ENVIRONMENTAL PRODUCT DECLARATION

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

WEBERFLOOR SCREEDS

Version 1
Date of publication: 2023/10/13
Validity: 5 years
Valid until: 2028/10/12

THE INTERNATIONAL EPD® SYSTEM

Registration number
The International EPD® System:
S-P-10804

EPD Type: Multiple Products (worst-case)
Scope of the EPD®: Cradle-to-Grave & Module D

Production plant: Saint-Gobain Weber, Flitwick, Bedford, MK45 5BY

General information

Company information

Manufacturer: Saint-Gobain Weber
Site of Manufacture: Dickens House, Enterprise Way, Flitwick, Bedford MK45 5BY, United Kingdom
Management system - related certifications: ISO 14001 [1], ISO 45001 [2], ISO 9001[3]

Product Name: weberfloor Screeds
EPD for Multiple Products: ☐ No ☒ Yes, the EPD represents the following products:
weberfloor Flex [4], weberfloor Level [5], weberfloor Smooth 4150 [6] and, weberfloor Fibre 4310 [7]
UN CPC CODE: 3751 – Non-refractory mortars and concretes

Owner of the Declaration: Saint-Gobain Construction Products UK Ltd t/a Saint-Gobain Weber
EPD® Prepared by: Charnett Chau (charnett.chau@saint-gobain.com) and Ben Galley (ben.galley@netweber.co.uk)

Geographical Scope of the EPD®: United Kingdom
EPD® Registration Number: S-P-10804
Declaration Issued: 2023/10/13 valid until 2028/10/12
Demonstration of Verification: an independent verification of the declaration was made, according to ISO 14025:2010 [8]. This verification was external and conducted by the following third party based on the PCR mentioned above.

Programme Information

PROGRAMME:	The International EPD® System [9]
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CEN standard EN 15804:2012 + A2:2019 [10] serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction Products, version 1.2.5 [11]
c-PCR-017 Technical-chemical products (for construction sector) [12]
PCR review was conducted by: The Technical Committee of the International EPD® System
See www.environdec.com for a list of members.
Chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact - 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: Matthew Fishwick, Fishwick Environmental Ltd
Email: matt@fishwickenvironmental.com
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 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.

Product Description

Product Description and Description of Use

This Environmental Product Declaration (EPD®) describes the environmental impacts of **1 kg of weberfloor Screeds, as applied**.

weberfloor Screeds are a product group of four floor screed products, manufactured at the Saint-Gobain Weber site located in Flitwick, United Kingdom, differentiated by their formulation and purpose. The products are: weberfloor Flex, weberfloor Level, weberfloor Smooth 4150, and weberfloor Fibre 4310. The collection of floor screed products is packed in powder form in 25 kg bags.

weberfloor Screeds are applied to floors for levelling purposes and the difference in characteristics within the range allows them to fulfil different functional and aesthetic requirements. For instance, they are designed for levelling (applying onto) a range of surfaces (e.g. cement, wooden floors, existing tiles, bitumen etc.) and may be designed for covering with a range of materials (e.g. tiles, carpet and other types of flooring).

The products within the product range are composed mainly of calcium aluminate, sand and limestone formulated with a range of other ingredients, however, the quantity of each raw material differs between products to achieve the desired functionality. After evaluating each product's life cycle impact, decisions were made to produce an EPD based on the worst-case product – weberfloor Smooth 4150.

All technical characteristics and properties for any product can be found on the website for individual products listed in the references.

Technical data/physical characteristics:

Physical appearance	Powder form
Water addition	5 L/25 kg (20%)
Compressive strength	To EN13813:2002 [13]
Flexural strength	To EN13813:2002

Declaration of the Main Product Components and/or Materials

All raw materials contributing more than 5% to any environmental impact are listed in the following table.

PRODUCT COMPONENTS	MASS (%)	Post-consumer recycled material, MASS %
Sand	≤ 43.0	0
Limestone	≤ 38.0	0
Calcium Aluminate	≤ 11.0	0
Anhydrite	≤ 4.6	0
Dispersible Polymer Powder	≤ 2.2	0
Other Raw Materials	≤ 6.8	0
PACKAGING MATERIALS	**MASS kg**	**MASS (%)**
Bag (paper + PE)	0.0043	6.4
Pallet	0.061	90.4
HPDE Sheet	0.00047	0.7
LDPE Film	0.0017	2.5

During the life cycle of the product any hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) [14] for authorization” has been used in a percentage higher than 0.1% of the weight of the product. The verifier and the programme operator do not make any claim nor have any responsibility for the legality of the product.

RAW MATERIAL CATEGORY	WEBERFLOOR SCREEDs (MASS %)	PACKAGING (MASS %)
Metals	0.0	0.0
Minerals	≤ 97.4	0.0
Fossil-based	≤ 3.4	9.2
Bio-based	≤ 0.12	90.8

LCA Calculation Information

TYPE OF EPD	Cradle-to-Grave, and Module D
DECLARED UNIT (DU)	1 kg of weberfloor Screeds, as applied
SYSTEM BOUNDARIES	A1-A3; B1; C1-C4 and D
REFERENCE SERVICE LIFE (RSL)	60 years. By default, it corresponds to standard building design life (in the UK), and it is noted that screed products are in place for this duration.
CUT-OFF RULES	In the case that there is not enough information, the process energy and materials representing less than 1% of the whole energy and mass used can be excluded (if they do not cause significant impacts). The addition of all the inputs and outputs excluded cannot be bigger than 5% of the mass and energy used, as well as emissions to the environment, per module. The construction of plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the production of the building product when compared to the system's lifetime level. Flows related to human activities such as employee transport are also excluded.
ALLOCATIONS	The allocation criteria are based on the mass flow of products and co-products – i.e. mass allocation between the different product ranges produced at Saint-Gobain Weber – Flitwick, United Kingdom. Where raw materials and energy usage cannot be directly attributed to individual products the total quantity used in the factory was divided by the total mass of products produced to achieve materials and energy per kilogram of product. The polluter pays and modularity principles have been followed. The impact arising from the treatment of waste generated with the system boundaries is allocated to the product until waste reaches the end-of-waste state.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: UK (product, use and disposal) Data is collected from one production site, Flitwick, UK by Saint-Gobain Weber. Data collected for the year: 2022 (plant data) **Note:** The manufacture of product formulation introduced in August 2023 was modelled in conjunction with 2022 processing data. Checks were carried out and the difference in impacts between 2022 and 2023 formulations is < 10%.
BACKGROUND DATA SOURCE	Sphera LCA Manged Content v2023.1 [15] and ecoinvent v.3.9.1 [16]
SOFTWARE	Sphera LCA for Experts v10 [17]
LCA METHODOLOGY	In addition to EN 15804:2019+A2, PCR 2019:14, and c-PCR-017, the study was carried out in accordance with ISO 14040:2006 [18], ISO 14044:2006 [19], and GPI for the International EPD® system [20]

According to EN 15804:2012+A2:2019, EPDs of construction products may not be comparable if they do not comply with this standard. According to ISO 21930:2017, EPDs might not be comparable if they are from different programmes.

LCA Scope

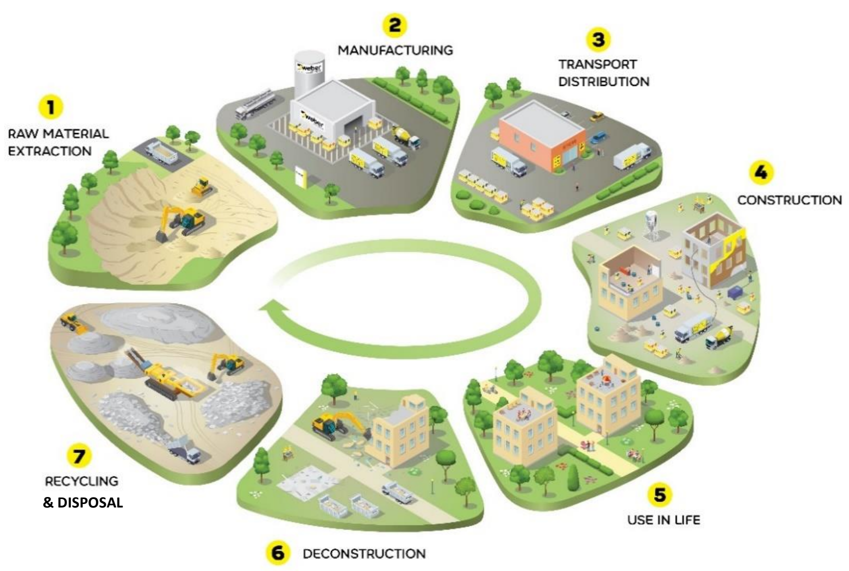
System boundaries (X=included. MND=module not declared)

	PRODUCT STAGE			CONSTRUC-TION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-recovery
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	MND**						X	X	X	X	X
Geography	EU		GB	GB													

Specific data used	< 15% GWP- GHG*
Variation products	< 5%
Variation sites	N/A

*Share of specific data that is specified according to PCR 2019:14. We gathered site-specific data on the generation of electricity provided by contracted suppliers (using Guarantee of Origin), transportation data on distances, means of transportation, load factor, fuel/other energy consumption at the site. The value in the table is calculated on the share of impact deriving from LCI data from databases on transportation and energy ware that are combined with actual transportation and energy parameters.
**Modules not declared as per c-PCR-017.

Life Cycle Stages



A1-A3, Product Stage

Description of the stage:

Modules A1-A3 sit within the product stage of a building's life cycle, where raw and secondary materials are extracted and processed (A1) before being transported (A2) to manufacturing facilities for the fabrication of building products (A3). Here we detail A1-A3 for the weberfloor Screed products produced at Weber Flitwick, United Kingdom. Information on the supply of materials and manufacturing of the product(s) were primary data from Saint-Gobain Weber. Secondary data from Sphera Managed LCA Content (2023.1) and ecoinvent (v3.9.1) databases were used to obtain LCIs for input materials and the processing of waste materials. Electricity used at the Saint-Gobain manufacturing site was modelled based on the power mix purchased with the guarantee of origin (GO) mix from the UK market.

The aggregation of the modules A1, A2, and A3 is a possibility considered by the EN 15804 standard. This rule is applied in this EPD.

A1, Raw materials supply

This part considers the extraction and processing of all raw materials and energy that occurs upstream of the studied manufacturing process. The raw material supply covers the sourcing and production of all binder components and additives (e.g. sand, cement, rheology agents, and others).

The use of electricity, fuels, and auxiliary materials in the production is taken into account too. The environmental profile of these energy carriers is modelled for local conditions.

A2, Transport to the manufacturer

The raw materials are transported to the manufacturing site in Flitwick, United Kingdom. In this case, the modelling includes road and boat transportation (average values) of each raw material.

A3, Manufacturing

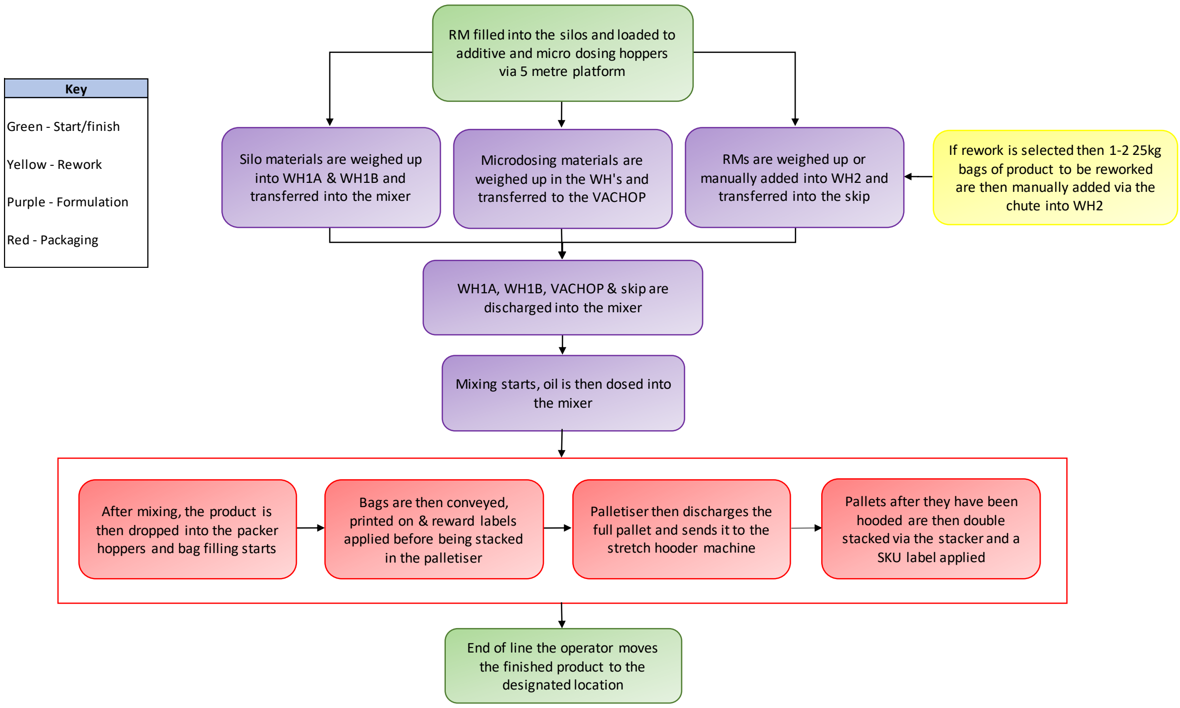
See System Diagram for a complete breakdown of the manufacturing process.

In A3, other processes modelled include:

- The processing of waste arising from the manufacturing process. How manufacturing waste is processed was based on waste reports from waste contractors, however, where processes are unavailable from Sphera and ecoinvent databases, the worst-case process was used (landfill and incineration).
- The combustion of refinery products, such as diesel and gasoline, is related to the production process.
- Packaging-related flows in the production process and all upstream packaging are included in the manufacturing module, i.e. wooden pallets, paper sacks and LDPE film.
    - In addition to the production of packaging material, the supply and transport of packaging material are also considered in the LCA model. They are reported and allocated to the module where the packaging is applied. Data on packaging waste created during this step are then generated.

Manufacturing process flow diagram

System diagram:



A4-A5, Construction Process Stage

A4, Transport to the building site:

Distribution distances of products were obtained by mapping the transport distances from the Flitwick manufacturing site to the client. The average distance was then taken along with the typical mode and load of transport to form the transport scenario. All clients were included in the calculation from the year 2022, no assumptions or cut-offs were made to find the average distribution distance. Additionally, it's assumed that no product is lost, broken, or wasted during transportation due to the efficiency of our courier and our packing process.

PARAMETER	VALUE
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long-distance truck, boat, etc.	Long-distance truck: 28t payload capacity Euro 0 – 6 mix Fuel type: Diesel
Distance	227 km
Average Load Weight	23.3 tonnes
Average Utilisation	0.83

A5, Installation in the building:
The installation of the floor screed product was modelled to the point where it may be overlayed with another material. Hence, only the use of water is factored for installing the product and the supply of any covering material was excluded from the study. It is also assumed that 5% of the product is lost during installation due to residues in packaging and mixing containers.

For the disposal of packaging and waste products, as no data has been collected on where customers dispose of their waste, the default settings for transport processes were used i.e. 100 km distance with 85% utilisation of truck. The degradation of the packaging's biogenic carbon content in a solid waste disposal site, i.e. landfill, is declared as GWP biogenic and has been calculated without a time limit. Any remaining biogenic carbon is treated as an emission of biogenic CO_2 from the technosphere to nature.

PARAMETER	VALUE (expressed per DU)
Secondary materials for installation	None
Water use	0.2 L
Other resource use	None
Quantitative description of energy type and consumption during the installation process	None
Wastage of materials	5% losses during installation
Output materials	**Waste to landfill:** Paper + PE bag: 0.0043 kg Polyethylene film: 0.0017 kg Polyethene sheet: 0.00047 kg Wooden pallet: 0.061 kg Screed product: 0.05 kg
Direct emissions to ambient air, soil and water	None

B1-B7, Use Stage

The use stage, related to the building fabric includes:

B1: Use (or application of the installed product)
This model represents any emissions to the environment of the installed product. Emissions to the environment are not attributable to floor screed products. Note: Potential carbon uptake due to the potential carbonation of free calcium oxide within the installed product was excluded from the study.

B2: Maintenance; B3: Repair; B4: Replacement; B5: Refurbishment

As specified by c-PCR-017, life cycle modules B2-B5 shall not be included in EPDs for technical chemical products in the building and construction industry.

B6: Operational Energy Use; B7: Operational Water Use

As specified by c-PCR-017, life cycle modules B6-B7 are not relevant for the products covered by the PCR.

C1-C4, End of Life Stage

Description of the stage
The end-of-life (EoL) scenario for the product range was developed based on Saint-Gobain's own knowledge and confirmation of customers for the deconstruction and demolition of the product from the building (C1). The worst-case scenario was used for the final disposal of the product, which is landfill.

C1, Deconstruction, demolition

The deconstruction and/or dismantling process of the product range is assumed to be deconstructed as part of the entire building. These processes mainly use energy for mechanical operations. In our case, a small amount of energy is considered 0.0437 MJ/kg.

C2, Transport to waste processing

As there is no data for the transport of waste after its use phase, the default distance of 100 km of an average truck used at 85% capacity was assumed.

C3, Waste processing for reuse, recovery and/or recycling

No waste processing for reuse, recovery and recycling was assumed, hence no environmental loads are attributed to this stage.

C4, Disposal

The worst-case scenario where 100% landfill of the product was assumed.

PARAMETER	VALUE/DESCRIPTION
Collection process specified by type	100% collected with mixed construction and demolition waste.
Recovery system specified by type	0% of Waste
Disposal specified by type	100% to municipal landfill
Assumptions for scenario development (e.g. transportation)	Waste is transported 100 km by truck from deconstruction/demolition sites to landfill.

D, Reuse/recovery/recycling potential

No secondary materials were used to manufacture this product and 100**%** of the product is landfilled at its EoL. There is no reuse, recovery, or recycling of this product. Hence, no recycling benefits are reported in Module D.

LCA Results

As specified in EN 15804:2012+A2:2019 and the Product-Category Rules, the environmental impacts are declared and reported using the baseline characterization factors from EC-JRC. Specific data has been supplied by the plant, and generic data come from Sphera and ecoinvent databases.

All emissions to air, water, and soil, and all materials and energy used have been included.

The estimated impact results are only relative statements which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins or risks.

All figures refer to a declared unit of 1 kg of weberfloor Screeds, as applied.

The following results correspond to a product range manufactured in a single plant: Flitwick, United Kingdom.

MND = Module Not Declared

Environmental Impacts

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.]	3.49E-01	1.46E-02	1.30E-01	0	MND						4.07E-03	6.31E-03	0	1.48E-02	0
Climate Change (fossil) [kg CO2 eq.]	3.66E-01	1.46E-02	2.12E-02	0	MND						4.06E-03	6.35E-03	0	1.57E-02	0
Climate Change (biogenic) [kg CO2 eq.]	-1.68E-02	-2.17E-04	1.09E-01	0	MND						4.15E-06	-9.36E-05	0	-9.22E-04	0
Climate Change (land use change) [kg CO2 eq.]	3.99E-04	1.36E-04	3.51E-05	0	MND						7.74E-08	5.88E-05	0	4.57E-05	0
Ozone Depletion [kg CFC-11 eq.]	6.24E-10	1.28E-15	2.40E-10	0	MND						3.13E-16	8.26E-16	0	5.89E-17	0
Acidification Terrestrial and Freshwater [Mole of H+ eq.]	9.75E-04	9.32E-05	6.91E-05	0	MND						6.40E-06	3.81E-05	0	1.14E-04	0
Eutrophication Freshwater [kg P eq.]	1.08E-05	5.35E-08	7.13E-07	0	MND						7.86E-10	2.32E-08	0	2.73E-08	0
Eutrophication Marine [kg N eq.]	2.78E-04	4.58E-05	4.94E-05	0	MND						2.21E-06	1.86E-05	0	2.93E-05	0
Eutrophication Terrestrial [Mole of N eq.]	2.95E-03	5.08E-04	2.30E-04	0	MND						2.44E-05	2.06E-04	0	3.22E-04	0
Photochemical Ozone Formation - Human Health [kg NMVOC eq.]	7.72E-04	8.61E-05	6.19E-05	0	MND						6.70E-06	3.51E-05	0	8.89E-05	0
Resource Use, Mineral and Metals [kg Sb eq.][1]	3.13E-07	9.53E-10	1.83E-08	0	MND						4.11E-11	4.21E-10	0	1.43E-09	0
Resource Use, Energy Carriers [MJ][1]	5.20E+00	2.00E-01	3.06E-01	0	MND						5.41E-02	8.65E-02	0	2.09E-01	0
Water Deprivation Potential [m³ world equiv.][1]	4.55E-02	1.69E-04	1.21E-02	0	MND						1.05E-05	7.67E-05	0	1.67E-03	0

[1] 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

Resources Use

Resources Use indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Use of renewable primary energy (PERE) [MJ]	2.06E+00	1.41E-02	1.06E-01	0	MND						2.39E-04	6.30E-03	0	2.73E-02	0
Primary energy resources used as raw materials (PERM) [MJ]	1.04E+00	0	5.22E-02	0	MND						0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	3.11E+00	1.41E-02	1.59E-01	0	MND						2.39E-04	6.30E-03	0	2.73E-02	0
Use of non-renewable primary energy (PENRE) [MJ]	5.19E+00	2.00E-01	3.05E-01	0	MND						5.42E-02	8.68E-02	0	2.09E-01	0
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	5.31E-01	0	2.66E-02	0	MND						0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	5.72E+00	2.00E-01	3.32E-01	0	MND						5.42E-02	8.68E-02	0	2.09E-01	0
Input of secondary material (SM) [kg]	0	0	0	0	MND						0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	MND						0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	MND						0	0	0	0	0
Use of net fresh water (FW) [m3]	1.56E-03	1.56E-05	3.09E-04	0	MND						3.88E-07	6.90E-06	0	5.26E-05	0

Waste Category & Output Flows

Waste Category & Output Indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational	B7 Operational water	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (HWD) [kg]	2.17E-06	7.40E-13	1.35E-07	0	MND						1.56E-13	2.69E-13	0	3.18E-09	0
Non-hazardous waste disposed (NHWD) [kg]	1.02E-01	2.88E-05	1.31E-01	0	MND						1.12E-05	1.32E-05	0	1.05E+00	0
Radioactive waste disposed (RWD) [kg]	1.39E-04	2.59E-07	7.23E-06	0	MND						6.26E-08	1.63E-07	0	2.37E-06	0
Components for re-use (CRU) [kg]	0	0	0	0	MND						0	0	0	0	0
Materials for Recycling (MFR) [kg]	1.23E-01	0	6.13E-03	0	MND						0	0	0	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	MND						0	0	0	0	0
Exported electrical energy (EEE) [MJ]	2.22E-03	0	1.11E-04	0	MND						0	0	0	0	0
Exported thermal energy (EET) [MJ]	5.06E-03	0	2.53E-04	0	MND						0	0	0	0	0

Optional Indicators

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Respiratory inorganics [Disease incidences]	1.25E-08	5.50E-10	8.61E-10	0	MND						3.59E-11	2.27E-10	0	1.41E-09	0
Ionising radiation - human health [kBq U235 eq.][2]	1.90E-02	3.73E-05	1.05E-03	0	MND						8.85E-06	2.42E-05	0	2.44E-04	0
Ecotoxicity freshwater [CTUe][3]	1.57E+00	1.41E-01	1.21E-01	0	MND						3.83E-02	6.20E-02	0	1.19E-01	0
Cancer human health effects [CTUh][3]	1.04E-10	2.84E-12	6.91E-12	0	MND						9.27E-13	1.26E-12	0	1.77E-11	0
Non-cancer human health effects [CTUh][3]	3.61E-09	1.25E-10	3.17E-10	0	MND						2.23E-11	5.60E-11	0	1.87E-09	0
Land use [Pt]	2.32E+00	8.33E-02	1.64E-01	0	MND						1.80E-04	3.62E-02	0	4.35E-02	0

[2] The ionising radiation category deals mainly with the eventual impact of low-dose ionising radiation on the human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure, or radioactive waste disposal in underground facilities. Potential ionising radiation from the soil, radon and some construction materials is also not measured by this indicator.

[3] 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 experience with the indicator.

Additional voluntary indicators from EN 15804 (according to ISO 21930:2017)

	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
Environmental indicators	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change (GWP-GHG) [kg CO_2 eq.][4]	3.66E-01	1.48E-02	2.12E-02	0	0	0	0	0	0	0	4.06E-03	6.41E-03	0	1.57E-02	0

[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 almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Information on Biogenic Carbon Content

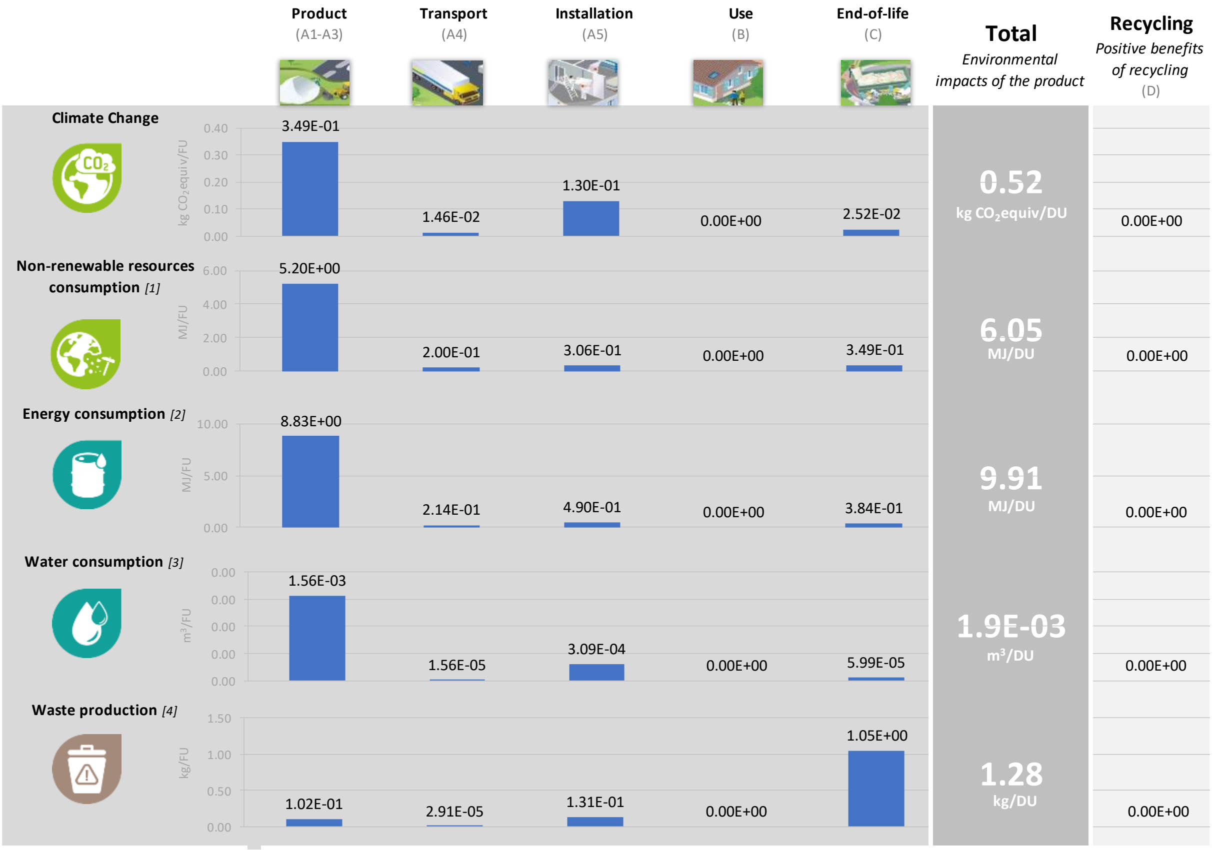
		PRODUCT STAGE
Biogenic Carbon Content in kg C		**A1 / A2 / A3**
	Biogenic carbon content in product [kg]	3.11E-4
	Biogenic carbon content in packaging [kg]	2.52E-2

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

The product contains a low amount of biogenic carbon content due to certain additives used in its formulation. Packaging has some biogenic carbon content, this is due to wood and wood-derived materials used for pallets and packaging bags.

LCA Interpretation

With the graphic views above, it is possible to assess which steps of the LCA are the most impacting for the chosen indicators.



[1] This indicator corresponds to the abiotic depletion potential of fossil resources (Resource use, energy carriers MJ/FU).
[2] This indicator corresponds to the total use of primary energy.
[3] This indicator corresponds to the use of net fresh water.
[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

Climate Change (total)
The figures above break down the Climate Change total impact for weberfloor Screeds into clear categories to understand the modules which cause the largest environmental impact. Most impact derives from the product stage (Module A1-A3), contributing 67.3% to the overall Climate Change impact value. Further analysis showed that Module A1 contributes 0.313 kgCO_2eq/kg (60.4% of the total), which derives mainly from the supply of calcium aluminate cement (~33% of A1), silica sand (~33% of A1) and dispersible polymer powders (~17% of A1) for manufacturing the product. The module with the second largest impact is Module A5 (contributing 25.1% to the total), which can be attributed to the supply of lost products during installation. In addition, the end-of-life of the product, where it is assumed demolished from the building and then disposed of in landfill, generated 4.9% of the total impact.

Non-renewable Resources Consumptions
The consumption of non-renewable resources has the highest value during the product stage (Module A1-A3) – 85.9%. 78.1% of the total non-renewable resource consumption stems from Module A1 where raw materials are extracted and manufactured. Similar to the climate change impact category, the highest contributing materials are silica sand, dispersible polymer powders and calcium aluminate cement, contributing ~32%, ~27% and ~25% to A1, respectively. The installation of the product (Module A5) contributed 5.1% to the total impact, where the most impact derives from the resupply of lost products. Otherwise, all other modules individually generated less than 5% of the overall impact.

Energy Consumption
Energy consumption combines both the total use of renewable primary energy resources and the total use of non-renewable primary energy resources. The highest contributing module is A1 (83.9%). Silica sand, dispersible polymer powders and calcium aluminate cement are again the highest contributing raw materials to this impact indicator (~32%, ~21% and, ~16% of A1, respectively). In addition, the supply of wooden pallets used as part of packaging also contributed ~15% to A1. The installation of the product (Module A5) contributed 5.0% to the total impact, where most impact derives from the resupply of lost products. Otherwise, all other modules individually generated less than 5% of the overall impact.

Water Consumption
Water consumption is the use of freshwater throughout the product's life cycle. For both products, the highest contributor is the product stage (Module A1-A3) – 80.2%. The main sources of water consumption in Module A1 (78.3% of total) lie with the generation of dispersible polymer powders, silica sand and calcium aluminate cement (~43%, ~23, and ~9% of A1). The installation of the product (Module A5) contributed 15.9% to the total impact, which can be attributed to the requirement of mixing water with the product for installation. All other modules individually generated less than 2% of the overall net water use.

Waste Production
Waste production comprises disposal of all hazardous, non-hazardous, and radioactive waste. Waste production doesn't follow the same trend as the other environmental impacts. For weberfloor Screeds, 81.8% of the waste generated is at Module C, where the product is assumed landfilled at its end-of-life. There is waste produced in other life cycle stages: during the production of raw materials (Module A1 – 8.0%) and the product (Module A3 – 0.02%), and at the product installation phase (Module A5 – 10.2%) where packaging is removed and disposed of.

Additional Information:

Electricity Information

TYPE OF INFORMATION	DESCRIPTION
Electricity Purchaser	Saint-Gobain Construction Product UK Limited (incl. Saint-Gobain Formula)
Electricity Provider	Smartest Energy Ltd
Electricity Mix	Hydro – 30.8% Solar PV – 28.5% Wind – 40.7%
Reference Year	2021-2022
Type of Dataset	Sphera Managed LCA Content Database 2023.1, all datasets reference 2022 emissions - Hydro "GB: Electricity from hydro power Sphera" - Solar PV "GB: Electricity from photovoltaic Sphera" Wind "GB: Electricity from wind power Sphera"
CO_2 Emission kg CO_2 eq. / kWh	Certificate issue = 0 $kgCO_2/kWh$ Modelled impact = 0.029 $kgCO_2/kWh$

Data Quality

Inventory data quality is judged by geographical, temporal, and technological representativeness. To cover these requirements and to ensure reliable results, first-hand industry data crossed with LCA background datasets were used. The data was collected from internal records and reporting documents from Saint-Gobain Weber. After evaluating the inventory, according to the defined ranking in the LCA report, the assessment reflects good inventory data quality.

Environmental Impact Range

weberfloor Rapid Screeds (Module A-C)	Lowest Impact in Product Range	Highest Impact in Product Range	Difference
01 EN15804+A2 (EF 3.1) Climate Change - total [kg CO2 eq.]	5.0E-01	5.2E-01	4.4%
02 EN15804+A2 (EF 3.1) Climate Change, fossil [kg CO2 eq.]	4.1E-01	4.3E-01	5.2%
03 EN15804+A2 (EF 3.1) Climate Change, biogenic [kg CO2 eq.]	9.1E-02	9.1E-02	0.11%
04 EN15804+A2 (EF 3.1) Climate Change, land use and land use change [kg CO2 eq.]	6.3E-04	6.8E-04	6.8%
05 EN15804+A2 (EF 3.1) Ozone depletion [kg CFC-11 eq.]	8.6E-10	1.0E-09	15%
06 EN15804+A2 (EF 3.1) Acidification [Mole of H+ eq.]	1.3E-03	1.3E-03	3.9%
07 EN15804+A2 (EF 3.1) Eutrophication, freshwater [kg P eq.]	1.2E-05	1.4E-05	19%
08 EN15804+A2 (EF 3.1) Eutrophication, marine [kg N eq.]	4.0E-04	4.2E-04	5.4%
09 EN15804+A2 (EF 3.1) Eutrophication, terrestrial [Mole of N eq.]	4.0E-03	4.2E-03	6.1%
10 EN15804+A2 (EF 3.1) Photochemical ozone formation, human health [kg NMVOC eq.]	1.0E-03	1.1E-03	1.9%
11 EN15804+A2 (EF 3.1) Resource use, mineral and metals [kg Sb eq.]	3.3E-07	4.3E-07	23%
12 EN15804+A2 (EF 3.1) Resource use, fossils [MJ]	6.1E+00	6.6E+00	7.6%
13 EN15804+A2 (EF 3.1) Water use [m^3 world equiv.]	6.0E-02	7.4E-02	19%

Environmental Impacts According to EN 15804:2012 + A1

The following table presents the results of 1 kg of weberfloor screeds, as applied.

Environmental Impacts	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY, RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Global Warming Potential (GWP) [kg CO2eq.]	3.41E-01	1.43E-02	1.27E-01	0	MND						4.04E-03	6.22E-03	0	1.46E-02	0
Ozone depletion (ODP) [kg CFC 11eq.]	5.52E-10	1.51E-15	1.93E-10	0	MND						3.68E-16	9.73E-16	0	7.86E-17	0
Acidification potential (AP) [kg SO2eq.]	7.58E-04	6.33E-05	5.30E-05	0	MND						4.83E-06	2.60E-05	0	9.08E-05	0
Eutrophication potential (EP) [kg (PO4)3-eq.]	1.63E-04	1.61E-05	1.99E-04	0	MND						7.64E-07	6.54E-06	0	1.02E-05	0
Photochemical ozone creation (POCP) - [kg Ethylene eq.]	2.48E-05	-2.73E-05	2.62E-06	0	MND						5.87E-07	-1.09E-05	0	6.88E-06	0
Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sb eq.]	3.14E-07	9.48E-10	1.83E-08	0	MND						4.15E-11	4.19E-10	0	1.44E-09	0
Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	4.63E+00	1.97E-01	2.76E-01	0	MND						5.34E-02	8.52E-02	0	2.02E-01	0

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