in residential buildings as well as public and industrial facilities.
The parts are made by injection moulding a plastic mix. The parts are then fitted together before packing. The majority of the plastic used is from recycled sources, but for technical reasons a few parts require virgin polypropylene. The amount of virgin polypropylene ranges from 0 – 10% of the polypropylene. An average of 5% is reported in this EPD.
UN CPC code: 3695 builders' ware of plastics
Geographical scope: Europe.

LCA information

Functional unit / declared unit: 1 kg product with packaging
Reference service life: not applicable
Time representativeness: 2023
Database(s) and LCA software used: LCA for Experts (GaBi) v10.7.1.28, Ecoinvent 3.8
Description of system boundaries: Cradle to gate with options, modules A1-A3, A4-A5, C1–C4, D
Allocation: the factory produces a range of injection moulded products, therefore mass allocation was used, based on actual manufacturing data for 2023. Cut off rules were followed as per EN15804.
Scenario: The product is made in Poland and sold mainly within the EU and USA. Europe was assumed for the scenario analysis.

List of products

Series	Support pads	Spiral	Raptor	Clever level
Products	DDP002	SPIRAL 010-017	RAPTOR S	CLEVER LEVEL 025-040
	DDP008	SPIRAL 017-030	RAPTOR M	CLEVER LEVEL 040-080
	DDP010	SPIRAL 030-050	RAPTOR L	CLEVER LEVEL 080-200
	DDP015	SPIRAL 050-070	RAPTOR XL	
	DDP016	SPIRAL 070-090	RAPTOR XL1	
		SPIRAL 090-110	RAPTOR XL2	
		SPIRAL 110-130	RAPTOR XL3	
		SPIRAL 130-150	RAPTOR XL4	
		SPIRAL 150-170		
		SPIRAL 170-190		
		SPIRAL 190-210		

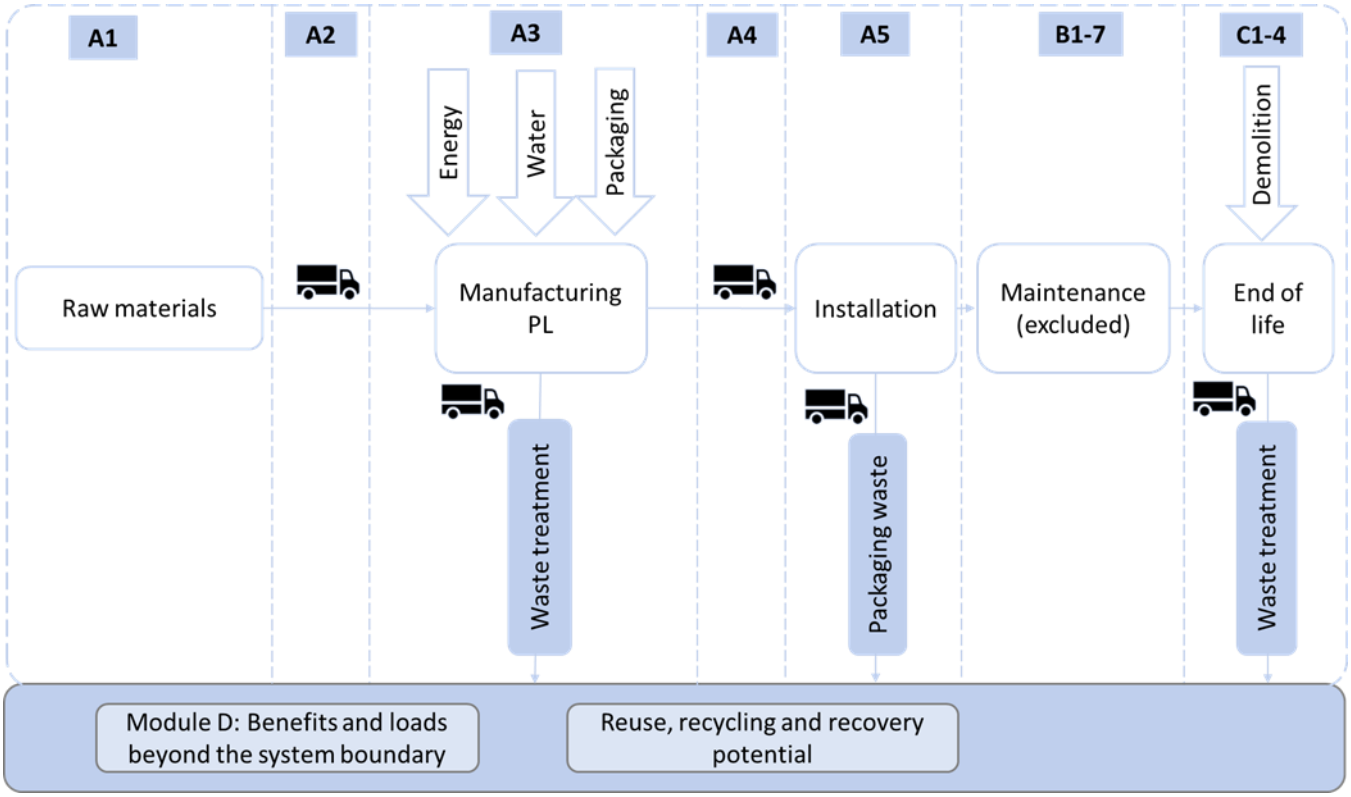
Series	Standard	Max	Lawn edges	Hidden deck system	Others
Products	DDP 030-045	MAX 045-075	OT	LT9	WPCK
	DDP 045-070	MAX 075-150	Nail PP	LT12	FIX3
	DDP 070-120	MAX 150-350		LT14	FIX8
	DDP 120-220	MAX 350-550		ST/END	PIN
	DDP 220-320	MAX 550-750			SBR
	DDP 320-420	MAX 750 -950			

Technical Specification

Pos.	Essential characteristics	Performance				Assessment methods
		SPIRAL	STANDARD	MAX	Support pads	
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Characteristic pedestal vertical load bearing capacity, F_{ck}, kN Load scheme: - A - B - C	 24,9 14,0 8,3	 11,3 8,5 5,6	 17,4 12,2 6,8	 37,8 17,3 9,6	PN-EN 12825:2001 load scheme A, B and C according to p. 3.2.1 test temp. (20 ± 2)°C
2	Decrease of pedestal load bearing capacity [4] induced by laboratory light source exposure, C_{UV}, %	≤ 31				PN-EN 12825:2001 load scheme A according to p. 3.2.1 sample conditioning according to [1]
3	Decrease of pedestal load bearing capacity [4] induced by thermal shock, C_{ts}, %	≤ 5				PN-EN 12825:2001 load scheme according to p. 3.2.1 sample conditioning according to [2]
4	Decrease of pedestal load bearing capacity [4] induced by salt water impact, C_{sw}, %	≤ 5				PN-EN 12825:2001 load scheme according to p. 3.2.1 sample conditioning according to [3]
5	Decrease of pedestal load bearing capacity [4] induced by temperature decrease to -20°C (24 h), C_{tl}, %	≤ 5				PN-EN 12825:2001 load scheme A and B according to p. 3.2.1
6	Decrease of pedestal load bearing capacity [4] induced by temperature increase to 65°C (24 h), C_{th}, %	≤ 55				PN-EN 12825:2001 load scheme A, B and C according to p. 3.2.1
7	Characteristic value of deformation increase per unit of force, induced by creep during 1000 h with initial load $0{,}3 \cdot F_{cm}$, $\Delta\varepsilon_{vk,1000h}$, %/kN	≤ 2,0	≤ 3,2	≤ 2,3	-	PN-EN 12825:2001 p. 3.2.2 test temp. (20 ÷ 25)°C
8	Reaction to fire classification, class	E				PN-EN 13501-1:2019

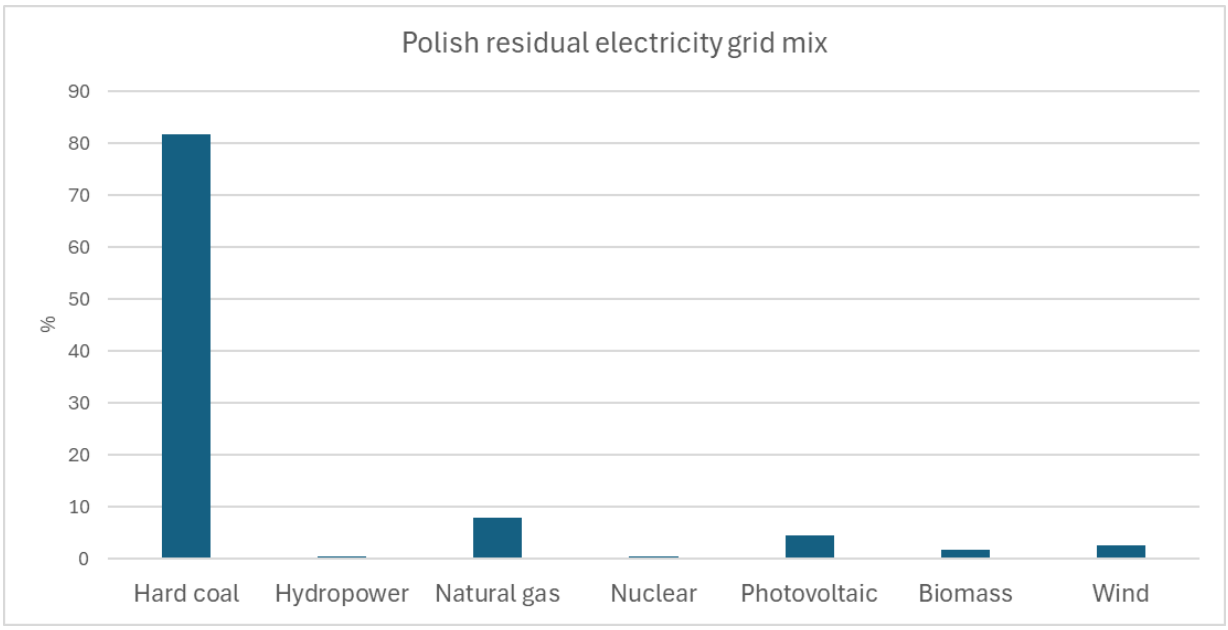
[1] exposure to UV according to PN-EN ISO 4892-2:2013; exposure: 1000 cycles of 120 min (102 min drying + 18 min soaking in water)
[2] samples exposed to 10 cycles: soaking in water during (72 ± 1) h, freezing in temp. (-30 ± 2)°C during (24 ± 2) h, drying in temp. (90 ± 2)°C during (72 ± 2) h; last cycle without drying
[3] samples exposed to 10% NaCl environment during (112 ± 1) days, in temp. (23 ± 2)°C
[4] with reference to average value of pedestal vertical load bearing capacity F_{cm} in temp. (20 ± 2)°C

System diagram:



Electricity grid mix:

Electricity used is Polish residual grid mix based on AIB 2022. It has a GWP-GHG of 6.73 kg CO2e per kWh. The mix is shown below.



A4 transport to building site. The product is assumed sold in Europe in this scenario.

	Truck
Vehicle and fuel types	Truck-trailer, Euro 0 - 6 mix, 34 - 40t gross weight / 27t payload capacity. Using 0.021 kg diesel per tkm
Distance /km	1000
Capacity utilisation /%	61 Dataset default value
Bulk density of transported products / kg/m^3	Varies, as products of different sizes can be shipped together for client.
Volume capacity utilisation factor	1

A5 installation: the products are installed by hand. Therefore the impacts are due to packaging waste disposal, shown in the table below. Pallets were assumed to be reused.

Material	Landfill		Incineration with energy recovery		Recycling	
	%	kg	%	kg	%	kg
Paper and cardboard	0	0	2	3.58E-03	98	1.75E-01
Plastic	5	1.70E-04	23	7.82E-04	71	2.41E-03

C1-4 waste treatment:
A generic dataset was used to calculate the demolition, as the product is a part of the construction. The dataset specifies 0.172 kg diesel used per tonne of excavated material.

The pedestals are made from mixed plastic with calcium carbonate, therefore they cannot be recycled, therefore mixed materials excluding recycling was assumed. The assumption is based on Eurostat 2020 as the waste management occurs across Europe. Note that the incineration includes energy recovery.

Material	Recycling rate	Incineration rate	Landfill rate
Mixed materials	52 %	27 %	21 %
Mixed materials excluding recycling (calculated)	0 %	56 %	44 %
Mass plastic to waste scenario	0 kg	5.44E-01 kg	4.28E-01 kg
Mass inert material to waste scenario	0 kg	1.40E-02 kg	1.10E-02 kg

The dataset used specifies the amount of energy produced during incineration. This is classed as exported energy and listed in the table below.

Dataset	Exported electricity /MJ	Exported thermal energy /MJ
Plastic packaging in municipal waste incineration plant	2.47E+00	4.41E+00
Waste incineration of glass/inert material	-2.03E-03	0

D benefits: the export energy were substituted with average European electricity grid mix and thermal energy from natural gas.
The recycled packaging was substituted with PE film and kraftliner. As there was no suitable recycling dataset a 10% loss of quality/quantity was assumed.

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
PP recycled	8.2E-01	100 %	0
PP virgin	9.2E-02	0	0
Other recycled plastics	5.6E-02	100 %	0
Calcium carbonate	2.5E-02	0	0
TOTAL	1	88 %	0
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Cardboard	1.8E-01	18%	7.9E-02
Pallet	1.6E-02	1.6 %	6.8E-03
Plastic wrap	3.4E-03	0.3%	0
Paper thimble	3.3E-04	0.03%	1.4E-04
TOTAL	2.0E-01	20%	8.6E-02

There are no dangerous substances from the candidate list of SVHC for authorization.

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	ND	ND	X	X	X	X	X
Geography	EU	EU	PL	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used	76%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	± 10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804 and EF 3.1

Results per 1 kg product

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	7.43E-01	8.86E-02	1.09E-02	6.11E-04	7.38E-03	1.36E+00	2.95E-02	-4.08E-01
GWP-biogenic	kg CO_2 eq.	-8.48E-02	2.91E-04	8.65E-02	1.98E-06	2.42E-05	2.01E-04	4.30E-05	-5.66E-01
GWP-luluc	kg CO_2 eq.	7.95E-04	8.16E-04	8.17E-05	5.55E-06	6.80E-05	2.25E-05	2.47E-05	1.58E-01
GWP-total	kg CO_2 eq.	6.59E-01	8.97E-02	9.74E-02	6.19E-04	7.47E-03	1.36E+00	2.96E-02	-4.41E-04
ODP	kg CFC 11 eq.	2.24E-11	1.15E-14	2.17E-15	7.80E-17	9.55E-16	3.04E-11	4.98E-14	-4.96E-12
AP	mol H^+ eq.	2.04E-03	1.08E-04	1.24E-05	3.13E-06	8.98E-06	1.72E-04	8.94E-05	-7.72E-04
EP-freshwater	kg P eq.	4.23E-06	3.22E-07	3.48E-08	2.19E-09	2.68E-08	7.12E-08	5.66E-06	-2.36E-06
EP-marine	kg N eq.	5.24E-04	3.70E-05	4.28E-06	1.47E-06	3.08E-06	4.72E-05	2.05E-05	-2.62E-04
EP-terrestrial	mol N eq.	5.39E-03	4.34E-04	5.10E-05	1.63E-05	3.62E-05	7.90E-04	2.25E-04	-2.74E-03
POCP	kg NMVOC eq.	1.50E-03	9.45E-05	1.10E-05	4.11E-06	7.87E-06	1.35E-04	6.51E-05	-7.53E-04
ADP-minerals&metals*	kg Sb eq.	1.13E-07	5.84E-09	5.94E-10	3.97E-11	4.87E-10	-2.85E-09	7.85E-10	-6.93E-08
ADP-fossil*	MJ	1.09E+01	1.20E+00	1.23E-01	8.17E-03	1.00E-01	6.14E-01	4.41E-01	-1.00E+01
WDP*	m^3	2.95E-02	1.06E-03	9.19E-04	7.24E-06	8.87E-05	1.30E-01	-3.97E-04	-6.56E-02
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

Results per 1 kg product									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	7.44E-01	8.97E-02	1.10E-02	6.18E-04	7.47E-03	1.36E+00	2.96E-02	-5.69E-01

Resource use indicators

Results per 1 kg product									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	6.57E+00	8.74E-02	-5.81E-02	5.94E-04	7.28E-03	1.45E-01	4.00E-02	-6.23E+00
PERM	MJ	3.37E+00	0.00E+00	-3.37E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	9.94E+00	8.74E-02	-3.43E+00	5.94E-04	7.28E-03	1.45E-01	4.00E-02	-6.23E+00
PENRE	MJ	-3.27E+01	1.20E+00	7.74E-02	8.20E-03	1.00E-01	2.50E+01	1.96E+01	-1.00E+01
PENRM	MJ	4.38E+01	0.00E+00	-1.63E-01	0.00E+00	0.00E+00	-2.44E+01	-1.92E+01	0.00E+00
PENRT	MJ	1.11E+01	1.20E+00	-8.53E-02	8.20E-03	1.00E-01	6.14E-01	4.41E-01	-1.00E+01
SM	kg	9.88E-01	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
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
FW	m^3	2.64E-03	9.57E-05	2.87E-05	6.51E-07	7.97E-06	3.10E-03	4.88E-06	-2.75E-03
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								

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per 1 kg product									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.82E-07	3.73E-12	4.45E-13	2.54E-14	3.11E-13	4.81E-12	3.70E-11	-2.53E-08
Non-hazardous waste disposed	kg	2.65E-02	1.84E-04	5.24E-04	1.25E-06	1.53E-05	1.23E-01	4.37E-01	-8.96E-03
Radioactive waste disposed	kg	9.57E-05	2.25E-06	3.43E-07	1.53E-08	1.88E-07	2.22E-05	5.22E-06	-7.28E-04

Output flow indicators

Results per 1 kg product									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	1.64E-02	0.00E+00	1.63E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	1.46E-02	0.00E+00	1.78E-01	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
Exported energy, electricity	MJ	0.00E+00	0.00E+00	1.12E-02	0.00E+00	0.00E+00	2.46E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	2.02E-02	0.00E+00	0.00E+00	4.40E+00	0.00E+00	0.00E+00

Disclaimers

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.

Using the results of modules A1-A3 without considering the results of module C is discouraged.

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 – This impact category 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.		
Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.		

Additional information

Using adjustable pedestals to install terraces have two additional benefits:

- A cushion of air between the ground and the terrace acts as thermal insulation.
- The terrace is not attached directly to the ground, therefore there is a gap for water runoff, reducing the likelihood of water damage. This allows the terrace to have a longer lifetime, than might otherwise be had.

References

Association of Issuing Bodies (2023)	European Residual Mixes 2022
EN 15804:2012+A2	Sustainability of construction works – Environmental product declaration – Core rules for the product category of constructions products
EPD International (2021)	General Programme Instructions of the International EPD® System, version 4.0
Eurostat (2020)	https://ec.europa.eu/eurostat/databrowser/view/env_wastrt__custom_10502675/default/table?lang=en Accessed 2024-03-21
Google Maps	https://www.google.co.uk/maps accessed 2024-03-21
ISO 14020:2022	International Standard ISO 14020 – Environmental statements and programmes for products – Principles and general requirements
ISO 14025:2006	International Standard ISO 14025 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006	International Standard ISO 14040: Environmental Management – Life cycle assessment – Principles and framework. Second edition 2006-07-01.
ISO 14044:2006	International Standard ISO 14044: Environmental Management – Life cycle assessment – Requirements and Guidelines.
PCR 2019:14	Construction products v1.3.3

EPD®

www.environdec.com