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Environmental Product Declaration Type III (EPD) ITB number 598/2024

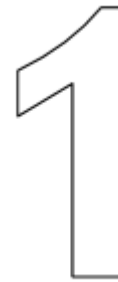
FESTFLOOR microcement - decorative floor and wall finishing compound

EPD owner:
FESTFLOOR
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www.festfloor.com

Programme owner:
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Basic Information



This declaration is a Type III Environmental Product Declaration (EPD) based on the EN 15804 standard and verified according to ISO 14025 by an independent auditor.

It contains information about the environmental impact of the declared construction materials. These aspects have been verified by an independent body in accordance with ISO 14025. In principle, a comparison or evaluation of EPD data is only possible if all data to be compared have been created in accordance with EN 15804 (see section 5.3 of the standard).

LCA analysis: A1 - A3, A4, A5, C1 - C4 and D according to EN 15804 (cradle to grave with options)

Year of EPD development: 2023

Declared service life: 30 years

Product standards: PN EN 13813:2003

PCR: document ITB-PCR A (based on PN-EN 15804)

Declared unit: 1 kg of product

Reason for implementation: B2B

Representativeness: Polish products, 2022

Manufacturer



FESTFLOOR is a manufacturer of microcement, decorative plasters, concrete floors and architectural concrete. It offers a comprehensive range of decorative interior finishing materials.

FESTFLOOR manufactures decorative materials for interior finishes, including microcement. The company offers microcement and all the products necessary for its application, as well as decorative plasters, concrete floors and architectural concrete. The water-resistant technology developed by FESTFLOOR makes the company's products suitable for use not only in dry rooms, but also in bathrooms, on terraces or balconies. The products offered by FESTFLOOR allow a great deal of freedom in the creation of interiors - the company offers a wide colour palette and various finishing effects for its products. FESTFLOOR offers cooperation with contractors as well as individual customers.

The production plant of FESTFLOOR products is located in Duchnice.



Description of products and application



Microcement, also known as microcrete or béton ciré, is an innovative solution for interior finishes. It allows the creation of smooth and uniform surfaces, combining the strength of concrete with the flexibility of traditional finishing materials. Invented and developed in southern Europe, microcement consists of a mixture of cement, resins and special additives. This makes it extremely resistant to damage and scratching.

It has a high degree of adhesion, which allows it to be applied to a variety of surfaces - from floors to walls to furniture. Microcement works well in both modern, minimalist interiors and those with a more classic feel, offering a rich palette of colours and finishes. Thanks to its properties, microcement is an excellent alternative to traditional materials such as ceramic tiles, wood or stone.

Microcement is a material with a high resistance to abrasion, which translates into its durability, especially in areas with heavy traffic. This durability is the result of its special properties - it is a material that, despite its strength, remains extremely flexible. This characteristic attribute allows it to adapt to different deformations of the substrate without cracking or spalling. One of the most important advantages of microcement is its ease of application. Its structure allows individual application, which is not only time-saving but also economical. It is available in a wide range of colours to suit a variety of interior styles and preferences. The microcement system is also waterproof, making it an ideal choice for use in bathrooms and kitchens. Ease of cleaning is another benefit of microcement - its smooth, grout-free surface ensures a simple cleaning process. The hypoallergenic nature of microcement is also an important feature. It is a safe material that does not emit harmful chemicals and has no micropores or crevices, meaning that it does not provide a place for allergens or bacteria to accumulate. With all these properties, microcement is not only a practical but also a healthy choice for use in the home.



WIDE COLOR PALETTE

Our microcement is available in a wide color palette.



WATERPROOF

The Festfloor system can be used in wet areas (bathrooms, saunas, kitchens).



HIGH ABRASION RESISTANCE

It is suitable for areas with high pedestrian traffic.



EASY TO APPLY

Even for people without much experience.



HIGH ADHESION TO ANY TYPE OF SUBSTRATE

Perfect for use on floors, walls or stairs.



EASY TO CLEAN

Easy cleaning with water and pH-neutral liquids.

Specification of FESTFLOOR microcement

Properties	Values / Requirements
Temperature of application	15°C-25°C
System thickness	from 1.5 mm to 2.0 mm
Adhesion to the ground	>1.5 N/mm ² , test UNE-UN 13892-8
Density	1.75 kg/dm ³
Storage conditions	Store in tightly closed original packaging in a dry place at 10°C-25°C. Protect from frost and direct sunlight.
Shelf life	6 months in a sealed container



Life cycle assessment (LCA) - general principles



Declared unit

The declared unit of product is 1 kg of FESTFLOOR microcement for interior floor and wall finishes.

Allocation

The allocation in this study was made in accordance with the ITB PCR A guidelines. The production and storage of the products covered in this declaration take place at the production plant of FESTFLOOR at 23 Żytnia Street in Duchnice. Input data and emissions were collected for the entire plant. All impacts from raw material extraction are allocated in module A1. Production of products is based entirely on raw materials. 100% of the inflows from the production lines were inventoried and allocated to the product manufacturing. Module A2 includes the transport of raw materials from Polish distributors to the production plant in Duchnice. Electricity use for the entire production process was inventoried and included in module A3.

System boundaries

The life cycle analysis of the declared products includes the Production Stage (modules A1 - A3) and modules A4, A5, C1-C4+D ("from cradle to grave with options") according to EN 15804 and ITB PCR A.

System limits

100% of input materials and 100% of electricity consumption were inventoried at the Duchnice production plant. All relevant parameters from the collected production data are included in the assessment, i.e. all materials used in production and electricity consumption.

Modules A1 and A2 Extraction and transport of raw materials

Raw materials for production, such as quartz products and chemicals are transported mainly from Poland. Module A1 shows the impact of the production of the raw materials further used in the production of microcement. Raw material transport data is recorded by the plant. Means of transport include trucks. Global fuel averages were used for the calculation of module A2.

Module A3 Production

The production process is illustrated in the diagrams on page 8. Once the raw materials have been delivered, the weighing of the ingredients required for production takes place. In the next step, the ingredients are loaded and poured into the vat of the disolver, where mixing takes place. Once the mixing process is complete, the product is confectioned into buckets. The buckets are then labelled and transferred to the warehouse, from where the finished product is dispatched to customers. Electricity is consumed in the process.

Module A4 Transport

Transport to the place of installation takes place from the plant in Duchnice. The finished products are placed in trucks, without additional packaging. The average transport distance is calculated in proportion to the weight transported to each customer. The largest order receivers are located in Denmark, Sweden, Germany, Poland and Estonia. The fuel used is diesel. The average transport distance is 1 282 km.

Module A5 Installation

FESTFLOOR microcement is delivered to the customer ready for use. After opening, the product should be stirred with a rotary drill. Application of the product to the selected surface is carried out manually, without the use of electrically powered equipment. Once the material has set and dried, sanding of the surface with a single-disc sander with abrasive paper is required.

Module C1 Deconstruction and demolition

It has been assumed that deconstruction of the microcement layer will occur simultaneously with the deconstruction of the envelope of which it is a part and therefore the impact from deconstruction of the product covered by this declaration is negligible. No information is available for microcement on the impact of deconstruction in the construction sector or any other sector. Therefore, no contribution has been reported in this category and the modulus is 0.

Module C2 Transport

It is assumed that the end-of-life product will be transported by truck to the nearest waste treatment facility (truck, diesel) within a 100 km distance.

Module C3 Waste treatment

No re-use, recycling or end-of-life energy recovery of the product has been assumed.

Module C4 Disposal

It has been assumed that at the end of life 100% of the products will be sent to landfill.

Module D External impacts beyond system boundaries

Module D shows the burdens and benefits of recycling or reuse. Benefits are assessed at the point of functional equivalence, i.e. where there is a substitution of virgin raw material. As microcement is not recyclable and reusable, this modulus is equal to 0.

Data collection period

The input data of the declared products concern the period from January to December 2022. The life cycle assessment has been prepared for Poland as a reference area.

Data quality

The data for the LCA calculation of modules A1-A4 came from verified LCI inventory data from the plant. In accordance with Annex E of EN 15804 + A2, a data quality assessment was carried out. For technical representativeness, processes with a quality level of 'very good' represent 99% of the values for the climate change indicators. For geographical and temporal representativeness, a process evaluation level of "very good" was obtained.

Assumptions and estimates

The impacts of the representative products were aggregated using a weighted average. The results obtained for the representative products can be applied proportionally to all types of FESTFLOOR microcement.

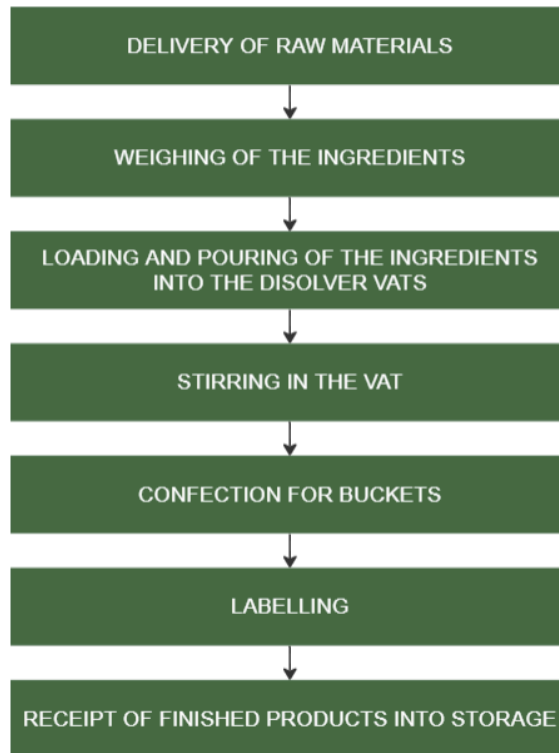
Calculation principles

LCA was made in accordance with PN-EN 15804+A2 standard and ITB PCR A (v1.6. 2023) document.

Databases

The data for the calculations came from Ecoinvent v. 3.6. Ecoinvent v. 3.8 and from databases available in Bionova OneClickLCA software. Emission factors for electricity have been supplemented with actual KOBIZE data. The characterisation factors are CML ver. 4.2 based on EN 15804+A2.

Production scheme of FESTFLOOR microcement:



Life cycle assessment (LCA) - results



Declared unit

The declared unit is 1 kg of microcement manufactured by FESTFLOOR. The following indicates which LCA assessment modules were included in the assessment:

Information on system boundaries (MA = module assessed, MNA = module not assessed)																
Product stage			Construction stage		Use stage							End of life				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction and installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal	Potential for reuse, recovery or recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MA	MA	MA	MA	MA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MA	MA	MA	MA	MA

Results for FESTFLOOR microcement

Environmental impacts

Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Global warming potential- total	kg CO2 eq.	5.75E-01	2.45E-02	1.73E-01	1.17E-01	4.76E-03	0.00E+00	9.10E-03	0.00E+00	8.24E-03	0.00E+00
Global warming potential- fossil	kg CO2 eq.	5.82E-01	2.45E-02	1.72E-01	1.17E-01	4.76E-03	0.00E+00	9.09E-03	0.00E+00	8.23E-03	0.00E+00
Global warming potential- biogenic	kg CO2 eq.	-2.47E-02	1.78E-05	6.80E-05	8.46E-05	2.73E-06	0.00E+00	6.60E-06	0.00E+00	7.02E-06	0.00E+00
Global warming potential- LULAC	kg CO2 eq.	1.83E-02	7.37E-06	9.00E-06	3.51E-05	3.47E-07	0.00E+00	2.74E-06	0.00E+00	9.25E-06	0.00E+00
Depletion potential of the stratospheric ozone layer	kg CFC 11 eq.	5.86E-08	5.76E-09	3.23E-09	2.74E-08	7.94E-11	0.00E+00	2.14E-09	0.00E+00	3.55E-09	0.00E+00
Acidification potential	mol H+ eq.	8.05E-03	1.03E-04	1.32E-03	4.89E-04	4.87E-05	0.00E+00	3.82E-05	0.00E+00	7.20E-05	0.00E+00
Eutrophication aquatic freshwater	kg Pe	2.68E-05	1.99E-07	1.94E-05	9.48E-07	7.34E-07	0.00E+00	7.39E-08	0.00E+00	2.04E-07	0.00E+00
Eutrophication aquatic marine	kg N eq.	8.45E-04	3.10E-05	1.59E-04	1.47E-04	5.30E-06	0.00E+00	1.15E-05	0.00E+00	2.18E-05	0.00E+00
Eutrophication terrestrial	kg N eq.	6.88E-03	3.42E-04	1.76E-03	1.63E-03	5.91E-05	0.00E+00	1.27E-04	0.00E+00	2.40E-04	0.00E+00
Formation potential of tropospheric ozone	kg NMVOC eq.	2.44E-03	1.10E-04	5.52E-04	5.24E-04	1.64E-05	0.00E+00	4.08E-05	0.00E+00	7.33E-05	0.00E+00
Abiotic depletion potential for non-fossil resources	kg Sb eq.	8.49E-06	4.18E-07	8.29E-08	1.99E-06	3.32E-09	0.00E+00	1.55E-07	0.00E+00	2.25E-08	0.00E+00
Abiotic depletion potential for fossil resources	MJ	1.02E+01	3.81E-01	3.31E+00	1.81E+00	5.54E-02	0.00E+00	1.41E-01	0.00E+00	2.51E-01	0.00E+00
Water use	m ³	7.09E-01	1.42E-03	1.19E-02	6.74E-03	4.78E-04	0.00E+00	5.26E-04	0.00E+00	8.82E-04	0.00E+00

Environmental aspects related to resource use

Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Renewable primary energy as an energy carrier	MJ	1.23E+00	4.79E-03	1.95E-01	2.28E-02	7.17E-03	0.00E+00	1.78E-03	0.00E+00	2.54E-03	0.00E+00
Renewable primary energy for material use	MJ	3.90E-01	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
Completely renewable primary energy	MJ	1.62E+00	4.79E-03	1.95E-01	2.28E-02	7.17E-03	0.00E+00	1.78E-03	0.00E+00	2.54E-03	0.00E+00
Non-renewable primary energy as an energy source	MJ	5.96E+00	3.81E-01	1.98E+00	1.81E+00	5.54E-02	0.00E+00	1.41E-01	0.00E+00	2.51E-01	0.00E+00
Non-renewable primary energy for material use	MJ	4.19E+00	0.00E+00	1.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Completely non-renewable primary energy	MJ	1.02E+01	3.81E-01	3.29E+00	1.81E+00	5.54E-02	0.00E+00	1.41E-01	0.00E+00	2.51E-01	0.00E+00
Use of secondary raw materials	kg	8.58E-03	0.00E+00	1.16E-04	0.00E+00	4.44E-06	0.00E+00	0.00E+00	0.00E+00	4.51E-05	0.00E+00
Renewable secondary fuels	MJ	1.21E-04	0.00E+00	9.90E-07	0.00E+00	3.99E-08	0.00E+00	0.00E+00	0.00E+00	2.06E-06	0.00E+00
Non-renewable secondary fuels	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	0.00E+00
Use of fresh water resources	m ³	1.86E-02	7.93E-05	7.28E-01	3.77E-04	1.23E-05	0.00E+00	2.94E-05	0.00E+00	2.98E-04	0.00E+00

Other environmental information describing the waste categories

Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste destined for landfill	kg	9.69E-02	3.70E-04	4.89E-03	1.76E-03	1.97E-04	0.00E+00	1.37E-04	0.00E+00	1.00E+00	0.00E+00
Non-hazardous waste destined for disposal	kg	2.26E+00	4.09E-02	8.19E-01	1.95E-01	3.32E-02	0.00E+00	1.52E-02	0.00E+00	0.00E+00	0.00E+00
Radioactive waste for disposal	kg	3.19E-05	2.61E-06	5.01E-07	1.24E-05	1.95E-08	0.00E+00	9.70E-07	0.00E+00	0.00E+00	0.00E+00
Components to be reused	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	0.00E+00
Materials to be recycled	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	0.00E+00
Materials destined 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	0.00E+00
Electricity exported	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	0.00E+00

Verification

The verification process for this EPD is in accordance with ISO 14025 and ISO 21930. Once verified, this EPD is valid for a period of 5 years. There is no need to recalculate after 5 years if the inputs have not changed significantly.

EN 15804 serves as the basis for ITB PCR-A Independent verification according to ISO 14025 (subsection 8.1.3.) <input type="checkbox"/> internal <input checked="" type="checkbox"/> external
External verification of EPDs: Michał Piasecki, Professor ITB, m.piasecki@itb.pl Input data verification, LCI audit, LCA: Agnieszka Pikus, JW+A, a.pikus@jw-a.pl LCA verification: Michał Piasecki, ITB professor, m.piasecki@itb.pl

Note 1: The declaration owner has the sole ownership, liability, and responsibility for the information provided and contained in EPD. Declarations of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability, see EN 15804+A2 and ISO 14025.

Note 2: ITB is a public Research Organization and Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' performance. ITB acts as the independent, third-party verification organization (ISO 17025/17065/17029). ITB-EPD program is recognized and registered member of The European Platform - Association of EPD program operators and ITB-EPD declarations are registered and stored in the international ECO-PORTAL.

Normative references

- ITB PCR A General Product Category Rules for Construction Products
- ISO 14025:2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines
- EN 15804 +A2 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- EN 13813: 2003 Screed material and floor screeds - Screed material - Properties and requirements



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CERTIFICATE No 598/2024

of TYPE III ENVIRONMENTAL DECLARATION

Product:

**FESTFLOOR microcement - decorative
floor and wall finishing compound**

Manufacturer:

Festfloor

ul. Szczęśliwicka 54/447, 02-353 Warsaw, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804+A2


Sustainability of construction works.

Environmental product declarations.

Core rules for the product category of construction products.

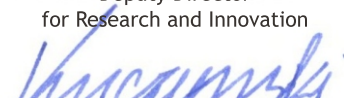
This certificate, issued for the first time on 31st January 2024 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics
and Environment Department


Agnieszka Winkler-Skalna, PhD



Deputy Director
for Research and Innovation


Krzysztof Kuczyński, PhD

Warsaw, January 2024