KRAFT PAINTS

DRIVEN BY INNOVATION

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

Putties in powder form

DRUCKFARBEN GROUP

Owner of the Declaration: **DRUCKFARBEN HELLAS S.A.**
Programme: The International EPD® System
www.environdec.com
Programme operator: EPD International AB

Registration number	S-P-08830
Issue date	24.07.2023
Revision date	17.06.2024
Valid to	23.07.2028
Geographical scope	Europe

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ECO PLATFORM EPD VERIFIED

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Company Description

Druckfarben Group S.A.

- Produces inks for flexography and rotogravure printing.
- In the coatings and mortars division, decorative and architectural products and cementitious putties are commercialized under the KRAFT Paints brand.
- Energy saving / external thermal insulation products are commercialized under the BIOCLIMA brand.

DRUCKFARBEN Group comprises of a group of companies with worldwide activities catering to the ink, coating, and energy saving sectors.

More specifically, **DF Hellas S.A.** produces inks for flexography and rotogravure printing under the **DRUCKFARBEN** brand name using sub-brands for the various applications in the food packaging, plastic bags, cartons, and related products.

In the coatings division it commercializes its decorative and architectural paints products under the **KRAFT PAINTS** brand and in the energy saving/external thermal insulation products under the **BIOCLIMA®** brand. The Group has an important and increasing international presence in Eastern and Central Europe through subsidiaries in Bulgaria, Romania, Serbia, and through representatives in Malta, Turkey, Tunisia, Lebanon, Hungary, Slovenia, Croatia, Albania and Western and North Africa, Israel, and the Gulf countries. In West Africa, the company operates in Nigeria through its own subsidiary and the neighboring countries of the Economic Community of West African States (ECOWAS). The company's strategy includes expanding its export activities to new countries supported by a strong network of local partners.

DRUCKFARBEN holds a significant position in the area of architectural paints, varnishes and mortars related to construction activities under the **KRAFT PAINTS** brand. Also, under the **BIOCLIMA®** brand, the company offers a wide range of certified thermal insulation systems for energy upgrading and aesthetic renovation of new and existing buildings.

CERTIFIED SYSTEMS
ISO 9001 ISO 140001 ISO 50001 ISO 45001

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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): PCR 2019:14 Construction products, version 1.11

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

Life cycle assessment (LCA)

LCA accountability: Dr. Frank Werner

Third-party verification

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

[x] EPD verification by accredited certification body

Third-party verifier:

Business Quality Verification P.C

Approved certification body accountable for the third-party verification.

The certification body is accredited by:
Hellenic Accreditation System with accreditation number 1218.

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

[x] Yes [ ] No

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Comparability:

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to EN 15804+A2 and the building context, respectively the product-specific characteristics of performance, are taken into account.

Additional information:

“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.

The EPD owner has the sole ownership, liability, and responsibility for the EPD.
Additional information can be obtained under: https://**kraftpaints.com**

Gontact person

Loukas Angelis / R&D Manager
laggelis@druckfarbengroup.com

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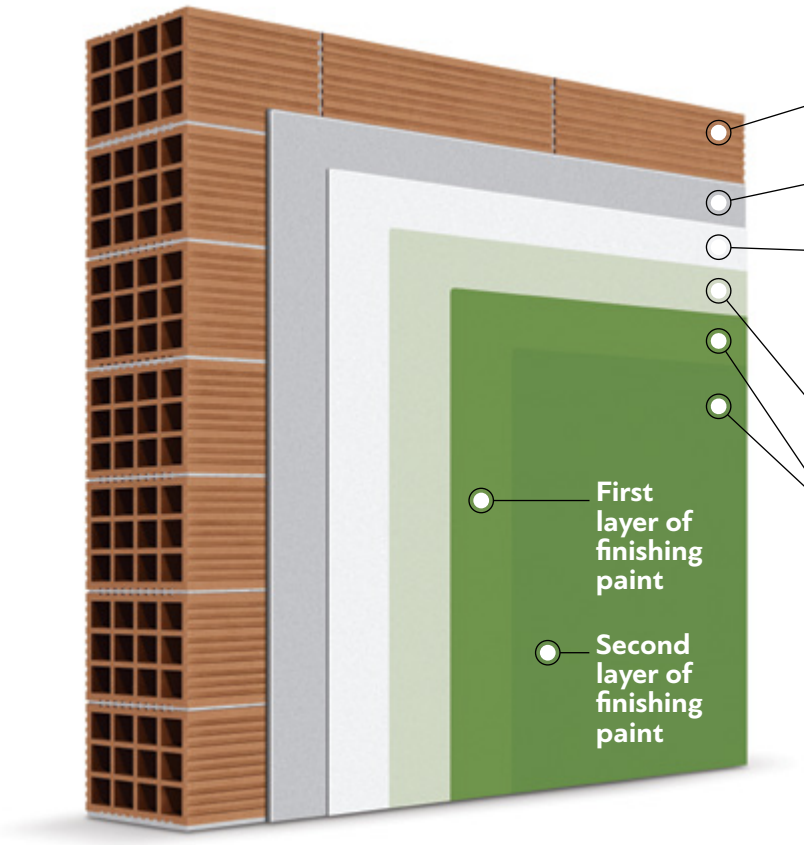
Specification of the products

The declared multiple products in powder form are suitable for putting, smoothing or/and leveling & repairing surfaces on walls and ceilings, made of: plaster, concrete, dry construction boards etc. They can be used for indoor or/and outdoor applications. They are marketed under the brand KRAFT Paints, by DRUCKFARBEN HELLAS S.A.



UN CPC code: 375

Geographical scope: **Europe**

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Putties in powder form

1a. Powderfine Professional:

Powderfine Professional is a white ultra fine-grained putty in powder form, enhanced with modified resins and special additives.

It is characterized by high adhesion capacity and ease of application, achieving a very smooth surface, with velvet texture, without imperfections and cracks.

It is classified as a **GP CS-III W_c0** mortar according to **EN 998-1**.

TECHNICAL DATA
(Measurement conditions 20°C and 65% Relative humidity)

Color	White
Mixing Ratio	8-8,80Lt water in 20kg
Grain size (max)	85±5 μm
Bulk Density of dry mortar	1,05±0,05kg/Lt
Bulk Density of fresh mortar	1,72±0,05kg/Lt
Application temperature	From +5°C to +35°C
Application thickness	Up to 1mm per coat
Pot life	4 hours
Sanding	After 8-12 hours
Painting	After 24 hours
Consumption	1 kg/m²/mm

PRODUCT PERFORMANCES

Compressive strength, EN 1015-11	≥ 5,5 MPa
Adhesion to concrete, EN 1015-12	≥ 0,60 N/mm² (Fracture Pattern: B)
Water vapor permeability of hardened mortar (μ) EN 1015-19	5/20
Capillary water absorption (c) , EN 1015-18	c ≤ 1,2 kg/m²$h^{0,5}$ (W0)
Thermal conductivity (λ10, dry), EN 1745	< 0,45W/mK
Reaction to fire, EN 13501-1	Euroclass A1

CE EN 998-1 GP CS-III W0

GEV-EMICODE EC 1 PLUS very low emission

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1b. Powderfine Exterior:

Powderfine Exterior is white ultra fine-grained putty in powder form for indoor & outdoor usage.

Its composition is based on suitably modified resins, improvers and special additives, providing the product with a high adhesion capacity, great resistance to weather conditions and ease of application.

A smooth surface, with a velvety texture, without imperfections and cracks, is achieved after application. It is classified as a **GP CS-IV W$_c$0** mortar according to **EN 998-1**.

TECHNICAL DATA
(Measurement conditions 20°C and 65% Relative humidity)

Color	White
Mixing Ratio	10-11,00Lt water in 25kg
Grain size (max)	85±5 μm
Bulk Density of dry mortar	1,05±0,05kg/Lt
Bulk Density of fresh mortar	1,72±0,05kg/Lt
Application temperature	From +5°C to +35°C
Application thickness	Up to 1mm per coat
Pot life	4 hours
Sanding	After 8-12 hours
Painting	After 24 hours
Consumption	1 kg/m^2/mm

PRODUCT PERFORMANCES

Compressive strength, EN 1015-11	≥ 6,0 MPa
Adhesion to concrete, EN 1015-12	≥ 0,70 N/mm^2 (Fracture Pattern: B)
Water vapor permeability of hardened mortar (μ) EN 1015-19	5/20
Capillary water absorption (c) , EN 1015-18	c ≤ 1,2 kg/m^{2}h^{0,5} (W0)
Thermal conductivity (λ10, dry), EN 1745	< 0,45W/mK
Reaction to fire, EN 13501-1	Euroclass A1

CE EN 998-1 GP CS-IV W.0

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1c. Powderfine Multi:

Powderfine Multi is a multi-purpose **(3in1)**, white, fine-grained, repairing putty, in powder form. Its advanced composition includes cement, modified resins, state-of-the-art additives, as well as active inorganic binders which give the product the unique innovative **combination of 3 capabilities: repairing - filling - smoothing**, with simultaneous highest protection against shrinkage cracking formation, excellent workability, great adhesion and sanding properties. Its specially designed particle size curve offers a final aesthetic finishing texture, equal to common troweling putties, achieving an instantly smooth surface, without imperfections and cracks. It is classified as a **GP CS-IV W_c1** mortar according to **EN 998-1** and as concrete repairing mortar **PCC R1** according to **EN 1504-3**.

TECHNICAL DATA
(Measurement conditions 20°C and 65% Relative humidity)

Color	White
Mixing Ratio	8,50-9Lt water in 25kg
Grain size (max)	200 μm
Bulk Density of dry mortar	1,33±0,05kg/Lt
Bulk Density of fresh mortar	1,85±0,05kg/Lt
Application temperature	From +5°C to +35°C
Application thickness	2-20 mm per coat
Pot life	2 hours & 30 min
Consumption	1,2 kg/m^2/mm

PRODUCT PERFORMANCES

Compressive strength, EN 1015-11 / EN 12190	≥ 10,5 MPa
Capillary water absorption (c), EN 1015-18	c ≤ 0,30kg/($m^2 \cdot min^{0,5}$)
Adhesive strength, EN 1015-12 / EN 1542	≥ 0,85 N/mm^2 (Fracture pattern: B)
Water vapor permeability of hardened mortar (μ), EN 1015-19	5/20
Thermal conductivity λ10,dry (acc. table A.12) EN 1745	0,33 W/m·K (P = 50%)
Reaction to fire, EN 13501-1	A1

RECYCLED GREEN TECHNOLOGY · CE R1 EN 1504-3 · CE GP CS-IV W_c1 EN 998-1 · GEV-EMICODE EC 1 PLUS very low emission

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Application of the product

These putties are suitable for putting, smoothing or/and leveling & repairing surfaces on walls and ceilings, made of: plaster, concrete, dry construction boards etc. They can be used for indoor or/and outdoor applications.

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1a. Powderfine Professional

SURFACE PREPARATION:

- To ensure good adhesion substrate must be sound, clean, and free from dust, oil, lime, grease, tar, loose material, surface contaminants and other bond-inhibiting materials.
- Any existing cracks on the substrate must be repaired before application with the appropriate repairing products of KRAFT PAINTS.
- On substrates with high absorbency (e.g. gypsum boards, cement boards etc.) is recommended to apply Eco Dur Aqua primer by KRAFT PAINTS diluted 1:1 to 1:2 with water. Caution! The primer must properly be diluted in order to be completely absorbed and avoid film formation to the substrate surface.

MIXING INSTRUCTIONS:

In a clean container add 8-8,8 liters of pure water and gradually empty the content of a 20 kg bag of Powderfine Professional. Stirring constantly with a low-speed electric mixer so that homogenous paste is obtained.

APPLICATION INSTRUCTIONS:

The application of Powderfine Professional on the substrate is recommended in thickness up to 1 mm per layer, using a flat metal spatula and ensuring complete coverage of the substrate. Do not apply at temperatures below 5°C or above 35°C and at a relative humidity 65% or higher.

Composition of the product

The declared product consists of the following components:

		kg/kg	%
PRODUCT	Binders	0,1722	17%
	Fillers	0,8217	82%
	Additives	0,0003	0%
	Rheology modifier	0,0058	1%
PACKAGING	Paper	0,0045	0%
	Cardboard	0,0005	0%
	PE film-LDPE	0,0002	0%

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1b. Powderfine Exterior

SURFACE PREPARATION:

- To ensure good adhesion substrate must be sound, clean, and free from dust, oil, lime, grease, tar, loose material, surface contaminants and other bond-inhibiting materials.
- Any existing cracks on the substrate must be repaired before application with the appropriate repairing products of KRAFT PAINTS.
- On substrates with high absorbency (e.g. gypsum boards, cement boards etc.) is recommended to apply Eco Dur Aqua primer by KRAFT PAINTS diluted 1:1 to 1:2 with water. Caution! The primer must properly be diluted in order to be completely absorbed and avoid film formation to the substrate surface..

MIXING INSTRUCTIONS:

In a clean container add 10-11 liters of pure water and gradually empty the content of a 25 kg bag of Powderfine Exterior. Stirring constantly with a low-speed electric mixer so that homogenous paste is obtained.

APPLICATION INSTRUCTIONS:

The application of Powderfine Exterior on the substrate is recommended in thickness up to 2 mm per layer, using a flat metal spatula and ensuring complete coverage of the substrate. Do not apply at temperatures below 5°C or above 35°C and at a relative humidity 65% or higher.

Composition of the product

The declared product consists of the following components:

		kg/kg	%
PRODUCT	Binders	0,204	20%
	Fillers	0,7889	79%
	Additives	0,003	0%
	Rheology modifier	0,0058	1%
PACKAGING	Paper	0,0032	0%
	Cardboard	0,004	0%
	PE film-LDPE	0,00015	0%

1b. Powderfine Multi

SURFACE PREPARATION:

- To ensure good adhesion substrate must be sound, clean, and free from dust, oil, lime, grease, tar, loose material, surface contaminants and other bond-inhibiting materials.
- On substrates with high absorbency (e.g. gypsum boards, cement boards etc.) is recommended to apply Eco Dur Aqua primer by KRAFT PAINTS diluted 1:1 to 1:2 with water. Caution! The primer must properly be diluted in order to be completely absorbed and avoid film formation to the substrate surface.

MIXING INSTRUCTIONS:

In a clean container add 8,5 - 9 liters of pure water and gradually empty the content of a 25Kg bag of Powderfine Multi, while stirring constantly with a low-speed electric mixer. Mixing must be done carefully so that no amount of product remains on the walls or bottom of the container. The product is ready for use when the mixture becomes homogeneous without lumps.

APPLICATION INSTRUCTIONS:

Powderfine Multi can be applied in a thickness of 2-20mm per layer (locally up to 40mm), using a flat metal spatula or trowel and ensuring full coverage of the application substrate. Any subsequent layer can be applied, by the "fresh on fresh" method, in 2-8 hours (depending on environmental conditions) after the previous layer. Alternatively, any subsequent layer can be applied when the previous one has sufficiently dried, in 4-24 hours (depending on environmental conditions), after light soaking with water. Do not apply at temperatures below 5°C or above 35°C and at a relative humidity 65% or higher.

Composition of the product

The declared product consists of the following components:

		kg/kg	%
PRODUCT	Binders	0,245	25%
	Fillers	0,737	74%
	Additives	0,0068	0,5%
	Rheology modifier	0,0076	0,5%
PACKAGING	Paper	0,0035	0%
	Cardboard	0,004	0%
	PE film-LDPE	0,00015	0%

Content of substances of very high concern

The product does not contain any substances on the candidate list for substances of very high concern (SVHC) according to REACH (Annex XIV) (list accessed 26.02.2023).

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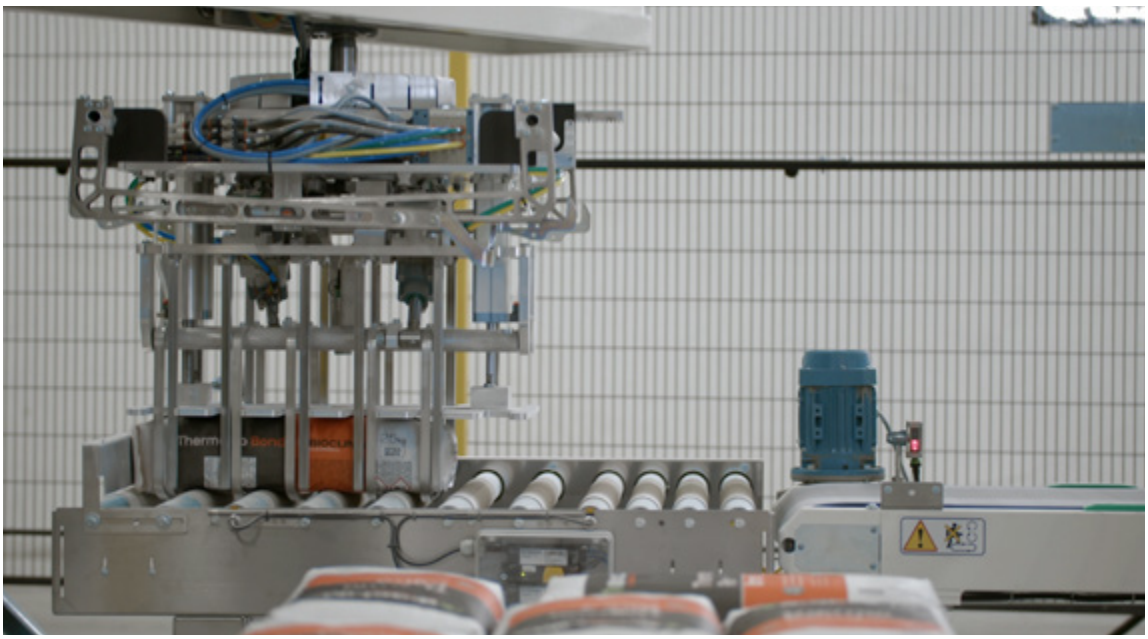
Production Stages



1. Weighing binders and other raw materials
2. Mixing 60-120 sec
3. Packaging

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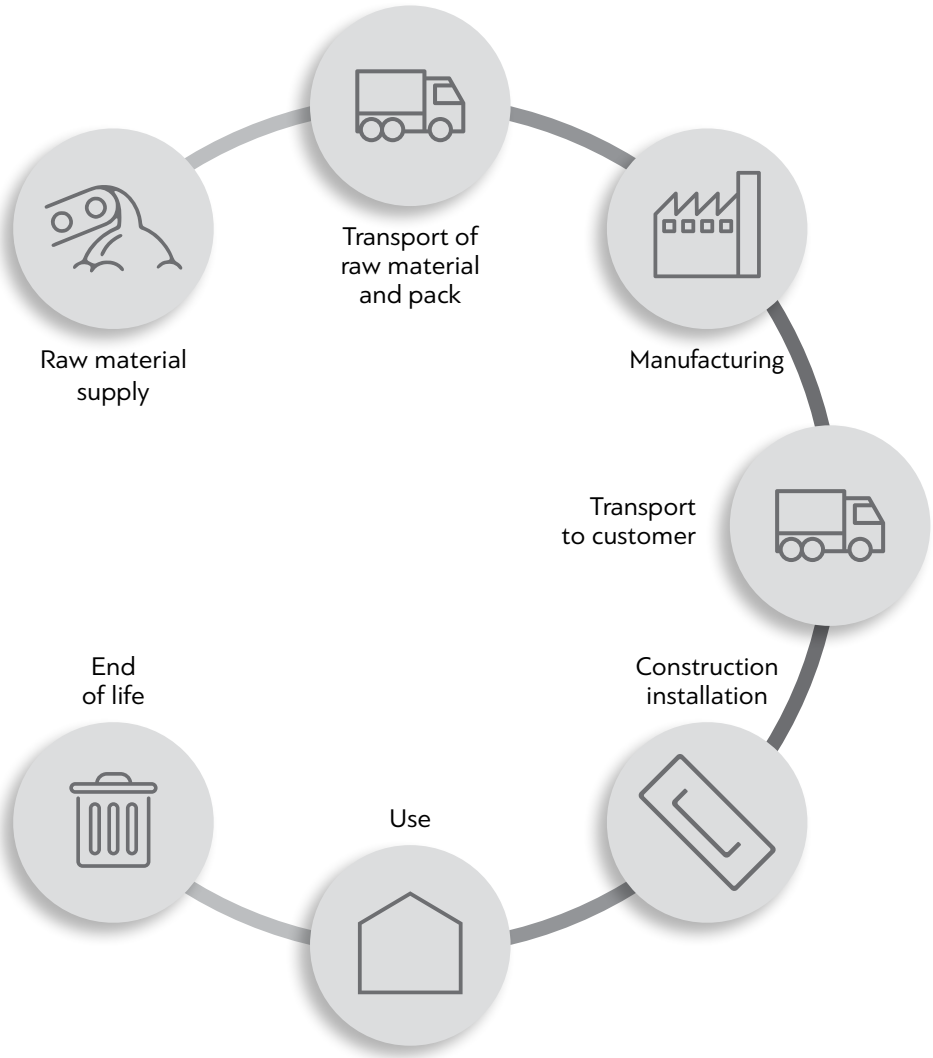
LCA: Calculation rules



Declared unit: The declared unit is 1kg and the declared values represent each product based on:
- The annual production in 2022, for products POWDERFINE Professional & POWDERFINE Exterior
- The annual production in 2023 for product POWDERFINE MULTI

Type of EPD: Cradle to gate with options, modules C1-C4, and module D (A1-A3, C, D, and additional modules A4 and A5).
Data base: The LCA was calculated in the latest version of the LCA sofrware SimaPro (version 9.4)

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Scenarios and additional technical information

The product does not contain significant quantities of biogenic carbon. The carbon content of multi-use pallets used for transport packaging and paper bats is disregarded.

Information describing the biogenic carbon content at the factory gate		
Name	**Value**	**Unit**
Biogenic Carbon Content in product	0	kg C
Biogenic Carbon Content in accompanying packaging	0	kg C

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment.

Transport to the construction site (A4): Module A4 contains the average transport scenario from the production site to the construction site. An average transport distance of 500 km is assumed.

Parameter	**Parameter unit expressed per functional/declared unit**
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat etc.	Used dataset: Transport, freight, lorry >32 metric ton, EURO5 {RER}| transport, freight, lorry >32 metric ton, EURO5 | Cut-off, U
Distance	500 km
Capacity utilisation (including empty returns)	as in ecoinvent 3.7.1 database
Weight of transported products	**Powderfine Professional:** 1 kg (packaging: 0.004 kg/kg) **Powderfine Exterior:** 1 kg (packaging: 0.004 kg/kg) **Powderfine Multi:** 1 kg (packaging: 0.004 kg/kg)
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	Not applicable

Installation in the building (A5)

The products are delivered to the construction site. There, water is added to dilute putties to make it ready for use.

Manual application is assumed, eventual further inputs (e.g., electricity consumption for the mixing), are disregarded.

No losses of putties during application are taken into account.

The packaging material (paper bags, cardboard underlayer, PE-foil and wooden pallet) is as sumed to be transported 50 km with a lorry 16-32 metric ton, EURO5 to a landfill.

For the multi-way pallets, a reuse rate of 20 times is taken into account in the disposal scenario.

Parameter	**Parameter unit expressed per functional / declared unit**
Ancillary materials for installation (specified by material);	Water is added (see below)
Water use	**Powderfine Professional:** 0.305 l/kg **Powderfine Exterior:** 0.305 l/kg **Powderfine Multi:** 0.257 l/kg
Other resource use	0 kg
Quantitative description of energy type (regional mix) and consumption during the installation process	0 kWh (manual installation)
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	kg

Parameter	Parameter unit expressed per functional / declared unit
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route)	**Powderfine Professional:** Graphical paper to landfill: 0.00249 kg/kg Cardboard to landfill: 0.000267 kg/kg PE-foil to landfill: 0.00011 kg/kg Wooden pallet to landfill: 0.00065 kg/kg **Powderfine Exterior:** Graphical paper to landfill: 0.00249 kg/kg Cardboard to landfill: 0.000267 kg/kg PE-foil to landfill: 0.00011 kg/kg Wooden pallet to landfill: 0.00065 kg/kg **Powderfine Multi:** Graphical paper to landfill: 0.00268 kg/kg Cardboard to landfill: 0.000287 kg/kg PE-foil to landfill: 0.00012 kg/kg Wooden pallet to landfill: 0.00060 kg/kg
Direct emissions to ambient air, soil and water	**Not relevant**

End-of-life (C1 - C4)

Putties are not removed from the wall material during de-construction. Thus, no environmental impacts are declared in module C1.

A landfilling scenario is assumed for Greece, similar to a disposal scenario for bricks or concrete. A default distance of 50 km is assumed between the de-construction site and the landfill.

Processes	**Parameter unit expressed per functional / declared unit of components, products or materials (specified by type of material)**
Collection process specified by type	Powderfine Professional: 0.694 kg/kg collected separately Powderfine Exterior: 0.694 kg/kg collected separately Powderfine Multi: 0.746 kg/kg collected separately
	0 kg/m^2 collected with mixed construction waste
Recovery system specified by type	0 kg for re-use
	0 kg for recycling
	0 kg for energy recovery
Disposal specified by type	Powderfine Professional: 0.694 kg/kg going to landfill Powderfine Exterior: 0.694 kg/kg going to landfill Powderfine Multi: 0.746 kg/kg going to landfill
Assumptions for scenario development, (e.g. transportation)	see above

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Reuse, recovery and recycling potential (D)

Not relevant for the declared product

Results for Putties in powder form

DESCRIPTION OF THE SYSTEM BOUNDARY
(X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED)

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
	Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	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	**GR**			**South-East Europe**									**South-East Europe**				-
Specific data used	**> 90%**			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation products	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-

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RESULTS OF THE LCA - ENVIRONMENTAL IMPACTS according to EN 15804+A2: 1 kg of Powderfine Professional

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP total	kg CO_2 eq	2.45E-01	4.56E-02	1.70E-03	0	8.31E-03	0	7.69E-03	0
GWP fossil	kg CO_2 eq	2.46E-01	4.56E-02	3.66E-04	0	8.31E-03	0	7.68E-03	0
GWP biogenic	kg CO_2 eq	-1.33E-03	0.00E+00	1.33E-03	0	0.00E+00	0	0.00E+00	0
GWP luluc	kg CO_2 eq	1.10E-04	1.64E-05	4.62E-07	0	3.26E-06	0	2.41E-06	0
GWP-GHG	kg CO_2 eq.	2,46E-01	4,56E-02	3,66E-04	0	8,31E-03	0	7,69E-03	0
ODP	kg CFC11 eq	1.10E-08	1.09E-08	4.45E-11	0	1.92E-09	0	2.90E-09	0
AP	mol H^+ eq	8.54E-04	1.90E-04	2.45E-06	0	3.37E-05	0	6.12E-05	0
EP freshwater	kg P eq	7.03E-06	3.12E-07	1.91E-08	0	5.83E-08	0	5.35E-08	0
EP-marine	kg N eq	2.33E-04	5.75E-05	1.17E-05	0	1.01E-05	0	2.27E-05	0
EP terrestrial	mol N eq	2.68E-03	6.35E-04	5.75E-06	0	1.11E-04	0	2.50E-04	0
POCP	kg NMVOC eq	6.77E-04	2.04E-04	4.19E-06	0	3.40E-05	0	7.15E-05	0
ADPE	kg Sb eq	5.75E-07	1.05E-07	1.38E-09	0	2.89E-08	0	2.03E-08	0
ADPF	MJ	1.59E+00	7.11E-01	5.69E-03	0	1.26E-01	0	1.91E-01	0
WDP	m^3 depriv.	7.75E-02	2.45E-03	1.90E-02	0	3.76E-04	0	6.21E-04	0
Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non- fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential								

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RESULTS OF THE LCA - ENVIRONMENTAL IMPACTS according to EN 15804+A2: 1kg of Powderfine Exterior

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP total	kg CO_2 eq	2.83E-01	4.56E-02	1.70E-03	0	8.31E-03	0	7.69E-03	0
GWP fossil	kg CO_2 eq	2.84E-01	4.56E-02	3.66E-04	0	8.31E-03	0	7.68E-03	0
GWP biogenic	kg CO_2 eq	-1.33E-03	0.00E+00	1.33E-03	0	0.00E+00	0	0.00E+00	0
GWP luluc	kg CO_2 eq	1.19E-04	1.64E-05	4.62E-07	0	3.26E-06	0	2.41E-06	0
GWP-GHG	kg CO_2 eq.	2,85E-01	4,56E-02	3,66E-04	0	8,31E-03	0	7,69E-03	0
ODP	kg CFC11 eq	1.21E-08	1.09E-08	4.45E-11	0	1.92E-09	0	2.90E-09	0
AP	mol H^+ eq	9.59E-04	1.90E-04	2.45E-06	0	3.37E-05	0	6.12E-05	0
EP freshwater	kg P eq	7.52E-06	3.12E-07	1.91E-08	0	5.83E-08	0	5.35E-08	0
EP-marine	kg N eq	2.66E-04	5.75E-05	1.17E-05	0	1.01E-05	0	2.27E-05	0
EP terrestrial	mol N eq	3.06E-03	6.35E-04	5.75E-06	0	1.11E-04	0	2.50E-04	0
POCP	kg NMVOC eq	7.77E-04	2.04E-04	4.19E-06	0	3.40E-05	0	7.15E-05	0
ADPE	kg Sb eq	6.51E-07	1.05E-07	1.38E-09	0	2.89E-08	0	2.03E-08	0
ADPF	MJ	1.86E+00	7.11E-01	5.69E-03	0	1.26E-01	0	1.91E-01	0
WDP	m^3 depriv.	8.39E-02	2.45E-03	1.90E-02	0	3.76E-04	0	6.21E-04	0
Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non- fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential								

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RESULTS OF THE LCA - ENVIRONMENTAL IMPACTS according to EN 15804+A2: 1kg of Powderfine Multi

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP total	kg CO_2 eq	3.35E-01	4.56E-02	1.66E-03	0	8.32E-03	0	7.69E-03	0
GWP fossil	kg CO_2 eq	3.36E-01	4.56E-02	3.29E-04	0	8.31E-03	0	7.69E-03	0
GWP biogenic	kg CO_2 eq	-1.33E-03	0.00E+00	1.33E-03	0	0.00E+00	0	0.00E+00	0
GWP luluc	kg CO_2 eq	1.85E-04	1.64E-05	4.05E-07	0	3.26E-06	0	2.41E-06	0
GWP-GHG	kg CO_2 eq.	3,36E-01	4,56E-02	3,30E-04	0	8,32E-03	0	7,69E-03	0
ODP	kg CFC11 eq	1.76E-08	1.09E-08	4.13E-11	0	1.92E-09	0	2.90E-09	0
AP	mol H^+ eq	1.23E-03	1.90E-04	2.23E-06	0	3.37E-05	0	6.12E-05	0
EP freshwater	kg P eq	9.00E-06	3.12E-07	1.66E-08	0	5.83E-08	0	5.35E-08	0
EP-marine	kg N eq	3.21E-04	5.75E-05	1.10E-05	0	1.01E-05	0	2.27E-05	0
EP terrestrial	mol N eq	3.70E-03	6.35E-04	5.28E-06	0	1.11E-04	0	2.50E-04	0
POCP	kg NMVOC eq	9.28E-04	2.04E-04	3.91E-06	0	3.40E-05	0	7.15E-05	0
ADPE	kg Sb eq	1.28E-06	1.05E-07	1.22E-09	0	2.89E-08	0	2.03E-08	0
ADPF	MJ	2.39E+00	7.11E-01	5.10E-03	0	1.26E-01	0	1.91E-01	0
WDP	m^3 depriv.	1.16E-01	2.45E-03	1.56E-02	0	3.76E-04	0	6.21E-04	0
Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non- fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential								

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RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1kg of Powderfine Professional

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ (Hu)	3.64E-01	8.91E-03	4.87E-04	0	1.74E-03	0	4.63E-03	0
PERM	MJ (Hu)	1.42E-02	0	0	0	0	0	0	0
PERT	MJ (Hu)	3.78E-01	8.91E-03	4.87E-04	0	1.74E-03	0	4.63E-03	0
PENRE	MJ (Hu)	1.59E+00	7.11E-01	5.71E-03	0	1.26E-01	0	1.91E-01	0
PENRM	MJ (Hu)	6.97E-03	0	0	0	0	0	0	0
PENRT	MJ (Hu)	1.60E+00	7.11E-01	5.71E-03	0	1.26E-01	0	1.91E-01	0
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ (Hu)	0	0	0	0	0	0	0	0
NRSF	MJ (Hu)	0	0	0	0	0	0	0	0
FW	m^3	3.78E-02	1.77E-03	7.83E-05	0	2.91E-04	0	3.35E-04	0

Caption	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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

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RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1kg of Powderfine Exterior

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ (Hu)	3.75E-01	8.91E-03	4.87E-04	0	1.74E-03	0	4.63E-03	0
PERM	MJ (Hu)	1.42E-02	0	0	0	0	0	0	0
PERT	MJ (Hu)	3.89E-01	8.91E-03	4.87E-04	0	1.74E-03	0	4.63E-03	0
PENRE	MJ (Hu)	1.87E+00	7.11E-01	5.71E-03	0	1.26E-01	0	1.91E-01	0
PENRM	MJ (Hu)	6.97E-03	0	0	0	0	0	0	0
PENRT	MJ (Hu)	1.87E+00	7.11E-01	5.71E-03	0	1.26E-01	0	1.91E-01	0
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ (Hu)	0	0	0	0	0	0	0	0
NRSF	MJ (Hu)	0	0	0	0	0	0	0	0
FW	m^3	1.82E-03	7.45E-05	3.31E-06	0	1.32E-05	0	2.22E-05	0

Caption	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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

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RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1kg of Powderfine Multi

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ (Hu)	4.05E-01	8.92E-03	4.18E-04	0	1.74E-03	0	4.63E-03	0
PERM	MJ (Hu)	1.42E-02	0	0	0	0	0	0	0
PERT	MJ (Hu)	4.20E-01	8.92E-03	4.18E-04	0	1.74E-03	0	4.63E-03	0
PENRE	MJ (Hu)	2.40E+00	7.11E-01	5.11E-03	0	1.26E-01	0	1.91E-01	0
PENRM	MJ (Hu)	6.97E-03	0	0	0	0	0	0	0
PENRT	MJ (Hu)	2.40E+00	7.11E-01	5.11E-03	0	1.26E-01	0	1.91E-01	0
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ (Hu)	0	0	0	0	0	0	0	0
NRSF	MJ (Hu)	0	0	0	0	0	0	0	0
FW	m^3	2.58E-03	7.45E-05	2.80E-06	0	1.32E-05	0	2.22E-05	0

Caption	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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

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RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: Powderfine Professional

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.68E-06	1.72E-06	9.52E-09	0	3.28E-07	0	2.87E-07	0
NHWD	kg	2.26E-02	6.67E-02	7.31E-03	0	6.50E-03	0	1.00E+00	0
RWD	kg	1.38E-05	1.03E-05	6.34E-08	0	1.82E-06	0	2.76E-06	0
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

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RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: Powderfine Exterior

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.84E-06	1.72E-06	9.52E-09	0	3.28E-07	0	2.87E-07	0
NHWD	kg	2.59E-02	6.67E-02	7.31E-03	0	6.50E-03	0	1.00E+00	0
RWD	kg	1.53E-05	1.03E-05	6.34E-08	0	1.82E-06	0	2.76E-06	0
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

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RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: Powderfine Multi

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	2.57E-06	1.72E-06	8.53E-09	0	3.28E-07	0	2.87E-07	0
NHWD	kg	4.05E-02	6.67E-02	6.90E-03	0	6.50E-03	0	1.00E+00	0
RWD	kg	1.92E-05	1.03E-05	5.69E-08	0	1.82E-06	0	2.76E-06	0
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA - additional impact categories according to EN 15804+A2-optional: 1kg of Powderfine Professional

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Desease incidences	5.86E-09	5.36E-09	2.71E-11	0	7.15E-10	0	1.30E-09	0
IR	kBq U-235 eq	7.28E-03	3.08E-03	3.08E-05	0	5.46E-04	0	8.27E-04	0
ETP-fw	CTUe	3.75E+00	5.55E-01	4.77E-02	0	9.81E-02	0	1.19E-01	0
HTP-c	CTUh	5.28E-11	1.54E-11	7.48E-13	0	3.18E-12	0	3.54E-12	0
HTP-nc	CTUh	2.31E-09	6.08E-10	2.55E-11	0	1.03E-10	0	8.49E-11	0
SQP	-	1.89E+00	8.13E-01	5.40E-03	0	8.63E-02	0	3.51E-01	0

Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

RESULTS OF THE LCA - additional impact categories according to EN 15804+A2-optional: 1kg of Powderfine Exterior

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Desease incidences	6.53E-09	5.36E-09	2.71E-11	0	7.15E-10	0	1.30E-09	0
IR	kBq U-235 eq	7.98E-03	3.08E-03	3.08E-05	0	5.46E-04	0	8.27E-04	0
ETP-fw	CTUe	3.90E+00	5.55E-01	4.77E-02	0	9.81E-02	0	1.19E-01	0
HTP-c	CTUh	5.85E-11	1.54E-11	7.48E-13	0	3.18E-12	0	3.54E-12	0
HTP-nc	CTUh	2.57E-09	6.08E-10	2.55E-11	0	1.03E-10	0	8.49E-11	0
SQP	-	1.94E+00	8.13E-01	5.40E-03	0	8.63E-02	0	3.51E-01	0

Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

RESULTS OF THE LCA - additional impact categories according to EN 15804+A2-optional: 1kg of Powderfine Multi

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Desease incidences	8.79E-09	5.36E-09	2.48E-11	0	7.15E-10	0	1.30E-09	0
IR	kBq U-235 eq	9.69E-03	3.08E-03	2.70E-05	0	5.46E-04	0	8.27E-04	0
ETP-fw	CTUe	4.95E+00	5.55E-01	4.47E-02	0	9.81E-02	0	1.19E-01	0
HTP-c	CTUh	1.19E-10	1.54E-11	6.30E-13	0	3.18E-12	0	3.54E-12	0
HTP-nc	CTUh	3.22E-09	6.08E-10	2.30E-11	0	1.03E-10	0	8.49E-11	0
SQP	-	2.06E+00	8.14E-01	5.06E-03	0	8.64E-02	0	3.51E-01	0

Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

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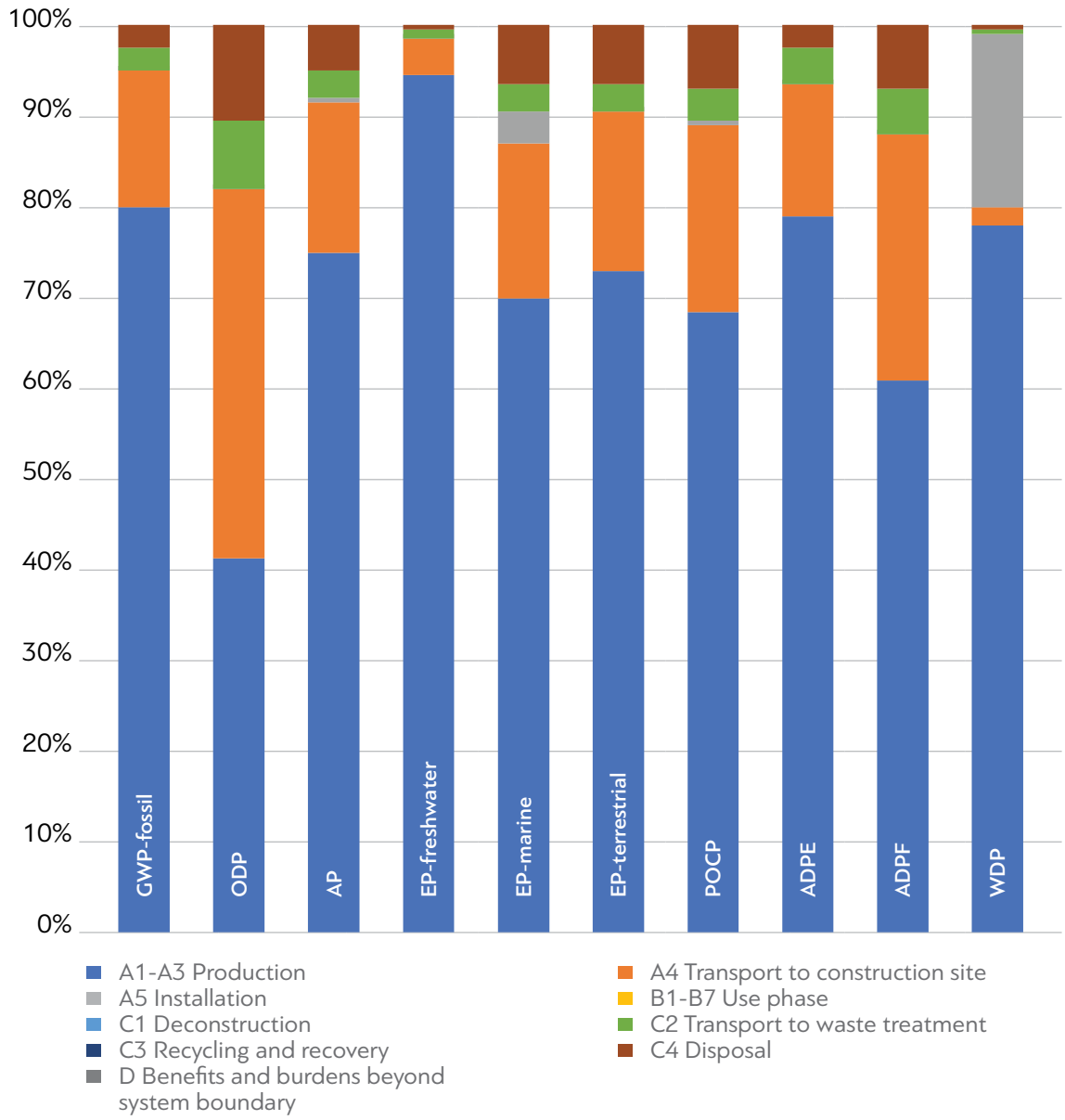
Relative contributions to the life cycle impacts of: Powderfine Professional



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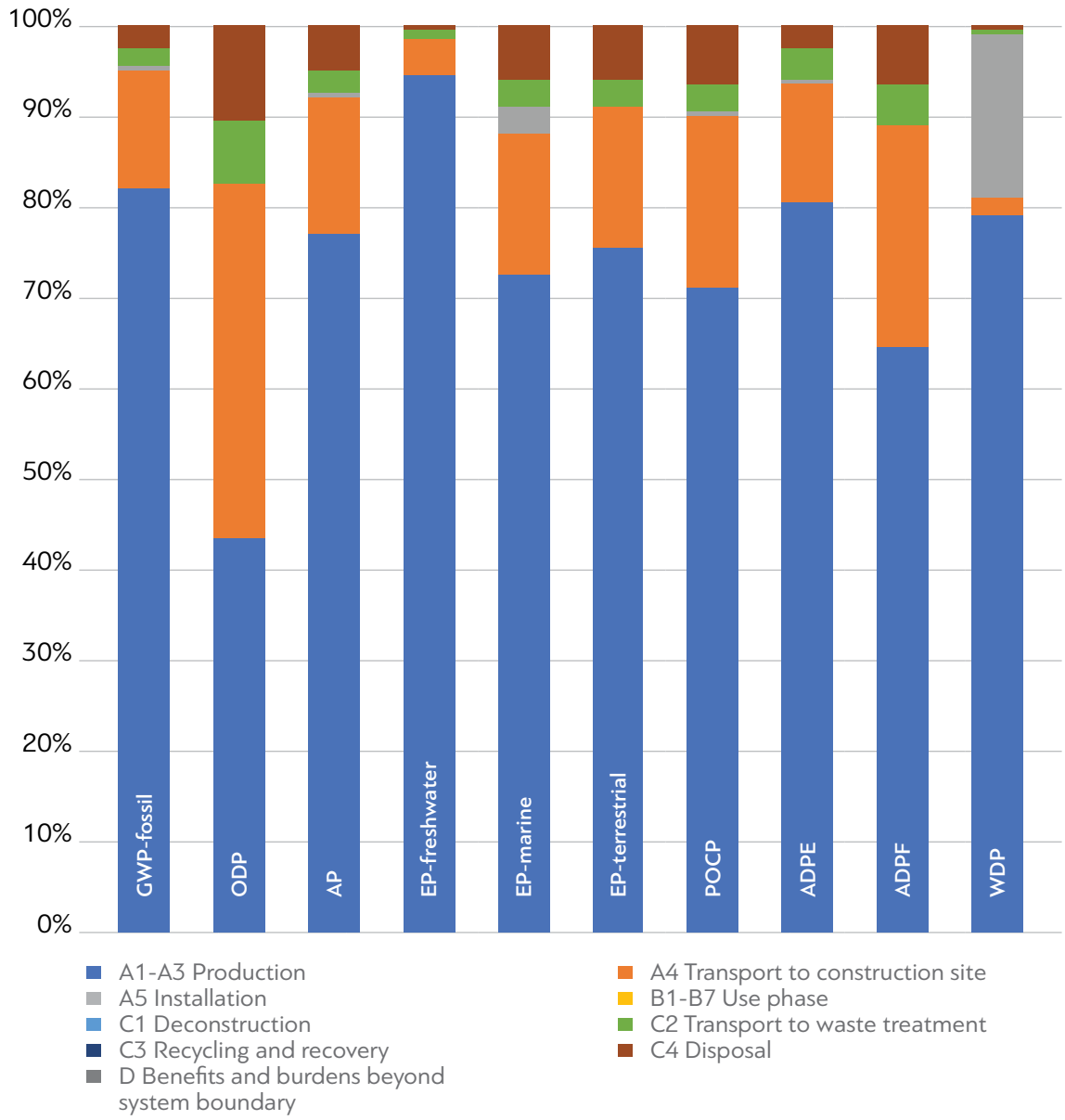
Relative contributions to the life cycle impacts of: Powderfine Exterior



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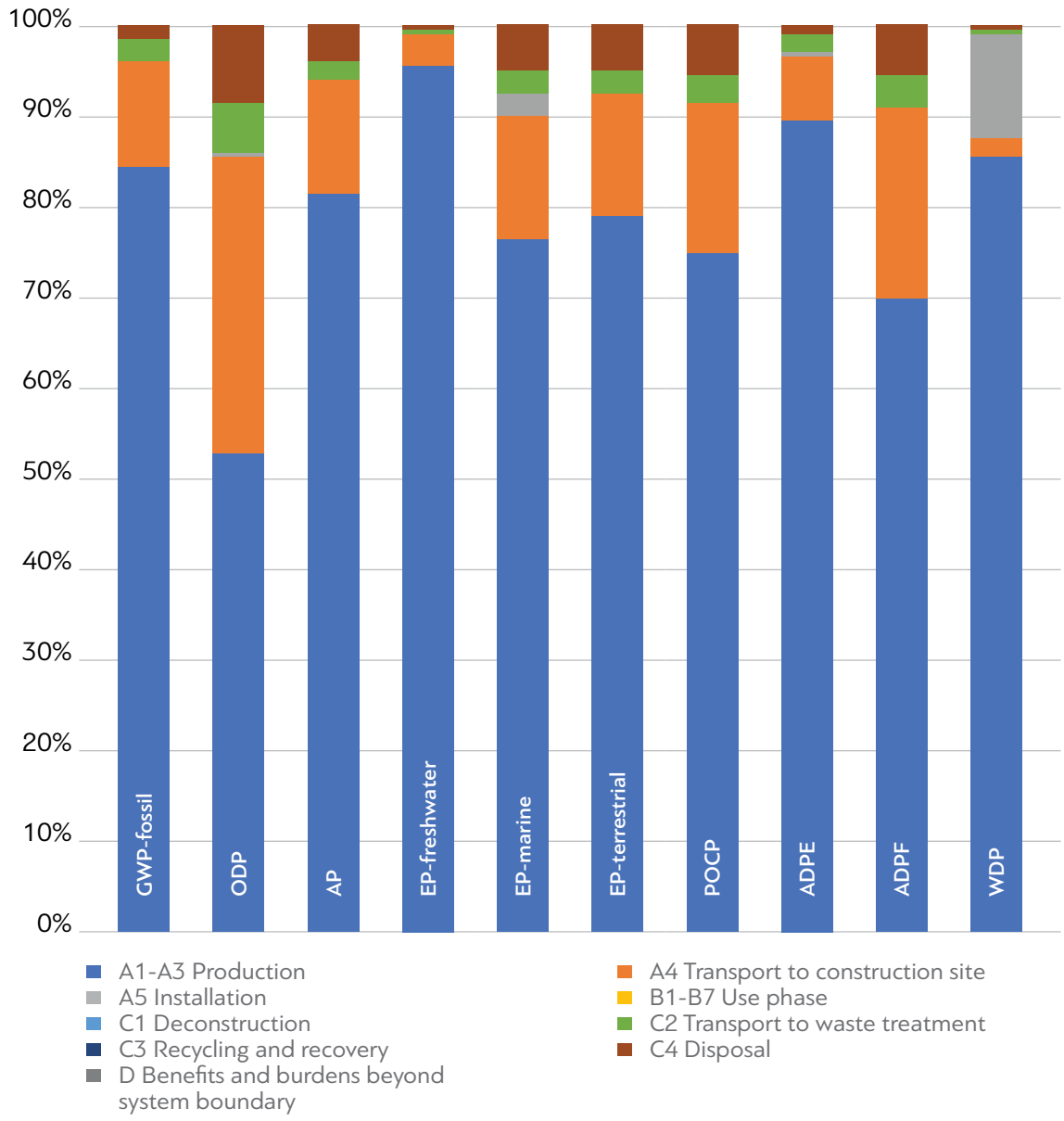
Relative contributions to the life cycle impacts of: Powderfine Multi



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Disclaimer 1: for the indicator IR

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: for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP

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.

Revision Details: Addition of GWP-GHG indicators, new product certificates and production period of Powderfine Multi

References

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

ISO 14025: 2006: Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

ISO 15686-(several parts): Buildings and constructed assets - Service life planning.

ISO 14020:2000: Environmental labels and declarations - General principles.

ISO 14040:2006: Environmental management - Life cycle assessment - Principles and framework.

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Waste Framework Directive: COUNCIL REGULATION (EU) No 333/2011 of 31 March 2011 establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council.

ECHA: The Candidate List of substances of very high concern, available via https://echa.europa.eu/nl/-/four-newsubstances-added-to-the-candidate-list.

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ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804+A2

Owner of the Declaration	DRUCKFARBEN HELLAS S.A.
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Business Quality Verification P.C.

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