

Environmental Product Declaration

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

**Products and components in second-life plastic
disposable formwork use in the constitution – for the
creation of lightweight structures**

from

Ferracin Group SRL

EPD of multiple products based on worst case

Programme:

The International EPD® System,

www.environdec.com

Programme operator:

EPD International AB

EPD registration number:

EPD-IES-0020060:001

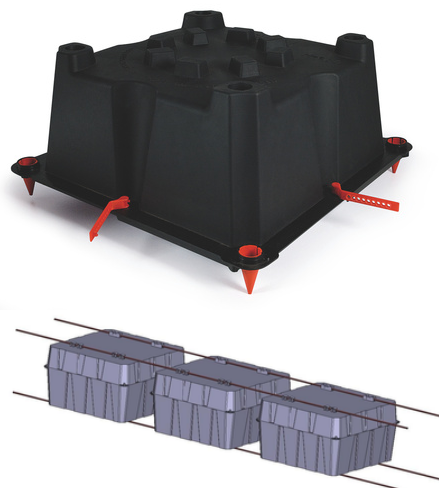
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Valid until:

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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



1 General information

Programme:	The International EPD® System
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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.

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, 2019:14, version 1.3.4

PCR review was conducted by: The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact."

Life Cycle Assessment (LCA)

LCA accountability: Ferracin Gruop SRL

Technical Support: Necte

Third-party verification

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

third part verification by Bureau Veritas Italia S.p.A. Bureau Veritas Italia SpA, Viale Monza, 347 – 20126 Milano.
Accreditation nr. 0009VV – Accredia

Approved by: The International EPD® System

1.1 The Company

Owner of the EPD: Ferracin Group S.R.L

Via Statale 10/S - CAP 25011 - Calcinato (BS)

Contact: direzione@ferracingroup.it

Description of the organisation:

Ferracin Group S.r.l (Hereafter referred to only as Ferracin Group) is an Italian company based in Ponte San Marco, Calcinato (BS), specializing in the design and production of innovative systems for the construction of ventilated crawl spaces, technical cavities, flooring and lightened floors. The company operates in the civil and industrial construction sector, offering advanced technical solutions that combine structural efficiency, environmental sustainability and ease of installation.

Product-related or management system-related certifications:

Ferracin Group is certified according to ISO 9001:2015 and ISO 14001:2018, in addition, its products are certified according to IPP's PSV(plastic second life) standard.

Name and location of production site(s):

Via Statale, 10/S, 25011 Calcinato BS

1.2 Product information

Product name:

- TOTI
- EASY-LIGHT

Product identification:

Worst case of several products

Product description:

Formwork of different geometries made of plastic material used to create ventilation systems within various types of construction.

UN CPC Code:

36950 Builders' ware of plastics n.e.c

Geographical scope: Italy

Declaration on substances listed in the latest "Candidate List of Substances of Very High Concern for authorisation"

There are no SVHC substances exceeding the allowed limits within the product

1.3 LCA information

Functional unit / declared unit:

1 kg of formwork

Reference service life:

NA

Time representativeness:

01 July 2023 - 30 June 2024

Database(s) and LCA software used:

LCA software OpenLCA version 2.4.1 and Ecoinvent 3.11 with two impact methods: EN15804+A2 and Impact method: EF v3.1

Description of system boundaries:

Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D).

Cut-off and assumption

All exclusions meet the requirement that individually excluded streams do not exceed 1% of total environmental impacts and that their cumulative contribution remains less than 5%.

- **Production of raw materials for finished products and primary packaging:** The European geographic region was considered for raw material sourcing.
- **Breakdown of energy consumption for the production process:** A mass-based breakdown was adopted, as explained in detail in the next section.
- **Waste allocation by the company:** All waste generated by the production process is allocated to products based on plastic mass.
- **Transportation of production waste and waste generated during demolition to final disposal/treatment:** in case of lack of information, the same assumption used for raw material transportation is used considering an average distance of 100 km,
- **Assessment of biogenic CO₂ emissions:** The ISO 14067 approach is applied to quantify biogenic CO₂ emissions to the atmosphere. Biogenic carbon uptake from the use of pallets for storage and sale of finished products was balanced.
- **Capital assets (infrastructure):** Excluded from modeling are all impacts from company-owned infrastructure, e.g., warehouses, machinery, etc., because the above were purchased at the beginning of the business and will be used for years to come;
- **Molds:** Molds are used for a very large number of cycles, over several years, so they can be excluded from the study modeling.
- **End-of-life:** The end-of-life scenario was modeled based on Italian special waste disposal data. Specifically, it identified:
 - C1 modulus is negligible
 - a distance of 100 km from the demolition site to the waste management site was assumed for Form C2;
 - Based on 2024 ISPRA data, it was identified that 79.8% of the waste is recovered, while the rest is disposed in landfills.

1.4 System-diagram

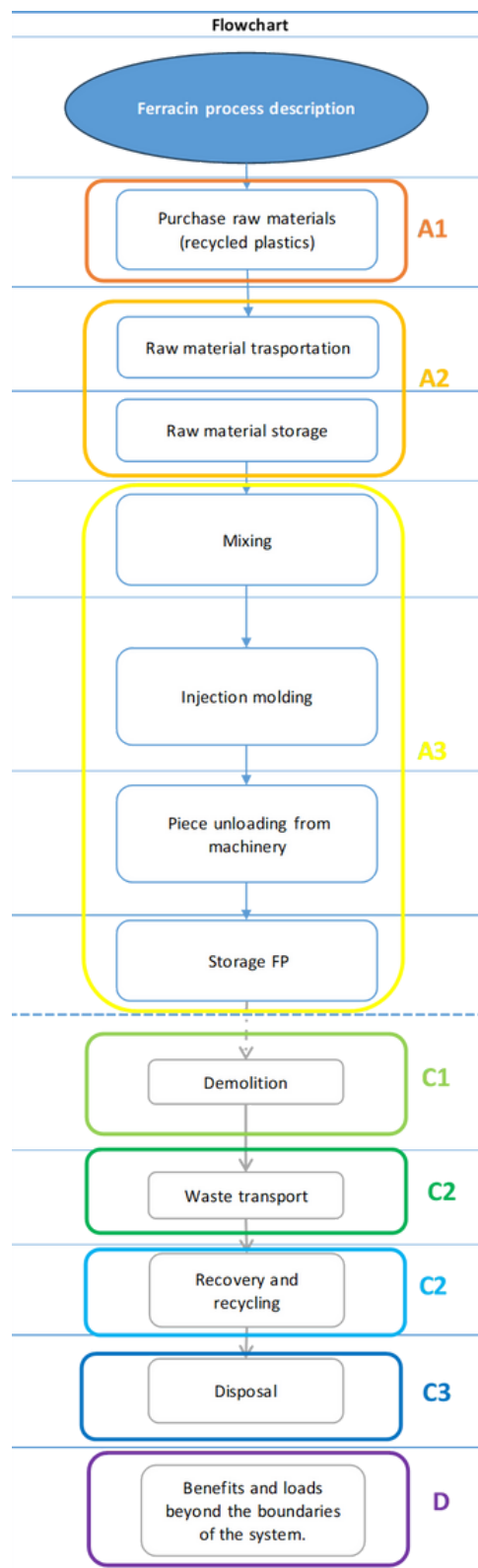


Table 7: Life cycle phases included in the study of products - Group 1

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply			Transport		Use							De-construction demolition				Reuse-Recovery-Recycling-potential
	Transport			Construction installation		Maintenance							Transport				
	Manufacturing			Transport		Repair							Waste processing				
						Replacement							Disposal				
ile	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
iclered	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
phy	IT	IT	IT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ITA	ITA	ITA	ITA	ITA
data	32%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
roducts	-7%*			-	-	-	-	-	-	-	-	-	-	-	-	-	-
- sites				-	-	-	-	-	-	-	-	-	-				-

- Variation in GHG-GWP indicator between best and worst case; The highest variation is 13% and is for GWPL impact.

*Variation in GHG-GWP indicator between best and worst case; The highest variation is 13% and is for GWP/L impact.

1.5 Content information

Group 2			
Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
HDPE	4,51E-01	75%	0%
LDPE	2,42E-03	75%	0%
PP	5,23E-01	75%	0%
CONES (PP)	2,32E-02	0%	0%
TOTAL	1,00E+00		

Group 2			
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Pallets	4,62E-02	4,62%	2,26E-02
Film	1,66E-03	0,17%	0%
TOTAL	4,79E-02		

2 Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

TABLE 18: Allocation Group II							
Impact category	Reference unit	Group 2					
		A1 + A2 + A3	C1	C2	C3	C4	D
Environment: Global warming potential (fossil) GWPF	kg CO2 eq	1.48E+00	0.00E+00	1.88E-02	6.72E-02	2.17E-02	-3.75E-01
Environment: Global warming potential (biogenic) GWPB	kg CO2 eq	-7.43E-02	0.00E+00	5.35E-05	4.55E-04	1.48E-05	-4.49E-03
Environment: Global warming potential (land use) GWPL	kg CO2 eq	6.97E-04	0.00E+00	5.91E-06	3.28E-05	8.80E-07	-2.08E-04
Environment: Global warming potential (total) GWPT	kg CO2 eq	1.41E+00	0.00E+00	1.88E-02	6.77E-02	2.17E-02	-3.80E-01
Environment: Ozone depletion potential ODP	kg CFC-11 eq	5.01E-08	0.00E+00	4.08E-10	1.40E-09	5.42E-11	-2.06E-08
Environment: Acidification potential AP	mol H+ eq	4.43E-03	0.00E+00	5.98E-05	3.39E-04	1.51E-05	-9.03E-04
Environment: Eutrophication potential (freshwater) EPF	kg P eq	3.44E-04	0.00E+00	1.28E-06	7.73E-06	2.21E-07	-6.64E-05
Environment: Eutrophication potential (marine) EPM	kg N eq	1.07E-03	0.00E+00	2.02E-05	1.32E-04	4.73E-05	-1.41E-04
Environment: Eutrophication potential (terrestrial) EPT	mol N eq	1.06E-02	0.00E+00	2.20E-04	1.43E-03	6.29E-05	-1.34E-03
Environment: Photochemical ozone creation potential POCP	kg NMVOC eq	2.73E-02	0.00E+00	9.08E-05	4.84E-04	2.72E-05	-1.92E-03
Environment: Abiotic depletion potential (elements) ADPE**	kg Sb eq	2.53E-06	0.00E+00	4.32E-08	1.42E-07	2.45E-09	-1.20E-06
Environment: Abiotic depletion potential (fossils) ADPF**	MJ (net calorific)	3.33E+01	0.00E+00	2.62E-01	9.55E-01	4.78E-02	-1.36E+01
Environment: Water deprivation potential WDP**	m3 world eq	2.70E-01	0.00E+00	1.43E-03	7.75E-03	2.12E-03	-1.02E-01

Disclaimer

Relevant Core and Additional Environmental Impact Indicators:

The environmental impact results reported refer only to the relevant core and additional environmental impact indicators as defined by the applicable Product Category Rules (PCR). Other potential environmental impacts not included in this declaration may exist.

Use of Modules A1-A3 without Module C:

It is strongly discouraged to use the results of Modules A1-A3 in isolation without considering the results of Module C. Partial use of life cycle information can lead to misinterpretations regarding the product's total environmental performance.

Relative Nature of Impact Results:

The estimated impact results are relative expressions and do not indicate exceedance of threshold values, safety margins, or associated risks. These results should not be interpreted as absolute measures of environmental harm or compliance with legal standards.

** 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

Impact category	Reference unit	Group 2					
		A1 + A2 + A3	C1	C2	C3	C4	D
GWP-GHG ***	kg CO2 eq	1.48E+00	0.00E+00	1.88E-02	6.73E-02	2.17E-02	-3.75E-01

Resource use indicators

TABLE 18.1: Allocation Group II

Impact category	Reference unit	Group 2					
		A1 + A2 + A3	C1	C2	C3	C4	D
Primary energy: Renewable (energy use) PERE	MJ (PERE)	8.00E-01	0.00E+00	4.39E-03	3.25E-02	6.51E-04	-3.75E-01
Primary energy: Renewable (material use) PERM	MJ (PERM)	8.17E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary energy: Renewable (total) PERT	MJ (PERT)	1.62E+00	0.00E+00	4.39E-03	3.25E-02	6.51E-04	-3.75E-01
Primary energy: Non-renewable (energy use) PENRE	MJ (PENRE)	3.29E+01	0.00E+00	2.62E-01	9.55E-01	4.78E-02	-3.79E-01
Primary energy: Non-renewable (material use) PENRM	MJ (PENRM)	4.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Primary energy: Non-renewable (total) PENRT	MJ (PENRT)	7.93E+01	0.00E+00	2.62E-01	9.55E-01	4.78E-02	-3.79E-01
Resource: Secondary materials SM	kg (SM)	7.50E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Resource: Renewable secondary fuels RSF	MJ (RSF)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.41E-04
Resource: Non-renewable secondary fuels NRSF	MJ (NRSF)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.34E-03
Resource: Net use of fresh water FW	m3 (FW)	1.40E-02	0.00E+00	4.62E-05	2.47E-04	5.27E-05	-1.92E-03

Disclaimer

Relevant Core and Additional Environmental Impact Indicators:

The environmental impact results reported refer only to the relevant core and additional environmental impact indicators as defined by the applicable Product Category Rules (PCR). Other potential environmental impacts not included in this declaration may exist.

Use of Modules A1-A3 without Module C:

It is strongly discouraged to use the results of Modules A1-A3 in isolation without considering the results of Module C. Partial use of life cycle information can lead to misinterpretations regarding the product's total environmental performance.

Relative Nature of Impact Results:

The estimated impact results are relative expressions and do not indicate exceedance of threshold values, safety margins, or associated risks. These results should not be interpreted as absolute measures of environmental harm or compliance with legal standards.

*** "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 CO2 is set to zero."

Waste indicators

TABLE 18.2: Allocation Group II							
Impact category	Reference unit	Group 2					
		A1 + A2 + A3	C1	C2	C3	C4	D
Waste: Hazardous waste disposed HWD	kg (HWD)	3.89E-02	0.00E+00	4.46E-04	2.15E-03	7.79E-05	-9.71E-03
Waste: Non-hazardous waste disposed NHWD	kg (NHWD)	6.69E+00	0.00E+00	1.68E-02	7.13E-02	7.21E-01	-3.63E+00
Waste: Radioactive waste disposed RWD	kg (RWD)	2.62E-05	0.00E+00	7.83E-08	7.03E-07	9.55E-09	-7.57E-06

Output flow indicators

TABLE 18.3: Allocation Group II							
Impact category	Reference unit	Group 2					
		A1 + A2 + A3	C1	C2	C3	C4	D
Output: Components for reuse CRU	kg (CRU)	0,00E+00	0E+00	0E+00	0E+00	0E+00	0E+00
Output: Materials for recycling MFR	kg (MFR)	0,00E+00	0E+00	0E+00	8E-01	0E+00	0E+00
Output: Materials for energy recovery MER	kg (MER)	0,00E+00	0E+00	0E+00	0E+00	0E+00	0E+00
Output: Exported energy (electrical) EEE	MJ (EEE)	0,00E+00	0E+00	0E+00	0E+00	0E+00	0E+00
Output: Exported energy (thermal) EET	MJ (EET)	0,00E+00	0E+00	0E+00	0E+00	0E+00	0E+00

Disclaimer

Relevant Core and Additional Environmental Impact Indicators:

The environmental impact results reported refer only to the relevant core and additional environmental impact indicators as defined by the applicable Product Category Rules (PCR). Other potential environmental impacts not included in this declaration may exist.

Use of Modules A1-A3 without Module C:

It is strongly discouraged to use the results of Modules A1-A3 in isolation without considering the results of Module C. Partial use of life cycle information can lead to misinterpretations regarding the product's total environmental performance.

Relative Nature of Impact Results:

The estimated impact results are relative expressions and do not indicate exceedance of threshold values, safety margins, or associated risks. These results should not be interpreted as absolute measures of environmental harm or compliance with legal standards.

Energy mix GHG

The following mix was considered to go into modelling the calculation of the impacts of the product under study:

- electricity, medium voltage, residual mix IT

GWP_GHG_Energy		
Indicator	UM	Result
GWP-GHG	kg CO ₂ -eq	7,04E-01

3. *Data Quality*

Data quality assessment was conducted in line with ISO 14040 and ISO 14044, ensuring accuracy, completeness, consistency, and representativeness.

Primary data were obtained directly from the manufacturing site, including raw material use, energy consumption, and waste generation. When not available, secondary data from the Ecoinvent database were used, selecting the most recent and regionally relevant datasets. All secondary data met temporal criteria, being no older than ten years.

A scoring system evaluated data reliability based on uncertainty, source, and methodological consistency. Sensitivity analyses were carried out to assess the influence of key secondary datasets on the overall results.

Tables 15 and 16 present the quality checks and category-wise aggregations, following the formulas in Annex 2.

The overall inventory quality was rated as **Good**.

Annex I

I. Reference

- ISO. (2006). ISO 14040:2006 - Environmental management - Life cycle assessment - Principles and framework. International Organization for Standardization.
- ISO. (2006). ISO 14044:2006 - Environmental management - Life cycle assessment - Requirements and guidelines. International Organization for Standardization.
- ISO. (2013). ISO 14025:2006 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures. International Organization for Standardization.
- EN 15804. (2012+A2:2019 AC:2021). Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products. European Committee for Standardization.
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