GRAPHENSTONE

ENVIRONMENTAL PRODUCT DECLARATION

NATURAL PAINT

GRAPHENSTONE ECOSPHERE

INDUSTRIA ESPAÑOLA PARA EL DESARROLLO Y LA INVESTIGACIÓN SA

EPD®
ENVIRONMENTAL PRODUCT DECLARATION

ECO PLATFORM
EPD
VERIFIED

EPD® Registration Number: S-P-01050

Publication date: 2017/06/21

EPD® Scope: Internacional

EPD® based on PCR
2019:14 Construction products and construction services v 1.1

Version 4

Valid until: 2027/06/28

Revision date: 2024/07/30

UN CPC Code: 3511 Paints and Varnishes and related products

www.graphenstone.com

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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
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CEN standard UNE-EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): *PCR 2019:14 Construction Products, version 1.1*
PCR review was conducted by: *El Comité Técnico del Sistema Internacional EPD®.* President: *Claudia A. Peña.* Contact via *info@environdec.com*
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *Marcel Gomez - Marcel Gómez Consultoría Ambiental* Tlf 0034 630 64 35 93 - info@marcelgomez.com In case of recognised individual verifiers: Approved by: *The International EPD® System*
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with UNE-EN 15804. For further information about comparability, see UNE-EN 15804 and ISO 14025.

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Company information

Owner of the EPD: INDUSTRIA ESPAÑOLA PARA EL DESARROLLO E INVESTIGACIÓN 2100, S.A. (IEdiSA)

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Description of the organization: IEdiSA is a company located in El Viso del Alcor (Seville, Spain), the first worldwide manufacturer of ecological construction products, such as paints, coatings, mortars, adhesives and insulations with graphene technology under the brand **Graphenstone®**. The formulations exponentially improve its properties, mainly in reducing the consumption of materials since it works at nanometric scales, providing hardness, resistance and elasticity superior to any common coating.

IEdiSA is a manufacturer of ecological coatings, healthy and natural building materials based on artisanal lime and graphene technology. The project is totally focused on sustainable construction, maintaining at all time the principles of circular economy. The products meet the highest sustainability standards, presenting excellent benefits for the environment and health.

Product-related or management system-related certifications: As per constant concern about the continuous environmental improvement of its products, IEdiSA features:

- Certification ISO 9001 Quality Management since 2013 (registration number: ES-0610/2013),
- Certification ISO 14001 Environmental Management (registration number ES-2013/0248),
- Certification Cradle to Cradle GOLD granted in 2016 (certification number: 2788)
- Certification GreenTag y Sensitive Choice
- Certification Ecolabel
- Certification EUROFINS Indoor Air Comfort GOLD.

Name and location of production site(s): Poliviso industrial polygons. C/ Carpinteros, 25 (41520) El Viso del Alcor, Seville – España.

Product information

Products' name: Ecosphere, Ecosphere Color, Biosphere, Biosphere Color, Filler Interior, Filler Exterior, AmbientPro+ Blanco and Color, Stuki, Kratzputz, Füllmasse, GrafClean, GrafClean Eggshell, GrafClean Midshine, GrafClean Front, GrafClean Ag+, GCS Interior and GCS Exterior

Products identification: This EPD® represents the serie of *Graphenstone*® products, comprising of all the paints indicated above.

Products description: *Graphenstone*® serie comprises of natural mineral paints with integrated graphene technology, characterized with high level of resistance, flexibility and volatile organic compounds (VOCs) emission-free. They create healthier environments, guaranteeing the breathability and healthiness of the building, thus increasing the value of the property.

Figure 1. Presentation of the studied references

The studied references are described below:

- **Ecosphere (White and Color)** is a natural mineral paint for interiors with matt finish. In White & Colou. Ideal for construction, restoration and repainting. Thanks to its formula based on artisanal lime with graphene technology, it is breathable, avoids condensation, is washable, does not yellow and absorbs CO2.
- **Biosphere (White and Colour)** is a natural mineral paint for outdoor with matt finish. In White & Colour. Ideal for construction, restoration and repainting. Thanks to its formula based on artisanal lime with graphene technology, it is breathable, avoids condensation, is washable, does not yellow nor absorbs CO2.
- **AmbientPro+ (White and Color)** is a natural photocatalytic paint with graphene technology. It decomposes organic compounds and inorganic gases. This is a result of the

impact of light (natural and artificial) on the nanoparticles in titanium oxide, a photocatalyst. Highly effective decontaminant of pollutants in towns and cities. Reduces and eliminates all odours.

- **Filler (Interior and Exterior)** is a mineral paint primer with graphene technology. Ideal for surfaces with irregular textures, surface fissures (up to 1 mm) and/or peeling areas. For indoor and outdoor use. Its formulation is breathable, prevents condensation and does not crack.
- **Stuki** is a natural coating with graphene technology which, as the name suggests, produces a stucco finish. It is both simple to apply and highly versatile achieving a high-quality finish. Ideal for works with a criterion of bio-habitability, rehabilitation or sustainable restoration of buildings.
- **Kratzputz** is a natural coating containing graphene technology which has a textured finish (with a granulometry up to 2 mm). Resistant to extreme weather conditions. Also used for textured interiors.
- **Füllmasse** is a natural lime putty for repairing and filling small superficial defects such as cracks, small holes and surface fissures (1-3 mm). Also, for sealing joints between building plates or boards.
- **GrafClean** is an ecological paint with graphene technology and matt finish. Application in construction and repainting. Ideal for decorating facades and interiors. Free of VOC emissions and certified[1] for moisture control in concrete surface protection systems (EN 1504-2). The pigmented product is free of VOC emissions.
- **GrafClean Eggshell** is a low sheen, ecological paint for interior and exterior use. It is free of all toxic substances and also highly breathable. The product contains lime (<0,3%) which acts as a natural preservative.
- **GrafClean Midshine** is an ecological paint with a semi-gloss finish for interior and exterior use. It is free from all toxic substances and is also very breathable. The product contains lime (<0,3%) that acts as a natural preservative.
- **GrafClean Front** is a paint with graphene technology specially indicated for use on façades with a matt finish. Recommended for facades with a high incidence of UV rays. Intended for professional use.
- **GrafClean Ag+** is an ecological paint with silver ion (Ag+) formula, which gives it antimicrobial properties preventing the development of bacteria, fungus, viruses and protozoa.
- **GCS Interior (Pastel, Medium and Transparent)** is an interior colour paint with graphene technology with matte finish. From application in construction, restoration and repainting. It guarantees the breathability of the building.
- **GCS Exterior (Pastel, Medium and Transparent)** is an exterior ecological colour paint with graphene technology with matte finish. For application in construction, restoration and repainting. It guarantees the breathability of the building.

[1] *Paint without pigment*

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Table 1. Technical characteristic of Graphenstone paints (1)

Technical properties	Ecosphere	Ecosphere Color	Biosphere	Bioosphere Color	AmbientPro+	Filler Interior	Filler Exterior	Stuki	Kratputz	Füllmasse
Performance for 2 layers (m2/l)	6-9					5-7		4-5	3-4	4-5
Specific weight (g/cm3)	1,47 ± 0,05	1,50 ± 0,05	1,47 ± 0,05	1,48 ± 0,05	1,50 ± 0,05	1,55 ± 0,05		1,40 ± 0,05	1,75 ± 0,05	1,50 ± 0,05
pH	13 ± 1				13 ± 1	11,5 ± 1		12,5 ± 1		12,5 ± 1
Viscosity (U.K.)	[80-120]					[90-120]		[115-150]	>140	-
Solid content (%)	58 ± 5	60 ± 5	57 ± 5	60 ± 5	72 ± 5	68 ± 5		70 ± 5	75 ± 5	72 ± 5
Washability (EN 13300)	Class 1					-		Class 1		-
Fire performance	A1					-	-	A1		
Nature	Aerated lime					Mineral		Aerated lime		
Appearance	Dense liquid							Dense paste	Dense liquid with aggregates <2 mm	Dense paste
Finish	Matte							Matte	Textured matte	-
VOC content (g/l)	< 1					-	-	< 1		-
VOC emission	Class A+	-	Class A+	-	-	-	-	Class A+		-

Table 2. Technical characteristic of Graphenstone paints (2)

Technical properties	GrafClean	GrafClean Midshine	GrafClean Eggshell	GrafClean Front	GrafClean Ag+	GCS Inteior	GCS Exterior
Performance for 2 layers (m2/l)	5-8	6-8	6-8	5-8	5-8	6-9	5-8
Specific weight (g/cm3)	1,57 ± 0,05	1,27 ± 0,05	1,24 ± 0,05	1,46 ± 0,05	1,60 ± 0,05	1,60 ± 0,05	1,40 ± 0,05
pH	9,5 ± 1	9,5 ± 1	10,5 ± 1	9,5 ± 1		11 ± 1	11,5 ± 1
Viscosity (U.K.)	[80-120]	[80-120]	[100-120]	[80-120]		[90-120]	[80-120]
Solid content (%)	65 ± 5	57 ± 5	45 ± 5	65 ± 5	69 ± 5	68 ± 5	52 ± 5
Washability (UNE EN ISO 11998)	Class 1						
Nature	-	-	-	Acrylic		-	Silicate
Appearance	Dense liquid				Dense liquid	Fluid liquid	Dense liquid
Finish	Matte		Eggshell	Matte			
VOC content (g/l)	<1						

UN CPC code: 3511 Paints and Varnishes and related products.

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LCA information

Functional unit: Extraction of raw materials, transport, manufacturing, transport to customer, installation, use, transport to the waste treatment plant and end-of-life treatment of the amount of product necessary to cover 1 m^2 of surface with two layers (two coats) for a useful life of 10 years.

The consumptions of Graphenstone paints corresponding to this functional unit vary according to each product reference. This information is gathered in the table below:

Table 3. Performance of the studied references (kg/m2)

REFERENCE NAME	Performance/ consumption (kg paint per m2 applied)
Ecosphere	0,175
Ecosphere Color	0,196
Biosphere	0,184
Bioosphere Color	0,185
AmbientPro+	0,188
Filler Interior	0,258
Filler Exterior	0,258
Stuki	0,188
Kratputz	0,311
Füllmasse	0,500
GCS Inteior	0,216
GCS Exterior	0,213
GrafClean	0,230
GrafClean Midshine	0,190
GrafClean Eggshell	0,195
GrafClean Front	0,230
GrafClean Ag+	0,253

Reference service life: The reference useful life is 10 years.

Time and geographic representativeness: Primary data including the consumption of raw materials and energy, the transport distances and the generation of waste come from the factory located in Seville, Spain in the year 2019, being representative for the products studied and the production process.

This document is used for B2B communication, with a global approach.

Databases: Specific data of quantities of materials and energy used during the life cycle of the product was used. These data have been provided by IEdiSA, referring to the year 2019, coming from direct factory data. The results presented in this document are valid for EPD® until there are no substantial

modifications that affect the impact produced. Substantial modifications are considered to be an increase above 10% in the environmental impact per functional unit.

Generic data on the impact per unit of materials or energy was used. This data has been obtained from Ecoinvent Life Cycle Analysis database, version 3.8. This database has been selected as a reference database because it coincides with the input flows of matter and energy on the following aspects:

- Technological equivalence: data derived from the same physical and chemical processes, or at least the same technological coverage.
- Nature limits: data contains all the quantitative information necessary for the EPD®.
- Technical systems limits: the life cycle stages considered are equivalent.

Data quality: the estimation of data quality is based on three aspects temporal, technological and geographical. The overall value is *good* (see Annex).

Databases and LCA software used: Simapro 9.3 software and Ecoinvent 3.8 database.
The impact models are indicated in UNE-EN 15804:2012 + A2:2019.

Description of system boundaries: This EPD® is structures as per Life Cycle stages, established according to the reference PCR: Construction products and construction services, basing on UNE-EN 15804. It is Cradle to Gate with module D (A+B+C+D).

A1-A3 Production Stage

The product stage is made up of the raw material supply (A1), raw material transport (A2) and manufacturing (A3) stages. As allowed by the UNE-EN 15804 standard, the results of stages A1-A3 have been grouped into a single product stage (A).

- *A1-Supply of raw materials*

This module takes into account the extraction and processing of raw materials and energy that occurs prior to the manufacturing process under study.

It should be noted that certain Graphenstone products contains calcium hydroxide and thus, have the ability to fixate carbon dioxide present in air. As can be seen in figure 2, the production of calcium hydroxide generates CO2 in its passage from CaCO3 to lime. The same amount of CO2 emitted into the atmosphere by decarbonation is then fixed in the passage from lime to calcium hydroxide during the product use stage. This ability can be found in Ecosphere , Ecosphere Color, Biosphere , Biosphere Color, Filler Interior, Filler Exterior, AmbientPro+ Blanco and Color, Stuki , Kratzputz , Füllmasse .

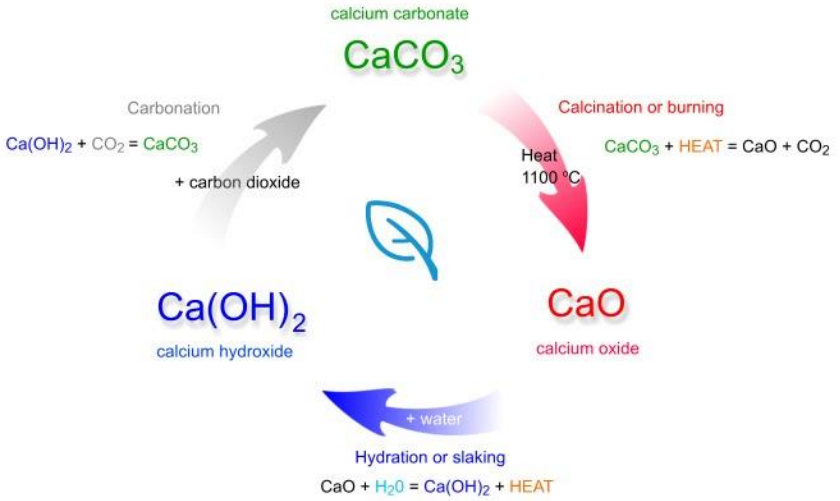


Figure 2. Calcium carbonate-calcium oxide-calcium hydroxide cycle.

- *A2-Transportation of raw materials*

This module includes the transport of the different raw materials from the providers to the factory in Seville, Spain. The distance and specific truck type have been entered for each raw material.

- *A3-Manufacturing*

This module includes the consumption of energy and packaging materials used during the manufacturing process. At the same time, factory emissions not originated from the combustion of fossil fuels (non-existent) as well as the transport and management of factory-originated waste are analysed.

The production is in "batch" process (discontinuous). It consists of a tank where the mixture takes place, a pump and two mechanical filters, these parts are common for all the mentioned products. In addition, it consists of a dosing machine where the pigments for colour paints are added. Finally, the products are transferred to the packaging area. The container used for packaging are certified 100% post-consumer recycled. All the described parts of the production process are illustrated in Figure 1.

The electricity mix is 100% certified coming from renewable sources.

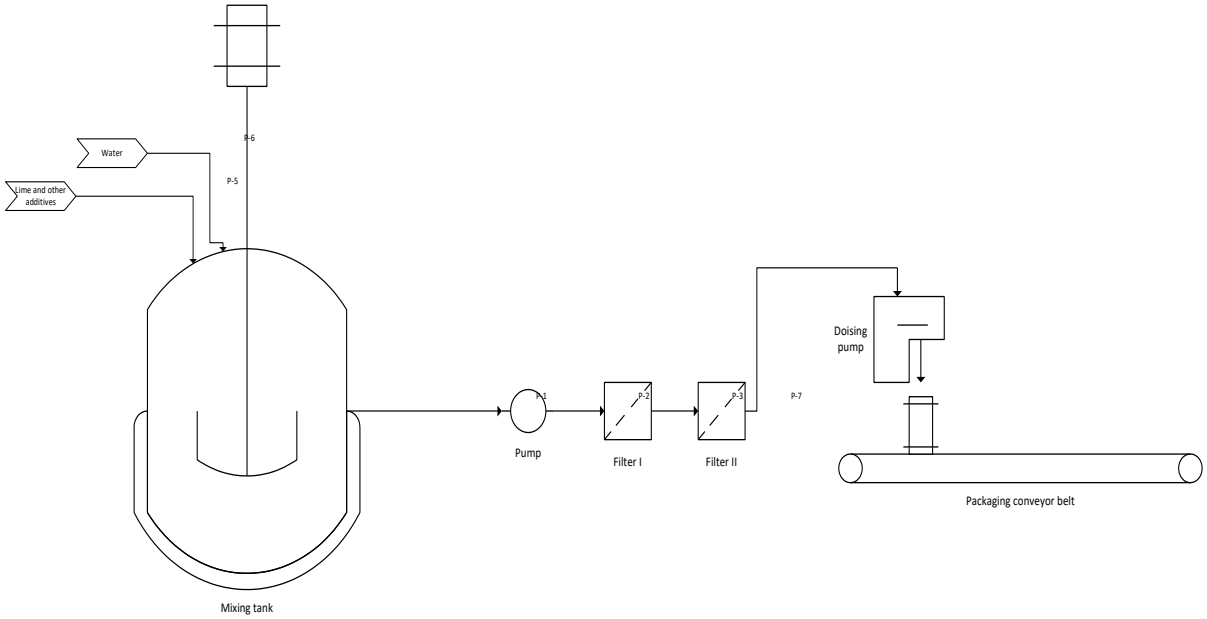


Figure 3. Manufacturing process

A4-A5 Construction Stage

The Construction Process stage is made up of modules A4 Transportation and A5 Construction-Installation Process.

- *A4-Transport*

The A4 Transport module includes the transport of the finished product from the factory gate to the distributor. The main parameters that affect the result of this stage are described below.

Table 4. Transportation specification A4

Parameter	Value/ Description per Functional Unit (average)
Fuel type and consumption, type of vehicles used for transportation	• Lorry > 32 tn. – Diesel consumption 0,0192 kg/ tkm • Container ship – Heavy fuel oil consumption 0,0025 kg/ tkm
Distance	252,53 km by lorry 2268,53 km by container ship
Capacity utilization (including empty returns)	% from Ecoinvent 3.8
Packaging	12,8 g (polypropylene + steel)
Product density	1,47 ± 0,05 (g/ cm3)

- *A5-Construction-installation process*

Module A5 Construction and Installation Process includes all materials and energy used for the installation. At the same time, the transport and management of the waste produced is taken into account. The most common application for the products is manual by brush and/or roller, therefore it does not require any energy.

Table 5. Parameters, description, and values A5

Parameter	Value/ Description per Functional Unit (average)
Auxiliary materials for installation	Brush or roller
Water	20 ml
Use of other resources	None
Quantitative description of the type of energy (regional mix) and consumption during the installation process	None
Direct emissions to air, water and soil	None
Waste of materials at the construction site, prior to processing of waste, generated during the installation of the product (specified by type)	Product losses: 2%
Outflow of materials (specified by type) resulting from waste processing at the construction site, for example, during collection for recycling, energy recovery (recovery) or landfill (specifying the route)	The packaging waste is collected and transformed into recovered material 100%.

B1-B7 USE STAGE

- *B1-Use*

It includes the environmental aspects and impacts in the normal use of the product, not including the consumption of water and energy. The impact of the product in this stage is negative on global warming since no material is consumed nor is there any emission to the environment during its useful life. On the other hand, as mentioned in section A1, certain references among these products fixes the ambient CO2 due to the lime cycle itself. The addition of solvents or curing of the product is not required for its use.

- *B2-Maintenance*

No maintenance of any kind is required during the 10-year useful life of the product.

- *B3-Repair*

No repair of any kind is required during the 10-year useful life of the product.

- *B4-Substitution*

No replacement is required during the 10-year useful life of the product.

- *B5-Rehabilitation*

No rehabilitation is required during the 10-year useful life of the product.

- *B6-Energy use in service*

No power consumption is required during the 10-year useful life of the product.

- *B7-Use of water in service*

No water consumption is required during the 10-year useful life of the product.

C1-C4 End of Life Stage

- *C1-Deconstruction / demolition*

The deconstruction and / or dismantling of paint is considered to be part of the demolition of the entire building. As a consequence, the proportional environmental impact is very small and is considered negligible.

- *C2-Transport*

Transport of waste generated at the end of life from the construction site to waste management. In this case, the same data as previously declared is maintained.

- *C3-Waste treatment*

Recycling and / or reuse of materials at the end of life, if any. In this case, it is considered that there is no recycling or reuse during the end of life of the product, because in the demolition of buildings a selective separation of materials is not carried out in the vast majority of cases.

- *C4-Waste disposal*

The elimination of waste generated during the end of the product's life. It should be noted that the quality of the information and existing models in the Ecoinvent database used regarding the end of life of individual materials is lower than desired, as cited by several scientific articles. Therefore, it is recommended to be cautious in making decisions based on the results obtained by the study at this stage.

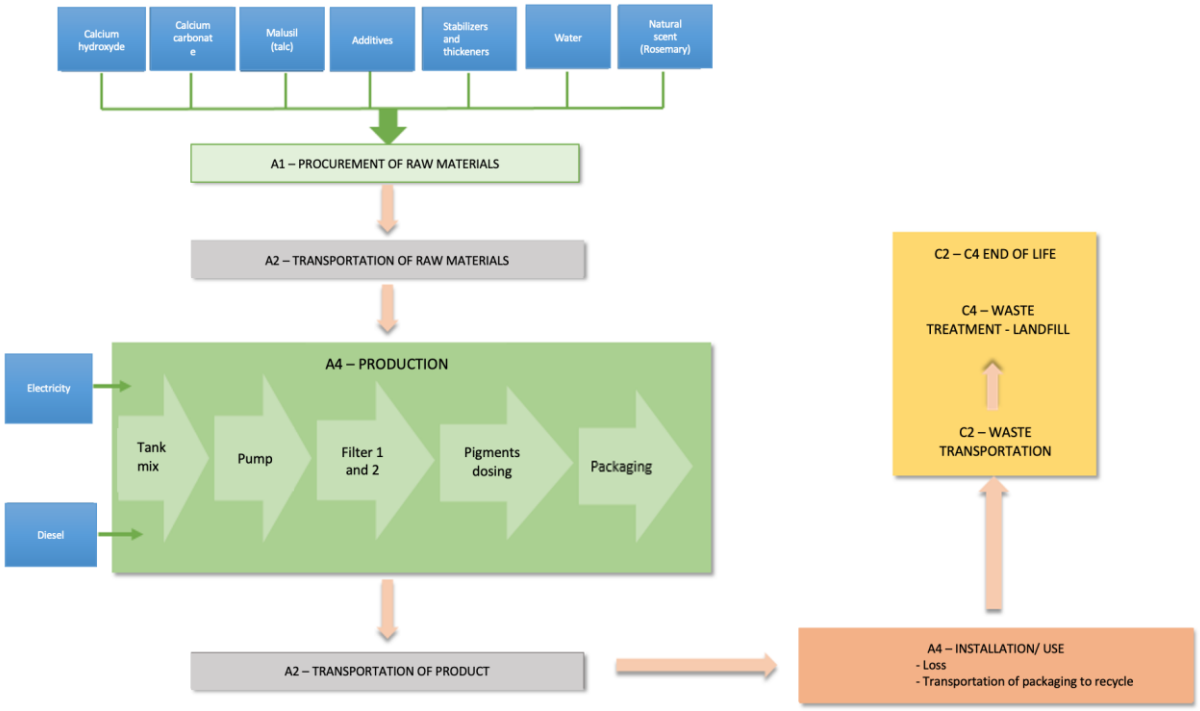
Parameter	Value/ Description per Functional Unit (average)
Waste collection process specified by type	100% kg (mixed with construction waste)
Recuperation system specified by type	No reuse, recycling or energy recovery
Discharge specified by type	100% kg in controlled landfill
Assumptions for the development of the scenario (e.g., transport)	Truck with trailer with an average load of 16-32 tons and a diesel consumption of 0,0192 kg/ tkm 50 km of average distance to the landfill

Table 1. Specification for end-of-life stage.

- MODULE D POTENTIAL FOR REUSE, RECOVERY AND RECYCLING

Module D calculates the potential benefits of recycling and/ or reusing materials. This product does not claim environmental benefits due to recycling and/ or reuse.

System diagram:



More information: Can be found in https://www.graphenstone.com/

Additional information

- Technical support for the implementation of the EPD: Graphenstone.
- The electricity mix used in the manufacturing plant is 100% certified renewable.
- The principle of modularity has been followed, as well as the polluter pays principle
- Cut-off rules: includes a minimum of 95% of the consumption of raw materials and energy per module and a minimum of 99% for the entire life cycle.
- Allocation procedure: if necessary, an allocation based on physical criteria was used.
- Basing on the system limits indicated in the reference regulation PCR Construction products and construction services, the following processes have not been taken into account:
  - The manufacture of capital goods with an expected useful life of over three years, buildings, and other capital goods.
  - Maintenance activities of the production plant.
  - Transportation carried out by workers on the home-factory-home journey.
  - Long-term emissions.
  - The paper and ink used in the packaging label.
  - The consumption of matter and energy produced during the demolition of the building.

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	Global	Spain and Germany	Spain	Global	Global	Local	Local	Local	Local	Local	Local	Local	Local	Local	Local	Local	Local
Specific data used	> 90% GWP					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Less than 10% for each product group					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Manufactured in one single site					-	-	-	-	-	-	-	-	-	-	-	-

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Content information

The presented Graphenstone paints have variable composition. Due to confidentiality issues, these tables present the information on the average content of the product references studied. Each table corresponds to a group of references - WITH (Group A) and WITHOUT (Group B) the ability to fixate carbon dioxide:

Group A: Ecosphere, Ecosphere Color, Biosphere, Biosphere Color, Filler m Interior, Filler Exterior, AmbientPro+ Blanco and Color, Stuki, Kratzputz, Füllmasse

Product components	Percentage	Post-consumer material, weight-%	Renewable material, weight-%
Calcium hydroxide	40%	-	-
Water	12%	-	-
Calcium carbonate	39%	-	-
Additives	8%	-	-
TOTAL	100%	-	-
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Post-consumer material, weight-%**
Polypropylene	0,014	5%	100%
Steel	0,001	0,3%	-
TOTAL	0,015		

Group B: GrafClean, GrafClean Midshine, GrafClean Eggshell, GrafClean Ag+, GrafClean Front, GCS Interior, GCS Exterior

Product components	Percentage	Post-consumer material, weight-%	Renewable material, weight-%
Water	21%	-	-
Calcium carbonate	49%	-	-
Additives	30%	-	-
Lime	<0,3%*		
TOTAL	100%	-	-
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Post-consumer material, weight-%**
Polypropylene	0,011	5%	100%
Steel	0,0006	0,3%	-
TOTAL	0,0116		

The products do not include during its life cycle any dangerous substances included in the "Very High Impact Candidate List for Authorization (SVHC)" in a percentage greater than 0.1% of the weight of each product.

*Lime is not considered in the model calculation for being below the cut-off rules.

Environmental Information

Below are the results of the potential environmental impacts of the products under review divided by the ability to fixate carbon dioxide and grouped in groups with a variation of less than 10%, of ascending magnitude. These values shown are the average per group.

Group A – WITH CO2 ABSORTION ABILITY

Group A1

These results are valid for the following products: Ecosphere, Biosphere, AmbientPro+ Blanco and Color

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,72E-01	2,80E-02	4,10E-03	-4,83E-02	0	0	0	0	0	0	0	6,85E-04	0	4,70E-04	0
GWP-biogenic	kg CO_2 eq.	5,48E-03	8,03E-06	1,10E-04	0	0	0	0	0	0	0	0	1,88E-07	0	2,70E-07	0
GWP-luluc	kg CO_2 eq.	6,17E-04	3,45E-07	1,24E-05	0	0	0	0	0	0	0	0	8,80E-09	0	1,60E-08	0
GWP-total	kg CO_2 eq.	1,78E-01	2,81E-02	4,23E-03	-4,83E-02	0	0	0	0	0	0	0	6,85E-04	0	4,70E-04	0
ODP	kg CFC 11 eq.	1,42E-08	6,18E-09	4,28E-10	0	0	0	0	0	0	0	0	1,55E-10	0	9,75E-11	0
AP	mol H^+ eq.	7,51E-04	5,51E-04	2,65E-05	0	0	0	0	0	0	0	0	2,35E-06	0	4,84E-06	0
EP-freshwater	kg PO_4^{3-} eq.	9,68E-06	4,61E-08	1,97E-07	0	0	0	0	0	0	0	0	4,89E-09	0	5,12E-09	0
EP-freshwater	kg P eq	3,15E-06	1,50E-08	6,42E-08	0	0	0	0	0	0	0	0	1,59E-09	0	1,67E-09	0
EP-marine	kg N eq.	1,02E-04	1,39E-04	4,96E-06	0	0	0	0	0	0	0	0	7,30E-07	0	2,10E-06	0
EP-terrestrial	mol N eq.	1,16E-03	1,54E-03	5,56E-05	0	0	0	0	0	0	0	0	8,04E-06	0	2,31E-05	0
POCP	kg NMVOC eq.	3,81E-04	3,95E-04	1,59E-05	0	0	0	0	0	0	0	0	2,19E-06	0	6,42E-06	0
ADP-minerals&metals*	kg Sb eq.	8,58E-07	7,32E-10	1,72E-08	0	0	0	0	0	0	0	0	5,61E-11	0	2,26E-11	0
ADP-fossil*	MJ	1,78E+00	3,76E-01	4,45E-02	0	0	0	0	0	0	0	0	9,47E-03	0	6,26E-03	0
WDP	m^3	8,37E-02	-6,54E-05	2,30E-03	0	0	0	0	0	0	0	0	3,72E-06	0	2,53E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[2]	kg CO_2 eq.	1,72E-01	2,79E-02	4,09E-03	-4,83E-02	0	0	0	0	0	0	0	6,80E-04	0	4,61E-04	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,47E-01	5,38E-04	8,96E-03	0	0	0	0	0	0	0	0	1,23E-05	0	2,62E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	9,43E-01	5,37E-04	1,89E-02	0	0	0	0	0	0	0	0	1,23E-05	0	2,62E-05	0
PENRE	MJ	1,91E+00	3,99E-01	4,76E-02	0	0	0	0	0	0	0	0	1,01E-02	0	6,64E-03	0
PENRM	MJ.	3,84E-01	0	7,68E-03	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	2,29E+00	3,99E-01	5,53E-02	0	0	0	0	0	0	0	0	1,01E-02	0	6,64E-03	0
SM	kg	8,94E-03	0	1,79E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	1,91E-03	1,25E-06	5,32E-05	0	0	0	0	0	0	0	0	1,92E-07	0	1,37E-07	0
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] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2,45E-06	6,03E-07	6,44E-08	0	0	0	0	0	0	0	0	2,51E-08	0	1,58E-08	0
Non-hazardous waste disposed	kg	2,00E-02	1,66E-05	4,12E-03	0	0	0	0	0	0	0	0	2,58E-06	0	1,86E-01	0
Radioactive waste disposed	kg	6,53E-06	2,70E-06	1,94E-07	0	0	0	0	0	0	0	0	6,62E-08	0	4,32E-08	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	9,49E-03	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Group A2

These results are valid for the following products: Füllmasse, Filler Interior, Filler Exterior and Stuki

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,10E-01	4,29E-02	5,21E-03	-4,31E-02	0	0	0	0	0	0	0	1,05E-03	0	7,19E-04	0
GWP-biogenic	kg CO_2 eq.	7,69E-03	1,23E-05	1,54E-04	0	0	0	0	0	0	0	0	2,88E-07	0	4,13E-07	0
GWP-luluc	kg CO_2 eq.	9,33E-04	5,27E-07	1,87E-05	0	0	0	0	0	0	0	0	1,35E-08	0	2,45E-08	0
GWP-total	kg CO_2 eq.	2,19E-01	4,29E-02	5,39E-03	-4,31E-02	0	0	0	0	0	0	0	1,05E-03	0	7,19E-04	0
ODP	kg CFC 11 eq.	1,77E-08	9,45E-09	5,75E-10	0	0	0	0	0	0	0	0	2,38E-10	0	1,49E-10	0
AP	mol H^+ eq.	7,55E-04	8,42E-04	3,26E-05	0	0	0	0	0	0	0	0	3,60E-06	0	7,40E-06	0
EP-freshwater	kg PO_4^{3-} eq.	1,24E-05	7,05E-08	2,54E-07	0	0	0	0	0	0	0	0	7,48E-09	0	7,83E-09	0
EP-freshwater	kg P eq	4,05E-06	2,29E-08	8,29E-08	0	0	0	0	0	0	0	0	2,44E-09	0	2,55E-09	0
EP-marine	kg N eq.	1,27E-04	2,12E-04	7,00E-06	0	0	0	0	0	0	0	0	1,12E-06	0	3,22E-06	0
EP-terrestrial	mol N eq.	1,48E-03	2,36E-03	7,91E-05	0	0	0	0	0	0	0	0	1,23E-05	0	3,53E-05	0
POCP	kg NMVOC eq.	4,65E-04	6,04E-04	2,20E-05	0	0	0	0	0	0	0	0	3,36E-06	0	9,82E-06	0
ADP-minerals&metals*	kg Sb eq.	1,23E-06	1,12E-09	2,48E-08	0	0	0	0	0	0	0	0	8,57E-11	0	3,46E-11	0
ADP-fossil*	MJ	2,29E+00	5,75E-01	5,95E-02	0	0	0	0	0	0	0	0	1,45E-02	0	9,57E-03	0
WDP	m^3	1,02E-01	-1,00E-04	3,24E-03	0	0	0	0	0	0	0	0	5,69E-06	0	3,87E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[3]	kg CO_2 eq.	2,10E-01	4,26E-02	5,20E-03	-4,31E-02	0	0	0	0	0	0	0	1,04E-03	0	7,05E-04	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	6,50E-01	8,22E-04	1,30E-02	0	0	0	0	0	0	0	0	1,87E-05	0	4,01E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	6,50E-01	8,22E-04	1,30E-02	0	0	0	0	0	0	0	0	1,87E-05	0	4,01E-05	0
PENRE	MJ	2,45E+00	6,10E-01	6,36E-02	0	0	0	0	0	0	0	0	1,54E-02	0	1,02E-02	0
PENRM	MJ.	5,88E-01	0	1,18E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	3,04E+00	6,10E-01	7,54E-02	0	0	0	0	0	0	0	0	1,54E-02	0	1,02E-02	0
SM	kg	1,37E-02	0	2,73E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	2,29E-03	1,91E-06	7,44E-05	0	0	0	0	0	0	0	0	2,93E-07	0	2,05E-07	0
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] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,30E-06	9,22E-07	8,97E-08	0	0	0	0	0	0	0	0	3,84E-08	0	2,41E-08	0
Non-hazardous waste disposed	kg	1,82E-02	2,54E-05	6,05E-03	0	0	0	0	0	0	0	0	3,94E-06	0	2,84E-01	0
Radioactive waste disposed	kg	8,38E-06	4,13E-06	2,64E-07	0	0	0	0	0	0	0	0	1,01E-07	0	6,60E-08	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	1,45E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Group A3

These results are valid for the following products: Ecosphere Color and Biosphere Color

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,69E-01	2,78E-02	6,04E-03	-4,21E-02	0	0	0	0	0	0	0	6,78E-04	0	4,65E-04	0
GWP-biogenic	kg CO_2 eq.	6,76E-03	7,95E-06	1,35E-04	0	0	0	0	0	0	0	0	1,87E-07	0	2,68E-07	0
GWP-luluc	kg CO_2 eq.	6,72E-04	3,42E-07	1,35E-05	0	0	0	0	0	0	0	0	8,71E-09	0	1,58E-08	0
GWP-total	kg CO_2 eq.	2,77E-01	2,78E-02	6,19E-03	-4,21E-02	0	0	0	0	0	0	0	6,78E-04	0	4,66E-04	0
ODP	kg CFC 11 eq.	2,60E-08	6,12E-09	6,64E-10	0	0	0	0	0	0	0	0	1,54E-10	0	9,66E-11	0
AP	mol H^+ eq.	3,53E-03	5,45E-04	8,19E-05	0	0	0	0	0	0	0	0	2,33E-06	0	4,79E-06	0
EP-freshwater	kg PO_4^{3-} eq.	2,57E-05	4,56E-08	5,18E-07	0	0	0	0	0	0	0	0	4,84E-09	0	5,07E-09	0
EP-freshwater	kg P eq	8,38E-06	1,49E-08	1,69E-07	0	0	0	0	0	0	0	0	1,58E-09	0	1,65E-09	0
EP-marine	kg N eq.	2,24E-04	1,37E-04	7,37E-06	0	0	0	0	0	0	0	0	7,23E-07	0	2,08E-06	0
EP-terrestrial	mol N eq.	2,23E-03	1,53E-03	7,66E-05	0	0	0	0	0	0	0	0	7,96E-06	0	2,28E-05	0
POCP	kg NMVOC eq.	8,48E-04	3,91E-04	2,52E-05	0	0	0	0	0	0	0	0	2,17E-06	0	6,36E-06	0
ADP-minerals&metals*	kg Sb eq.	8,64E-07	7,25E-10	1,73E-08	0	0	0	0	0	0	0	0	5,55E-11	0	2,24E-11	0
ADP-fossil*	MJ	3,10E+00	3,72E-01	7,08E-02	0	0	0	0	0	0	0	0	9,38E-03	0	6,20E-03	0
WDP	m^3	2,56E-01	-6,47E-05	5,76E-03	0	0	0	0	0	0	0	0	3,69E-06	0	2,50E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[4]	kg CO_2 eq.	2,66E-01	2,76E-02	5,97E-03	-4,21E-02	0	0	0	0	0	0	0	6,73E-04	0	4,57E-04	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	5,74E-01	5,33E-04	1,15E-02	0	0	0	0	0	0	0	0	1,21E-05	0	2,59E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	5,74E-01	5,33E-04	1,15E-02	0	0	0	0	0	0	0	0	1,21E-05	0	2,59E-05	0
PENRE	MJ	3,31E+00	3,95E-01	7,56E-02	0	0	0	0	0	0	0	0	9,96E-03	0	6,58E-03	0
PENRM	MJ.	3,81E-01	0	1,18E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	3,69E+00	3,95E-01	8,74E-02	0	0	0	0	0	0	0	0	9,96E-03	0	6,58E-03	0
SM	kg	8,85E-03	0	1,77E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	6,11E-03	1,23E-06	1,38E-04	0	0	0	0	0	0	0	0	1,90E-07	0	1,33E-07	0
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															

[4] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,98E-06	5,97E-07	9,50E-08	0	0	0	0	0	0	0	0	2,49E-08	0	1,56E-08	0
Non-hazardous waste disposed	kg	1,25E-01	1,65E-05	6,19E-03	0	0	0	0	0	0	0	0	2,55E-06	0	1,84E-01	0
Radioactive waste disposed	kg	1,21E-05	2,67E-06	3,05E-07	0	0	0	0	0	0	0	0	6,56E-08	0	4,28E-08	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	9,40E-03	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Group A4

These results are valid for the following product: Kratputz

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	3,23E-01	8,22E-03	7,53E-02	-4,38E-02	0	0	0	0	0	0	0	1,84E-03	0	1,26E-03	0
GWP-biogenic	kg CO_2 eq.	1,24E-02	2,48E-04	2,16E-05	0	0	0	0	0	0	0	0	5,06E-07	0	7,26E-07	0
GWP-luluc	kg CO_2 eq.	1,59E-03	3,19E-05	9,26E-07	0	0	0	0	0	0	0	0	2,36E-08	0	4,30E-08	0
GWP-total	kg CO_2 eq.	3,37E-01	8,50E-03	7,53E-02	-4,38E-02	0	0	0	0	0	0	0	1,84E-03	0	1,26E-03	0
ODP	kg CFC 11 eq.	3,15E-08	1,02E-09	1,66E-08	0	0	0	0	0	0	0	0	4,18E-10	0	2,62E-10	0
AP	mol H^+ eq.	1,25E-03	5,56E-05	1,48E-03	0	0	0	0	0	0	0	0	6,32E-06	0	1,30E-05	0
EP-freshwater	kg PO_4^{3-} eq.	1,99E-05	4,03E-07	1,24E-07	0	0	0	0	0	0	0	0	1,31E-08	0	1,38E-08	0
EP-freshwater	kg P eq	6,47E-06	1,31E-07	4,03E-08	0	0	0	0	0	0	0	0	4,28E-09	0	4,48E-09	0
EP-marine	kg N eq.	2,25E-04	1,23E-05	3,72E-04	0	0	0	0	0	0	0	0	1,96E-06	0	5,65E-06	0
EP-terrestrial	mol N eq.	2,57E-03	1,38E-04	4,14E-03	0	0	0	0	0	0	0	0	2,16E-05	0	6,19E-05	0
POCP	kg NMVOC eq.	8,40E-04	3,91E-05	1,06E-03	0	0	0	0	0	0	0	0	5,89E-06	0	1,73E-05	0
ADP-minerals&metals*	kg Sb eq.	1,48E-06	2,96E-08	1,97E-09	0	0	0	0	0	0	0	0	1,51E-10	0	6,08E-11	0
ADP-fossil*	MJ	4,05E+00	1,05E-01	1,01E+00	0	0	0	0	0	0	0	0	2,54E-02	0	1,68E-02	0
WDP	m^3	1,68E-01	3,94E-03	-1,76E-04	0	0	0	0	0	0	0	0	1,00E-05	0	6,79E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[5]	kg CO_2 eq.	3,21E-01	8,16E-03	7,48E-02	-4,38E-02	0	0	0	0	0	0	0	1,83E-03	0	1,23E-03	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,10E+00	2,21E-02	1,44E-03	0	0	0	0	0	0	0	0	3,29E-05	0	7,04E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	1,10E+00	2,21E-02	1,44E-03	0	0	0	0	0	0	0	0	3,29E-05	0	7,04E-05	0
PENRE	MJ	4,37E+00	1,13E-01	1,07E+00	0	0	0	0	0	0	0	0	2,70E-02	0	1,78E-02	0
PENRM	MJ.	1,03E+00	0	2,06E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	5,40E+00	1,13E-01	1,09E+00	0	0	0	0	0	0	0	0	2,70E-02	0	1,78E-02	0
SM	kg	2,40E-02	0	4,80E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	3,80E-03	9,05E-05	3,35E-06	0	0	0	0	0	0	0	0	5,15E-07	0	3,59E-07	0
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															

[5] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5,63E-06	1,54E-07	1,62E-06	0	0	0	0	0	0	0	0	6,74E-08	0	4,24E-08	0
Non-hazardous waste disposed	kg	2,68E-02	1,05E-02	4,47E-05	0	0	0	0	0	0	0	0	6,92E-06	0	5,00E-01	0
Radioactive waste disposed	kg	1,31E-05	4,31E-07	7,24E-06	0	0	0	0	0	0	0	0	1,78E-07	0	1,16E-07	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	2,55E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Group B – WITHOUT CO2 ABSORTION ABILITY

Group B1

These results are valid for the following product: GCS Interior

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,89E-01	3,21E-02	4,55E-03	0	0	0	0	0	0	0	0	7,85E-04	0	5,38E-04	0
GWP-biogenic	kg CO_2 eq.	5,80E-03	9,20E-06	1,16E-04	0	0	0	0	0	0	0	0	2,16E-07	0	3,10E-07	0
GWP-luluc	kg CO_2 eq.	7,08E-04	3,95E-07	1,42E-05	0	0	0	0	0	0	0	0	1,01E-08	0	1,83E-08	0
GWP-total	kg CO_2 eq.	1,96E-01	3,21E-02	4,68E-03	0	0	0	0	0	0	0	0	7,85E-04	0	5,39E-04	0
ODP	kg CFC 11 eq.	1,62E-08	7,08E-09	4,90E-10	0	0	0	0	0	0	0	0	1,78E-10	0	1,12E-10	0
AP	mol H^+ eq.	1,76E-03	6,31E-04	4,83E-05	0	0	0	0	0	0	0	0	2,70E-06	0	5,54E-06	0
EP-freshwater	kg PO_4^{3-} eq.	1,71E-05	5,28E-08	3,48E-07	0	0	0	0	0	0	0	0	5,60E-09	0	5,87E-09	0
EP-freshwater	kg P eq	5,58E-06	1,72E-08	1,13E-07	0	0	0	0	0	0	0	0	1,82E-09	0	1,91E-09	0
EP-marine	kg N eq.	1,67E-04	1,59E-04	6,68E-06	0	0	0	0	0	0	0	0	8,37E-07	0	2,41E-06	0
EP-terrestrial	mol N eq.	1,76E-03	1,77E-03	7,23E-05	0	0	0	0	0	0	0	0	9,21E-06	0	2,64E-05	0
POCP	kg NMVOC eq.	8,30E-04	4,52E-04	2,61E-05	0	0	0	0	0	0	0	0	2,51E-06	0	7,36E-06	0
ADP-minerals&metals*	kg Sb eq.	4,26E-07	8,39E-10	8,60E-09	0	0	0	0	0	0	0	0	6,42E-11	0	2,59E-11	0
ADP-fossil*	MJ	4,00E+00	4,31E-01	9,03E-02	0	0	0	0	0	0	0	0	1,09E-02	0	7,17E-03	0
WDP	m^3	1,66E-01	-7,49E-05	4,49E-03	0	0	0	0	0	0	0	0	4,27E-06	0	2,90E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[6]	kg CO_2 eq.	1,85E-01	3,19E-02	4,46E-03	0	0	0	0	0	0	0	0	7,79E-04	0	5,28E-04	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	5,40E-01	6,16E-04	1,08E-02	0	0	0	0	0	0	0	0	1,40E-05	0	3,00E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	9,43E-01	5,37E-04	1,89E-02	0	0	0	0	0	0	0	0	1,40E-05	0	3,00E-05	0
PENRE	MJ	4,30E+00	4,57E-01	9,69E-02	0	0	0	0	0	0	0	0	1,15E-02	0	7,61E-03	0
PENRM	MJ.	4,40E-01	0	8,81E-03	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	4,74E+00	4,57E-01	1,06E-01	0	0	0	0	0	0	0	0	1,15E-02	0	7,61E-03	0
SM	kg	1,02E-02	0	2,05E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	4,00E-03	1,43E-06	1,08E-04	0	0	0	0	0	0	0	0	2,20E-07	0	1,53E-07	0
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															

[6] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2,76E-06	6,91E-07	7,29E-08	0	0	0	0	0	0	0	0	2,88E-08	0	1,81E-08	0
Non-hazardous waste disposed	kg	5,13E-02	1,91E-05	5,29E-03	0	0	0	0	0	0	0	0	2,95E-06	0	2,13E-01	0
Radioactive waste disposed	kg	7,70E-06	3,09E-06	2,27E-07	0	0	0	0	0	0	0	0	7,59E-08	0	4,95E-08	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	1,09E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Group B2

These results are valid for the following products: GrafClean, GrafClean EggShell, GrafClean Midshine and GCS Exterior

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,34E-01	3,13E-02	5,41E-03	0	0	0	0	0	0	0	0	7,65E-04	0	5,25E-04	0
GWP-biogenic	kg CO_2 eq.	6,13E-03	8,96E-06	1,23E-04	0	0	0	0	0	0	0	0	2,10E-07	0	3,02E-07	0
GWP-luluc	kg CO_2 eq.	7,29E-04	3,85E-07	1,46E-05	0	0	0	0	0	0	0	0	9,83E-09	0	1,79E-08	0
GWP-total	kg CO_2 eq.	2,41E-01	3,13E-02	5,55E-03	0	0	0	0	0	0	0	0	7,65E-04	0	5,25E-04	0
ODP	kg CFC 11 eq.	1,76E-08	6,90E-09	5,13E-10	0	0	0	0	0	0	0	0	1,74E-10	0	1,09E-10	0
AP	mol H^+ eq.	2,00E-03	6,15E-04	5,28E-05	0	0	0	0	0	0	0	0	2,63E-06	0	5,40E-06	0
EP-freshwater	kg PO_4^{3-} eq.	2,10E-05	5,14E-08	4,24E-07	0	0	0	0	0	0	0	0	5,46E-09	0	5,72E-09	0
EP-freshwater	kg P eq	6,84E-06	1,68E-08	1,38E-07	0	0	0	0	0	0	0	0	1,78E-09	0	1,86E-09	0
EP-marine	kg N eq.	2,00E-04	1,55E-04	7,26E-06	0	0	0	0	0	0	0	0	8,16E-07	0	2,35E-06	0
EP-terrestrial	mol N eq.	2,15E-03	1,72E-03	7,91E-05	0	0	0	0	0	0	0	0	8,98E-06	0	2,58E-05	0
POCP	kg NMVOC eq.	1,04E-03	4,41E-04	3,01E-05	0	0	0	0	0	0	0	0	2,45E-06	0	7,17E-06	0
ADP-minerals&metals*	kg Sb eq.	7,48E-07	8,18E-10	1,50E-08	0	0	0	0	0	0	0	0	6,26E-11	0	2,53E-11	0
ADP-fossil*	MJ	5,17E+00	4,20E-01	1,13E-01	0	0	0	0	0	0	0	0	1,06E-02	0	6,99E-03	0
WDP	m^3	1,93E-01	-7,30E-05	4,70E-03	0	0	0	0	0	0	0	0	4,16E-06	0	2,82E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[7]	kg CO_2 eq.	2,28E-01	3,11E-02	5,30E-03	0	0	0	0	0	0	0	0	7,59E-04	0	5,15E-04	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	5,68E-01	6,01E-04	1,14E-02	0	0	0	0	0	0	0	0	1,37E-05	0	2,93E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	5,68E-01	6,01E-04	1,14E-02	0	0	0	0	0	0	0	0	1,37E-05	0	2,93E-05	0
PENRE	MJ	5,55E+00	4,46E-01	1,22E-01	0	0	0	0	0	0	0	0	1,12E-02	0	7,42E-03	0
PENRM	MJ.	4,29E-01	0	8,58E-03	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	5,97E+00	4,46E-01	1,30E-01	0	0	0	0	0	0	0	0	1,12E-02	0	7,42E-03	0
SM	kg	9,98E-03	0	2,00E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	4,71E-03	1,39E-06	1,15E-04	0	0	0	0	0	0	0	0	2,14E-07	0	1,49E-07	0
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															

[7] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,21E-06	6,74E-07	8,15E-08	0	0	0	0	0	0	0	0	2,80E-08	0	1,76E-08	0
Non-hazardous waste disposed	kg	7,23E-02	1,86E-05	5,60E-03	0	0	0	0	0	0	0	0	2,88E-06	0	2,08E-01	0
Radioactive waste disposed	kg	8,75E-06	3,01E-06	2,46E-07	0	0	0	0	0	0	0	0	7,39E-08	0	4,82E-08	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	1,06E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Group B3

These results are valid for the following product: GrafClean Front

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	3,04E-01	3,46E-02	6,89E-03	0	0	0	0	0	0	0	0	8,46E-04	0	5,80E-04	0
GWP-biogenic	kg CO_2 eq.	7,25E-03	9,92E-06	1,45E-04	0	0	0	0	0	0	0	0	2,33E-07	0	3,34E-07	0
GWP-luluc	kg CO_2 eq.	8,07E-04	4,26E-07	1,62E-05	0	0	0	0	0	0	0	0	1,09E-08	0	1,98E-08	0
GWP-total	kg CO_2 eq.	3,12E-01	3,47E-02	7,05E-03	0	0	0	0	0	0	0	0	8,46E-04	0	5,81E-04	0
ODP	kg CFC 11 eq.	2,07E-08	7,63E-09	5,94E-10	0	0	0	0	0	0	0	0	1,92E-10	0	1,21E-10	0
AP	mol H^+ eq.	2,43E-03	6,80E-04	6,27E-05	0	0	0	0	0	0	0	0	2,91E-06	0	5,98E-06	0
EP-freshwater	kg PO_4^{3-} eq.	2,53E-05	5,69E-08	5,10E-07	0	0	0	0	0	0	0	0	6,04E-09	0	6,33E-09	0
EP-freshwater	kg P eq	8,24E-06	1,85E-08	1,66E-07	0	0	0	0	0	0	0	0	1,97E-09	0	2,06E-09	0
EP-marine	kg N eq.	2,52E-04	1,71E-04	8,65E-06	0	0	0	0	0	0	0	0	9,02E-07	0	2,60E-06	0
EP-terrestrial	mol N eq.	2,72E-03	1,90E-03	9,43E-05	0	0	0	0	0	0	0	0	9,93E-06	0	2,85E-05	0
POCP	kg NMVOC eq.	1,45E-03	4,88E-04	3,92E-05	0	0	0	0	0	0	0	0	2,71E-06	0	7,94E-06	0
ADP-minerals&metals*	kg Sb eq.	7,42E-07	9,05E-10	1,49E-08	0	0	0	0	0	0	0	0	6,93E-11	0	2,80E-11	0
ADP-fossil*	MJ	7,42E+00	4,64E-01	1,59E-01	0	0	0	0	0	0	0	0	1,17E-02	0	7,73E-03	0
WDP	m^3	2,42E-01	-8,08E-05	5,65E-03	0	0	0	0	0	0	0	0	4,60E-06	0	3,12E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[8]	kg CO_2 eq.	2,96E-01	3,44E-02	6,72E-03	0	0	0	0	0	0	0	0	8,40E-04	0	5,70E-04	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	6,55E-01	6,64E-04	1,31E-02	0	0	0	0	0	0	0	0	1,51E-05	0	3,24E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	6,55E-01	6,64E-04	1,31E-02	0	0	0	0	0	0	0	0	1,51E-05	0	3,24E-05	0
PENRE	MJ	7,96E+00	4,93E-01	1,71E-01	0	0	0	0	0	0	0	0	1,24E-02	0	8,21E-03	0
PENRM	MJ.	4,75E-01	0	8,58E-03	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	8,44E+00	4,93E-01	1,80E-01	0	0	0	0	0	0	0	0	1,24E-02	0	8,21E-03	0
SM	kg	1,10E-02	0	2,21E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	5,97E-03	1,54E-06	1,39E-04	0	0	0	0	0	0	0	0	2,37E-07	0	1,65E-07	0
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															

[8] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,64E-06	7,45E-07	9,20E-08	0	0	0	0	0	0	0	0	3,10E-08	0	1,95E-08	0
Non-hazardous waste disposed	kg	6,17E-02	2,05E-05	5,83E-03	0	0	0	0	0	0	0	0	3,18E-06	0	2,30E-01	0
Radioactive waste disposed	kg	1,06E-05	3,33E-06	2,89E-07	0	0	0	0	0	0	0	0	8,18E-08	0	5,34E-08	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	1,17E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Group B4

These results are valid for the following product: GrafClean Ag+

Potential environmental impact – mandatory indicators according to UNE-EN 15804

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	5,60E-01	3,81E-02	1,21E-02	0	0	0	0	0	0	0	0	9,31E-04	0	6,38E-04	0
GWP-biogenic	kg CO_2 eq.	1,04E-02	1,09E-05	2,08E-04	0	0	0	0	0	0	0	0	2,56E-07	0	3,67E-07	0
GWP-luluc	kg CO_2 eq.	1,34E-03	4,69E-07	2,68E-05	0	0	0	0	0	0	0	0	1,20E-08	0	2,17E-08	0
GWP-total	kg CO_2 eq.	5,71E-01	3,81E-02	1,23E-02	0	0	0	0	0	0	0	0	9,31E-04	0	6,39E-04	0
ODP	kg CFC 11 eq.	4,82E-08	8,40E-09	1,16E-09	0	0	0	0	0	0	0	0	2,11E-10	0	1,33E-10	0
AP	mol H^+ eq.	6,15E-03	7,48E-04	1,39E-04	0	0	0	0	0	0	0	0	3,20E-06	0	6,57E-06	0
EP-freshwater	kg PO_4^{3-} eq.	3,35E-04	6,26E-08	6,71E-06	0	0	0	0	0	0	0	0	6,64E-09	0	6,96E-09	0
EP-freshwater	kg P eq	1,09E-04	2,04E-08	2,19E-06	0	0	0	0	0	0	0	0	2,16E-09	0	2,27E-09	0
EP-marine	kg N eq.	1,33E-03	1,88E-04	3,06E-05	0	0	0	0	0	0	0	0	9,93E-07	0	2,86E-06	0
EP-terrestrial	mol N eq.	1,66E-02	2,09E-03	3,77E-04	0	0	0	0	0	0	0	0	1,09E-05	0	3,13E-05	0
POCP	kg NMVOC eq.	4,25E-03	5,36E-04	9,63E-05	0	0	0	0	0	0	0	0	2,98E-06	0	8,73E-06	0
ADP-minerals&metals*	kg Sb eq.	6,02E-04	9,95E-10	1,20E-05	0	0	0	0	0	0	0	0	7,62E-11	0	3,08E-11	0
ADP-fossil*	MJ	9,11E+00	5,11E-01	1,94E-01	0	0	0	0	0	0	0	0	1,29E-02	0	8,51E-03	0
WDP	m^3	2,91E-01	-8,88E-05	6,93E-03	0	0	0	0	0	0	0	0	5,06E-06	0	3,44E-06	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Potential environmental impact – additional mandatory and voluntary indicators

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[9]	kg CO_2 eq.	5,47E-01	3,79E-02	1,18E-02	0	0	0	0	0	0	0	0	9,24E-04	0	6,27E-04	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,03E+00	7,31E-04	2,06E-02	0	0	0	0	0	0	0	0	1,67E-05	0	3,56E-05	0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	1,03E+00	7,31E-04	2,06E-02	0	0	0	0	0	0	0	0	1,67E-05	0	3,56E-05	0
PENRE	MJ	9,75E+00	5,42E-01	2,08E-01	0	0	0	0	0	0	0	0	1,37E-02	0	9,03E-03	0
PENRM	MJ.	5,22E-01	0	1,04E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	1,03E+01	5,42E-01	2,18E-01	0	0	0	0	0	0	0	0	1,37E-02	0	9,03E-03	0
SM	kg	1,21E-02	0	2,43E-04	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	7,91E-03	1,69E-06	1,85E-04	0	0	0	0	0	0	0	0	2,60E-07	0	1,82E-07	0
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															

[9] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in UNE-EN 15804:2012+A1:2013.

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Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,30E-04	8,20E-07	2,62E-06	0	0	0	0	0	0	0	0	3,41E-08	0	2,14E-08	0
Non-hazardous waste disposed	kg	7,99E-02	2,26E-05	6,65E-03	0	0	0	0	0	0	0	0	3,50E-06	0	2,53E-01	0
Radioactive waste disposed	kg	2,76E-05	3,67E-06	6,39E-07	0	0	0	0	0	0	0	0	9,00E-08	0	5,87E-08	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	1,29E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Results interpretation

This section shows the potential impacts of the life cycle stages of Group A1 and Group B1, the products groups with and without CO2 fixing capacity of lowest impact characterization values, respectively.

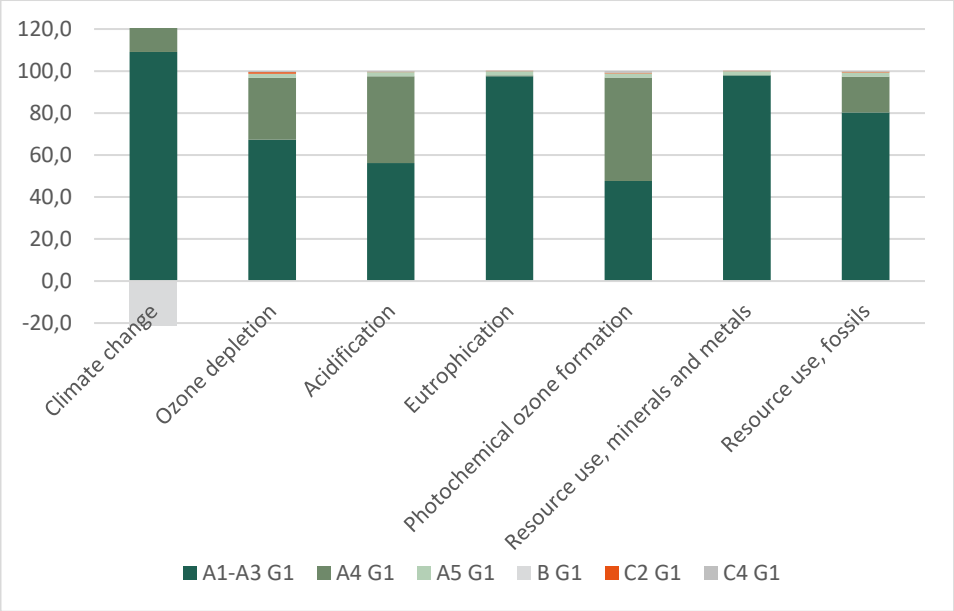

Figure 4. Potential impact of the life cycle stages - product group 1

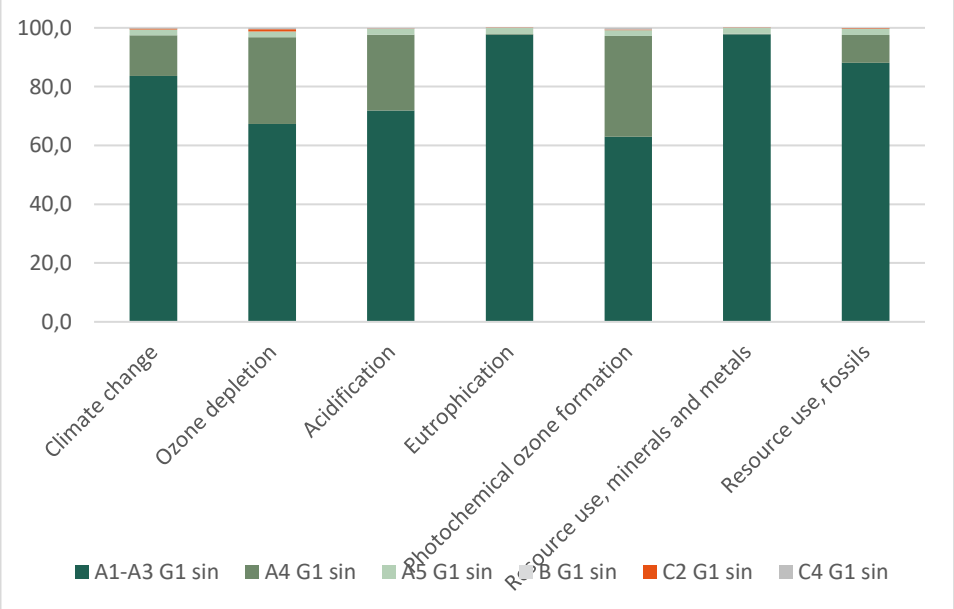

Figure 5. Potential impact of the life cycle stages - product group 4

The distribution of impacts per life cycle stage is similar in both groups. As can be seen in figure 4 and 5, the product stage is the most impactful in all selected categories, ranging from around 60% of the total impact in stratosphere ozone depletion, acidification, and photochemical ozone formation to 97% in eutrophication and depletion of minerals and metals resources. The stage of distribution to clients is the second greatest contributor, which is responsible for between 15% (Climate change) to 44%

(Photochemical ozone formation). The rest of life cycle stages such as construction/ installation, transport of end-of-life waste and final disposal have relatively small impacts comparing to the former two.

The difference between the two figures is most significant regarding the negative impact of use stage. In relation to group A1, the proportion is -20% meanwhile it is non-existent in group B1. This is due to the fact that some references contain calcium hydroxide, the fixation agent of carbon dioxide in paints.

Information related to Sector EPD

This EPD® is individual.

Differences versus previous versions

Since there is no specific sub-PCR for paintings, the scope of the study has been modified from cradle to grave with options (modules A + B + C). This change affects only at the editorial level, since both options include all stages of the life cycle.
PCR 2019: 14 Construction products (UNE-EN 15804:A2)

In version 3, up to 7 paint references have been added and several aspects have been corrected in relation to version 2, such as the specific consumption (functional unit) for each paint, and the interpretation of the results in the use table of resources. Revision made on 2022/06/29

In version 4, an editorial modification is made for the product description and the content declaration for group B products (GrafClean Eggshell and GrafClean Midshine). The word “premium” is removed from the product’s names.

References

- General Programme Instructions of the International EPD® System. Version 4.0.
- ISO 14020: 2000 Environmental labels and declarations — General principles.
- ISO 14025: 2010 Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
- ISO 14040: 2006 Environmental management — Life cycle assessment — Principles and framework.
- ISO 14044: 2006 Environmental management — Life cycle assessment — Requirements and guidelines.
- PCR 2019:14 Construction products (UNE-EN 15804: A2) version 1.1.
- CPC 3511 Paints and Varnishes and related products.
- UNE-EN 15804:2012 + A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.
- Graphenstone (2024). Análisis del Ciclo de Vida de Pintura Ecosphere. Version 3

Annex

Data Quality Estimation

Calculation of the data quality regarding three aspects: temporal, technological and geographical. Each material/ process element is assigned a quality according to this scale: 1-very bad, 2-bad, 3-media, 4-good and 5-very good.

The temporal y geographical both receive a value of 3,8 and technological a 4,1. Therefore, the overall quality is estimated to be *good.*

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