Environmental Product Declaration

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

Multimodulo

EPD of multiple products, based on the representative product: EMMDULO7125. Other products: EMMDULO7113, EMMDULO7115, EMMDULO7117, EMMDULO7120, EMMDULO7125, EMMDULO7127, EMMDULO7130, EMMDULO7135, EMMDULO7140

from

Geoplast Spa

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products, based on the representative product
EPD registration number:	EPD-IES-0018631:002
Version date:	2026-04-10
Validity date:	2030-01-11
	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): *PCR Construction Products, PCR 2019:14, V 2.0.1. - UN CPC 36950 Builders' ware of plastics n.e.c*
PCR review was conducted by: *the Technical Committee of the International EPD® System. Review chairs: Rob Rouwette (chair), Noa Meron (co-chair). A full list of members available on www.environdec.com.*

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **EPD process certification* without a pre-verified LCA/EPD tool** Third-party verifier: *DNV Business Assurance Italia S.r.l* Approved by: Accredia (10) *EPD process certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.envrondec.com.
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 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.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: Geoplast Spa
Address: Via Martiri della Libertà, 6/8 - 35010 Grantorto (Padova); Via Martiri della Libertà 7, 35010 Grantorto (Padova)
Contact: paolo.pirotto@geoplastglobal.com, +39 049 9490289
Address and contact information of the LCA practitioner commissioned by the EPD owner, if applicable: EcamRicert Srl Viale del Lavoro, 6, 36030 Monte di Malo VI (https://ecamricert.com/)
Description of the organisation: Geoplast S.p.A. is an Italian multinational specialized in the regeneration of polyethylene (high and low density) and polypropylene, offering a wide range of solutions for formwork, foundations, drainage and sports flooring. Geoplast S.p.A. is structured into 7 business divisions to which specific skills, resources and investments in Research & Development are dedicated. The company is spread over three plants on a total area of 40,000 m² of which 10,000 m² are covered. The production department has 25 production lines: 2 regeneration lines and 25 high-tonnage injection presses, ranging from 700 t to 3500 t of closing force, with injection capacity of up to 61 kg. The production capacity of over 25,000 t of transformed plastic material, with more than 20 million items produced per year, places Geoplast S.p.A. among the most important industrial realities in the sector.

PRODUCT INFORMATION

Product name: Multimodulo
Product identification: permanent formwork system designed for the construction of high-performance ventilated crawl spaces and structural sub-floors Visual representation (e.g., an image) of the product



UN CPC code: 36950 Builders' ware of plastics n.e.c
Product description: MULTIMODULO is a permanent formwork system designed for the construction of high-performance ventilated crawl spaces and structural sub-floors. It creates a physical separation between the ground and the structure, ensuring optimal ventilation to prevent rising damp and the accumulation of hazardous gases. The specific geometry of MULTIMODULO is optimized for large-scale industrial and commercial surfaces, allowing for a rapid and stable installation process. The resulting reinforced concrete structure features a high load-bearing capacity, suitable for heavy static loads and dynamic traffic. MULTIMODULO is manufactured from 100% recycled polypropylene with high mechanical strength

The table below reports the item codes included in the analysis. Among these, code **EMMDULO7125** has been selected as the most representative reference product for the study.

Code	Description
EMMDULO7113	MULTIMODULO H.13
EMMDULO7115	MULTIMODULO H.15
EMMDULO7117	MULTIMODULO H.17
EMMDULO7120	MULTIMODULO H.20
EMMDULO7125	MULTIMODULO H.25
EMMDULO7127	MULTIMODULO H.27
EMMDULO7130	MULTIMODULO H.30
EMMDULO7135	MULTIMODULO H.35
EMMDULO7140	MULTIMODULO H.40

Note: the product is made up of the "assembly" of the items/codes indicated in the EPD:

Name and location of production site(s): Via Martiri della Libertà, 6/8 - 35010 Grantorto (Padova); Via Martiri della Libertà 7, 35010 Grantorto (Padova)

CONTENT DECLARATION

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
PP*	1,00	83%	0	0
TOTAL	1,00	0	0	0

*16% pre consumer

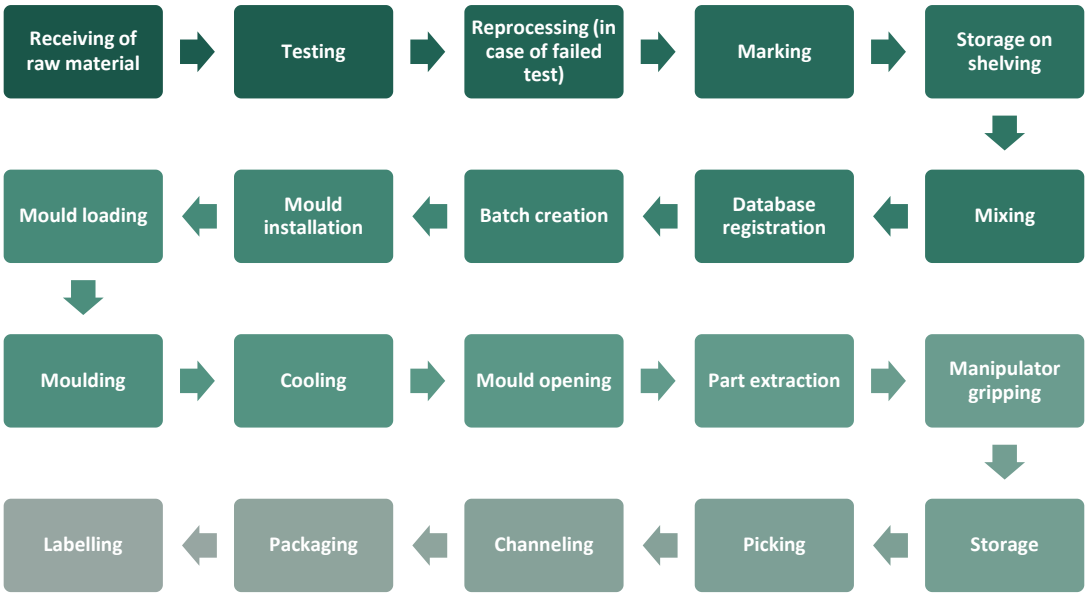
Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/product or declared unit
Plastic (PE,PS)	2,24E-03	0,22%	0
TOTAL	2,24E-03	0,22%	0

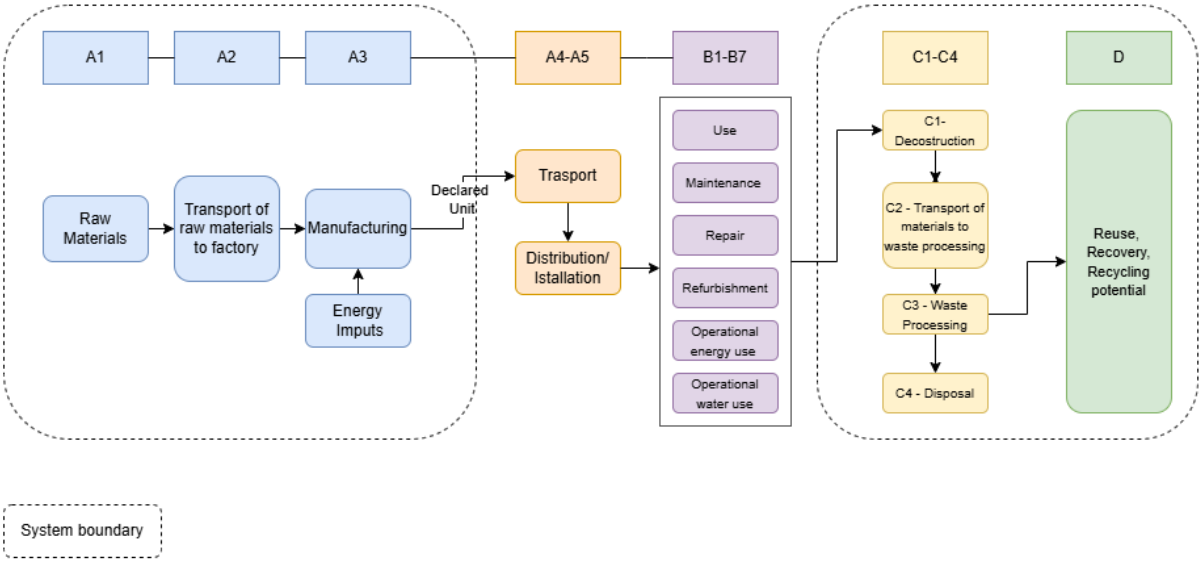
1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

The product does not contain substances included in the "Candidate list of substances of very high concern (SVHC) for authorization" in a percentage greater than 0.1%

LCA INFORMATION

Declared unit: 1kg
Time representativeness: 2024
Geographical scope: GLO (A1-A2), ITA (A3,C1-4,D)
Database(s) and LCA software used: Simapro9, Ecoinvent 3.11, EF3.1
Description of system boundaries: Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)
Process flow diagram:





More information:

Allocation and assumptions: In this study, allocation was applied only when it was not possible to separately measure material, energy, or waste flows associated with the product under investigation. In line with EN 15804:2012+A2:2019, the allocation procedure followed a hierarchy whereby allocation was avoided whenever possible, otherwise applied on the basis of physical parameters such as mass or volume when economic differences were negligible, and resorted to economic values only as a last option.

A cut-off criterion was applied to inventory flows whose individual contribution was equal to or below 0.1% of the total impacts and whose cumulative contribution did not exceed 5% of the overall total.

All functional data required for the product study have been assessed. It is specified that the scenarios adopted for modelling modules C1, C2, C3, C4 and D were considered as follows:

- The impacts associated with demolition (C1) are assumed to be negligible. Any removal operations do not require the use of electricity or other inputs. In general, removal, if necessary, can be carried out manually.
- A distance of 50 km is assumed for phase C2.
- After demolition activities, the product is recovered at a rate of 80%, according to: https://remecologia.it/rifiuti-speciali-in-aumento-nel-settore-edile-si-recupera-oltre-l80/ (Rapporto Rifiuti Speciali, 2023).
- For module D, the potential environmental benefits beyond the system boundary related to product recovery have been defined, net of the amount of recycled content already present in the product, set at 67% (post-consumer).

Climate impact of electricity: The climate impact associated with the electricity consumed during the manufacturing processes amounts to 0,719 kgCO_2eq./kWh.

Summary of data quality assessment:

CATEGORY	DESCRIPTION
Data collection period	2024
Sites used	Via Martiri della Libertà, 6/8 - 35010 Grantorto (Padova); Via Martiri della Libertà 7, 35010 Grantorto (Padova)
Geography and Technology	ITA/GLO (EU)
	Where available, datasets with geographical coverage representative of Italy were prioritized. For processes for which country-specific datasets were not available, datasets representative of the European Region (RER) were selected. For key datasets (e.g., plastics), the selection was based on both geographical and technological representativeness. In these cases, the most conservative dataset among those with a similar technological scope was selected to ensure the robustness of the results. Production takes place in Italy. Use and end-of-life are modeled primarily for Italy.

Average	No average is assesed
LCI/LCIA database	Ecoinvent 3.11
EPD used	No EPD used
Data quality scheme	EN 15804:2012+A2:2019, Annex E
Use of fair data with more than 30% basic impact	No fair data used
Use of poor relevant data	No poor data used
Use of very poor relevant data	No very poor data used

Share of primary data used: Within modules A1–A3, : 43% of the GWP-GHG results are based on primary data. The table below reports the processes that contribute more than 10% to the GWP-GHG results of modules A1–A3

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Electricity	Company data	EPD owner	2024	Primary data	43%
Total share of primary data, of GWP-GHG results for A1-A3					43%

Module D: The benefits and loads beyond the system boundary (Module D) were calculated according to the formula provided in EN 15804:2019, considering the balance between scrap material flows and the corresponding substitution effects.
In particular:

- The net amount of scrap content produced by the system was calculated as the difference between the scrap content exiting the system (MMR out) and the scrap content fed into the system (MMR in).
- The resulting amount was then multiplied by the difference between the environmental profile of materials produced from recycled scrap (EMR after EoW out) and that of equivalent materials produced from primary resources (EVM Sub out).
- A correction factor (QR out / QSub) was applied, accounting for the quality ratio between the recovered secondary material and the substituted primary material.

This approach allows to consistently quantify the potential environmental benefits associated with the substitution of primary materials with recycled materials at end-of-life. In line with EN 15804:2019, European average datasets were used for both secondary and primary materials, ensuring methodological consistency and comparability of results.
Modelling and characterization method: For the inventory analysis and the calculation of eco-profiles, the SimaPro 9 software was used, and the “ECOINVENT 3.11” databases were selected. For the characterization of inventory data with reference to the various types of impacts influenced by the system under study, the “EN 15804 +A2 / EF 3.1 Method” calculation method was applied.

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

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	GLO	GLO	ITA	-	-	-	-	-	-	-	-	-	ITA	ITA	ITA	ITA	ITA
Share of primary data	43%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-6%/+79%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

Mandatory impact category indicators according to EN 15804

Results per functional or 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.	1,57 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,44 E-03	1,31 E-03	1,09 E-04	4,78 E-01
GWP-fossil	kg CO_2 eq.	1,53 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,43 E-03	1,28 E-03	1,09 E-04	4,86 E-01
GWP-biogenic	kg CO_2 eq.	4,57 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,83 E-06	2,39 E-05	1,92 E-08	-7,47 E-03
GWP-luluc	kg CO_2 eq.	1,00 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,33 E-07	6,64 E-08	4,49 E-09	1,57 E-04
ODP	kg CFC 11 eq.	5,73 E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,91 E-10	1,22 E-11	1,66 E-12	1,48 E-08
AP	mol H^+ eq.	8,60 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,18 E-05	7,09 E-06	1,01 E-06	1,24 E-03
EP-freshwater	kg P eq.	5,70 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,34 E-08	6,17 E-07	9,09 E-10	5,43 E-05
EP-marine	kg N eq.	1,79 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,31 E-06	1,19 E-06	4,75 E-07	2,52 E-04
EP-terrestrial	mol N eq.	1,76 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	9,07 E-05	1,20 E-05	5,20 E-06	2,82 E-03
POCP	kg NMVOC eq.	5,89 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	3,60 E-05	3,65 E-06	1,55 E-06	2,20 E-03
ADP-minerals&metals*	kg Sb eq.	5,67 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,20 E-10	1,21 E-11	3,82 E-12	3,34 E-08
ADP-fossil*	MJ	1,30 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	0,00 E+00	1,43 E-03	1,39 E+01
WDP*	m^3	2,20 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,90 E-05	-5,48 E-06	1,80 E-06	7,38 E-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 on these results are high or as there is limited experienced with the indicator.*

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.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	1,53 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,38 E-03	1,27 E-03	1,08 E-04	4,77 E-01

Resource use indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,73 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,80 E-04	8,49 E-04	7,39 E-02	- 5,55 E-03
PERM	MJ	7,39 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	- 7,39 E-02	0,00 E+00
PERT	MJ	1,81 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,80 E-04	8,49 E-04	3,11 E-06	- 5,55 E-03
PENRE	MJ	- 1,92 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	1,45 E-07	3,22 E+01	1,58 E+01
PENRM	MJ	3,22 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	- 3,22 E+01	- 1,85 E+00
PENRT	MJ	1,30 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	1,45 E-07	1,43 E-03	1,39 E+01
SM	kg	6,80 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	5,78 E-08	0,00 E+00	2,87 E-09	- 2,02 E-01
RSF	MJ	2,51 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,79 E-09	0,00 E+00	4,97 E-10	1,68 E-06
NRSF	MJ	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
FW	m^3	5,73 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,17 E-06	2,68 E-07	4,32 E-08	1,76 E-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 functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4,39 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,27 E-06	5,83 E-06	1,50 E-07	2,48 E-02
Non-hazardous waste disposed	kg	4,25 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	3,62 E-04	9,03 E-05	5,11 E-06	1,93 E+00
Radioactive waste disposed	kg	3,06 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	6,76 E-09	0,00 E+00	6,65 E-11	-1,56 E-06

Output flow indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Material for recycling	kg	3,70 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,53 E-09	8,00 E-01	3,81 E-11	-1,02 E-04
Materials for energy recovery	kg	2,11 E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,65 E-11	0,00 E+00	1,19 E-12	9,27 E-08
Exported energy, electricity	MJ	1,93 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,47 E-06	0,00 E+00	2,54 E-08	-1,68 E-03
Exported energy, thermal	MJ	1,36 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,06 E-05	0,00 E+00	1,02 E-08	9,10 E-05

Additional LCA results (other environmental performance results) of the product(s)

Percentage differences between EMODULO5020 and the other products

	EMMDULO7125	EMMDULO7115	EMMDULO7120	EMMDULO7127	EMMDULO7130	EMMDULO7135	EMMDULO7120
Global warming potential - total (GWP-total)	1,58E +00	14,4%	40,0%	21,6%	78,6%	10,1%	40,0%
Global warming potential - fossil fuels (GWP-fossil)	1,54E +00	14,5%	40,5%	21,8%	79,5%	10,2%	40,5%
Global warming potential - biogenic (GWP-biogenic)	4,57E-02	9,1%	25,5%	13,8%	50,2%	6,6%	25,5%
Global warming potential - land use and land use change (GWP-luluc)	1,00E-03	1,2%	3,3%	1,7%	6,5%	0,7%	3,3%
Depletion potential of the stratospheric ozone layer (ODP)	5,75E-08	8,0%	13,9%	3,9%	22,4%	-5,1%	13,9%
Acidification potential, accumulated exceedance (AP)	8,63E-03	14,3%	40,1%	21,6%	78,9%	10,3%	40,1%
Eutrophication potential - freshwater (EP-freshwater)	5,71E-04	18,8%	52,7%	28,5%	103,8 %	13,6%	52,7%
Eutrophication potential - marine (EP-marine)	1,80E-03	11,5%	32,3%	17,4%	63,7%	8,3%	32,3%
Eutrophication potential - terrestrial (EP-terrestrial)	1,77E-02	11,8%	33,0%	17,8%	65,0%	8,4%	33,0%
Photochemical ozone creation potential (POCP)	5,93E-03	10,7%	30,1%	16,2%	59,2%	7,6%	30,1%
Abiotic depletion potential - non-fossil resources (ADPE)	5,67E-05	0,0%	0,0%	0,0%	0,1%	0,0%	0,0%
Abiotic depletion potential - fossil resources (ADPF)	1,31E +01	0,2%	0,2%	-0,1%	0,2%	-0,4%	0,2%
Water (user) deprivation potential (WDP)	2,20E-01	0,0%	-0,9%	-0,8%	-2,2%	-1,0%	-0,9%

Note: the differences are mainly due to different energy consumption

LCA results of the product(s) - main environmental performance results – 100% RECYCLE SCENARIO

Mandatory impact category indicators according to EN 15804

Results per functional or 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.	1,57 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,44 E-03	1,63 E-03	0,00 E+00	-2,40 E-02
GWP-fossil	kg CO_2 eq.	1,53 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,43 E-03	1,60 E-03	0,00 E+00	-2,44 E-02
GWP-biogenic	kg CO_2 eq.	4,57 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,83 E-06	2,99 E-05	0,00 E+00	3,75 E-04
GWP-luluc	kg CO_2 eq.	1,00 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,33 E-07	8,30 E-08	0,00 E+00	-7,87 E-06
ODP	kg CFC 11 eq.	5,73 E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,91 E-10	1,53 E-11	0,00 E+00	-7,43 E-10
AP	mol H^+ eq.	8,60 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,18 E-05	8,86 E-06	0,00 E+00	-6,22 E-05
EP-freshwater	kg P eq.	5,70 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,34 E-08	7,72 E-07	0,00 E+00	-2,73 E-06
EP-marine	kg N eq.	1,79 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,31 E-06	1,49 E-06	0,00 E+00	-1,26 E-05
EP-terrestrial	mol N eq.	1,76 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	9,07 E-05	1,50 E-05	0,00 E+00	-1,41 E-04
POCP	kg NMVOC eq.	5,89 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	3,60 E-05	4,56 E-06	0,00 E+00	-1,11 E-04
ADP-minerals&metals*	kg Sb eq.	5,67 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,20 E-10	1,51 E-11	0,00 E+00	-1,68 E-09
ADP-fossil*	MJ	1,30 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	0,00 E+00	0,00 E+00	-6,98 E-01
WDP*	m^3	2,20 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,90 E-05	-6,85 E-06	0,00 E+00	-3,71 E-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 on these results are high or as there is limited experienced with the indicator.*

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.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[2]	kg CO_2 eq.	1,53 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,38 E-03	1,59 E-03	0,00 E+00	-2,40 E-02

Resource use indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,73 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,80 E-04	7,50 E-02	0,00 E+00	2,79 E-04
PERM	MJ	7,39 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	-7,39 E-02	0,00 E+00	0,00 E+00
PERT	MJ	1,81 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,80 E-04	1,06 E-03	0,00 E+00	2,79 E-04
PENRE	MJ	-1,92 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	3,22 E+01	0,00 E+00	-7,91 E-01
PENRM	MJ	3,22 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	-3,22 E+01	0,00 E+00	9,26 E-02
PENRT	MJ	1,30 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	1,81 E-07	0,00 E+00	-6,98 E-01
SM	kg	6,80 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	5,78 E-08	0,00 E+00	0,00 E+00	1,01 E-02
RSF	MJ	2,51 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,79 E-09	0,00 E+00	0,00 E+00	-8,45 E-08
NRSF	MJ	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
FW	m^3	5,73 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,17 E-06	3,35 E-07	0,00 E+00	-8,81 E-05
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														

[2] 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 functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4,39 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,27 E-06	7,29 E-06	0,00 E+00	-1,24 E-03
Non-hazardous waste disposed	kg	4,25 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	3,62 E-04	1,13 E-04	0,00 E+00	-9,70 E-02
Radioactive waste disposed	kg	3,06 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	6,76 E-09	0,00 E+00	0,00 E+00	7,83 E-08

Output flow indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Material for recycling	kg	3,70 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,53 E-09	1,00 E+00	0,00 E+00	5,12 E-06
Materials for energy recovery	kg	2,11 E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,65 E-11	0,00 E+00	0,00 E+00	-4,66 E-09
Exported energy, electricity	MJ	1,93 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,47 E-06	0,00 E+00	0,00 E+00	8,46 E-05
Exported energy, thermal	MJ	1,36 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,06 E-05	0,00 E+00	0,00 E+00	-4,57 E-06

LCA results of the product(s) - main environmental performance results – 100% DISPOSAL SCENARIO

Mandatory impact category indicators according to EN 15804

Results per functional or 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.	1,57 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,44 E-03	0,00 E+00	5,45 E-04	0,00 E+00
GWP-fossil	kg CO_2 eq.	1,53 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,43 E-03	0,00 E+00	5,45 E-04	0,00 E+00
GWP-biogenic	kg CO_2 eq.	4,57 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,83 E-06	0,00 E+00	9,58 E-08	0,00 E+00
GWP-luluc	kg CO_2 eq.	1,00 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,33 E-07	0,00 E+00	2,24 E-08	0,00 E+00
ODP	kg CFC 11 eq.	5,73 E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,91 E-10	0,00 E+00	8,29 E-12	0,00 E+00
AP	mol H^+ eq.	8,60 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,18 E-05	0,00 E+00	5,03 E-06	0,00 E+00
EP-freshwater	kg P eq.	5,70 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,34 E-08	0,00 E+00	4,55 E-09	0,00 E+00
EP-marine	kg N eq.	1,79 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,31 E-06	0,00 E+00	2,38 E-06	0,00 E+00
EP-terrestrial	mol N eq.	1,76 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	9,07 E-05	0,00 E+00	2,60 E-05	0,00 E+00
POCP	kg NMVOC eq.	5,89 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	3,60 E-05	0,00 E+00	7,76 E-06	0,00 E+00
ADP-minerals&metals*	kg Sb eq.	5,67 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,20 E-10	0,00 E+00	1,91 E-11	0,00 E+00
ADP-fossil*	MJ	1,30 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	0,00 E+00	7,13 E-03	0,00 E+00
WDP*	m^3	2,20 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,90 E-05	0,00 E+00	8,98 E-06	0,00 E+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															

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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.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[3]	kg CO_2 eq.	1,53 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	8,38 E-03	0,00 E+00	5,42 E-04	0,00 E+00

Resource use indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,73 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,80 E-04	0,00 E+00	7,39 E-02	0,00 E+00
PERM	MJ	7,39 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	- 7,39 E-02	0,00 E+00
PERT	MJ	1,81 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,80 E-04	0,00 E+00	1,55 E-05	0,00 E+00
PENRE	MJ	- 1,92 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	0,00 E+00	3,22 E+01	0,00 E+00
PENRM	MJ	3,22 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	- 3,22 E+01	0,00 E+00
PENRT	MJ	1,30 E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,12 E-01	0,00 E+00	7,13 E-03	0,00 E+00
SM	kg	6,80 E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	5,78 E-08	0,00 E+00	1,43 E-08	0,00 E+00
RSF	MJ	2,51 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,79 E-09	0,00 E+00	2,48 E-09	0,00 E+00
NRSF	MJ	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
FW	m^3	5,73 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,17 E-06	0,00 E+00	2,16 E-07	0,00 E+00
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															

[3] 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 functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4,39 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,27 E-06	0,00 E+00	7,48 E-07	0,00 E+00
Non-hazardous waste disposed	kg	4,25 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	3,62 E-04	0,00 E+00	2,56 E-05	0,00 E+00
Radioactive waste disposed	kg	3,06 E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	6,76 E-09	0,00 E+00	3,32 E-10	0,00 E+00

Output flow indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00 E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Material for recycling	kg	3,70 E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	2,53 E-09	0,00 E+00	1,90 E-10	0,00 E+00
Materials for energy recovery	kg	2,11 E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,65 E-11	0,00 E+00	5,95 E-12	0,00 E+00
Exported energy, electricity	MJ	1,93 E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	4,47 E-06	0,00 E+00	1,27 E-07	0,00 E+00
Exported energy, thermal	MJ	1,36 E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00 E+00	1,06 E-05	0,00 E+00	5,11 E-08	0,00 E+00

ABBREVIATIONS

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
CLC	Co-location centre
CPC	Central product classification

GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
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	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw materials (MJ)
PERT	Total use of renewable primary energy resources (MJ)
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)
PENRM	Use of non-renewable primary energy resources used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (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)
Waste Indicators	
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

a) General Programme Instructions of International EPD System. v. 5.0.1
b) PCR 2019:14. Costruction Products. v. 2.0.1
c) UNI EN ISO 14040:2021 – Environmental management: Life cycle assessment – Principles and framework. Ente Italiano di Normazione.
d) UNI EN ISO 14044:2021 – Environmental management: Life cycle assessment – Requirements and guidelines. Ente Italiano di Normazione.
e) EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
f) Mod 8.07.6 FPC Report - 10.12.24

VERSION HISTORY

Original Version of the EPD, 2025-02-28

EPD
INTERNATIONAL EPD SYSTEM
www.environdec.com