

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with EN 15804+A1:2014 and ISO 14025:2006

Tile adhesives

Publication date: 6.5.2022

Version: 1.0

Validity: 5.5.2027



The environmental data of this product have been assessed over its entire lifecycle. Its Environmental Product Declaration has been verified by an independent third party.

VERIFICATION N°

3013EPD-22-0125



weber
SAINT-GOBAIN

General information


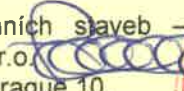

Manufacturer: Saint-Gobain Construction Products CZ a.s., Radiová 3, 102 00 Praha 10 – Štěrboholy
Factory site: Prostějov, Rovná 4595, 796 01 Prostějov, Czech Republic

PCR identification: EN 15804+A1:2014 Sustainability of construction works – Environmental product declarations (Core rules for the product category of construction products).

Product / product family name and manufacturer represented:

This EPD describes the environmental impacts of 1kg of various dry construction mixtures (defined below) manufactured by Saint-Gobain Construction Products CZ a.s., division Weber in Prostějov production site, Rovná 4595, 796 01 Prostějov, Czech Republic.

Demonstration of verification: an independent verification of the declaration was made, according to ISO 14025:2006. This verification was external and conducted by a third party, based on the PCR mentioned above (see information below).

EPD Program	National Eco-labelling Program. For more information see www.cenia.cz 
EPD Verification N°	3013EPD-22-0125
Date of publication	6.5.2022
EPD validity	5 years
EPD valid within the following geographical area	Scope includes manufacture and sale in Czech Republic
PCR review conducted by	CEN standard EN 15804+A1:2014 serves as the core PCR
Independent verification of the declaration and data, according to ISO 14025:2006	Building Research Institute – Certification Company Ltd. Výzkumný ústav pozemních staveb – Certifikační společnost, s.r.o. Pražská 810/16, 102 00 Prague 10, Czech Republic 
Accredited or approved by	Czech Accreditation Institute (CAI) Olšanská 54/3, 130 00 Prague 3, Czech Republic 

Product description

Product description and description of use:

This EPD is processed for tile adhesives produced in the Weber plant in Prostějov. These are weberfor product lines.

weberfor klasik - frost-resistant cement adhesive for tiles and paving. For mineral substrates such as lime-cement plaster and concrete. Floors in wet operations. For gluing ceramic tiles, absorbent tiles up to 20x20 cm. Not recommended for higher mechanical stress, on wood, stucco, metals and paints.

Description of the average product components and/or materials:

Product does not contain Substance of Very High Concern.

Constituent	Amount (%)
Sand	50
Cement	22
Lime	20
Additives	8



LCA calculation information

FUNCTIONAL UNIT / DECLARED UNIT	Covering 1 kg of each of products
SYSTEM BOUNDARIES	Cradle To Grave
REFERENCE SERVICE LIFE (RSL)	according to the service life of the building / part of building
CUT-OFF RULES	1% of primary energy and total mass input of the unit process <5% of energy usage and mass for neglected input flows per stage
ALLOCATIONS	Based on mass repartition
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope includes manufacture and sale in Czech Republic in 2020.

According to EN 15804+A1:2014, EPD of construction products may not be comparable if they do not comply with this standard. According to ISO 21930:2018, EPD might not be comparable if they are from different programmes.



Life cycle stages

Flow diagram of the Life Cycle



Figure 1: Life Cycle illustration of a product for construction

Product stage, A1 - A3

Description of the stage:

The product stage of the Weber products is subdivided into 3 modules A1, A2 and A3 respectively "Raw material supply", "transport" and "manufacturing".

The aggregation of the modules A1, A2 and A3 is a possibility considered by the EN 15804+A1:2014 standard. This rule is applied in this EPD.

Raw material supply – A1

This part takes into account the extraction and processing of all raw materials and energy which occurs upstream to the studied manufacturing process.

Specifically, the raw material supply covers sourcing (quarry) and production of all components and additives (e.g. cement, lime and others).

Transport to manufacturer – A2

The raw materials are transported to the manufacturing site. In this case, the modelling includes road transportations of each raw material, based on specific data for main inputs: sand, limestone and cement.

Manufacture – A3

This module includes manufacturing of products but also besides on-site activities such as drying, storing, mixing, packing and internal transportation.

The manufacturing process also collect data on the combustion of refinery products, such as diesel and gasoline, related to the production process.

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

Packaging-related flows in the production process and all up-stream packaging are included in the manufacturing module, i.e. composite bags (paper + PE film).

Apart from 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.

Electricity:

Bought electricity used for manufacturing/mixing of the final product is 0,0105 kWh electricity/DU. The Czech electricity mix of 2020 was used for



Construction process stage, A4 - A5

Description of the stage:

Transport – A4

This module includes transport from the production gate to the building site.

Transport is calculated on the basis of a scenario with the parameters described in the following table.

Transport to the building site:

PARAMETER	VALUE (expressed per functional/declared unit)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Average truck, tonnage 16-32 t, diesel
Distance	150 km
Capacity utilisation (including empty returns)	100 % for tanker lorries 0 % of empty returns
Volume capacity utilisation factor	1 (by default)

Construction installation process – A5

For the implementation of the product, handle electric agitator (1 400 W) is supposed. The mixing of product with water (0,24 l/DU) before application is recommended for 3 – 6 min (4,5 min for 25 kg of product as average is used for calculation).

End-of-life of packaging materials is reported and allocated to the module where it arises.

It is assumed that packaging waste generated in the course of installation (composite paper and LD-PE bag) is 100% collected and sanitary landfilled. Wooden pallets are re-using and repairing if it is needed.

Installation in the building:

PARAMETER	VALUE (expressed per functional/declared unit)
secondary materials for installation (specified by materials)	-
Water use	0,24 l of tap water
Other resource use	-
Quantitative description of energy type (regional mix) and consumption during the installation process	0,0042 kWh/DU
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	0 kg of manufactured product/DU
Output materials (specified by type) as results of waste processing at the building site e.g. of collection for recycling, for energy recovering, disposal (specified by route)	0,00186 kg is supposed for landfilling per DU
Direct emissions to ambient air, soil and water	-



Use stage (excluding potential savings), B1 - B7

Description of the stage:

The use stage is divided into the following modules:

Use – B1

Maintenance – B2

Repair – B3

Replacement – B4

Refurbishment – B5

Operational energy and water use – B6 and B7

Once installation is complete, no actions or technical operations are required during the use stages until the end-of-life stage. The product does not require any energy, water or material input to keep it in working order. Furthermore, it is not exposed to the indoor atmosphere of the building, nor is it in contact with the circulating water or the ground. For this reason, no environmental loads are attributed to any of the modules between B1 and B5.

End-of-life stage C1 - C4

Description of the stage:

The end-of-life stage is divided into the following modules:

Deconstruction – C1

The de-construction and/or dismantling of the product take part of the demolition of the entire building by the machine. It is calculated as 5 min. work of building machine (diesel, < 18.64 kW, high load factor) for 1 m³ building, so it is 3,7E-05 h work of building machine per DU.

Transport to waste processing – C2

The model use for the transportation calculates 50 km to landfill.

Waste processing – C3

The product is considered to be landfilled without reuse, recovery or recycling. It is classified as 'non-hazardous waste' in the European list of waste products.

Disposal –C4

The impact of landfill is taken into account according to available data.

Additional technical information of End-of-life:

PARAMETER	VALUE (expressed per functional/declared unit) / DESCRIPTION
Collection process specified by type	1 kg collected with mixed construction waste / DU
Recovery system specified by type	-
Disposal specified by type	1 kg non-hazardous waste landfilled / DU
Assumptions for scenario development (e.g. transportation)	Average truck trailer with 16 - 32 t payload, diesel consumption 38l/100km ; 50 km distance to landfill

Reuse/recovery/recycling potential, D

Post-consumer recycling scenarios are not considered within this EPD.










LCA results

Resume of the LCA data results are detailed on the following tables.

Summary interpretation of the overall impacts are showed page 14.







weberfor klasik – LOD 520

ENVIRONMENTAL IMPACTS

Parameters	Product stage		Construction process stage		Use stage	End-of-life stage			Beyond the building life cycle
	A1/A2/A3	A3	A4 Transport	A5 Installation		B1 – B7	C1 Demolition	C2 Transport	
 Abiotic depletion potential for non-fossil resources (ADP-elements) kg Sb equiv/FU	2,91E-06		1,04E-06	3,82E-08	-	3,91E-10	3,48E-07	5,04E-08	-
 Abiotic depletion potential for fossil resources (ADP-fossil fuels) MJ/FU	2,30E+00		4,70E-01	5,20E-02	-	3,12E-03	1,57E-01	1,45E-01	-
 Global Warming Potential (GWP) kg CO2 equiv/FU	2,91E-01		3,22E-02	3,96E-03	-	2,32E-04	1,07E-02	5,16E-03	-
 Ozone Depletion (ODP) kg CFC 11 equiv/FU	2,03E-08		5,73E-09	2,00E-10	-	3,97E-11	1,91E-09	1,72E-09	-
 Photochemical ozone creation (POPC) Ethene equiv/FU	3,32E-05		4,33E-06	5,66E-07	-	5,36E-08	1,44E-06	1,57E-06	-
 Eutrophication potential (EP) kg (PO4)3-equiv/FU	2,72E-04		2,44E-05	2,04E-05	-	2,47E-07	8,12E-06	8,26E-06	-
 Acidification potential (AP) kg SO2equiv/FU	7,35E-04		1,01E-04	1,52E-05	-	1,06E-06	3,37E-05	3,78E-05	-







RESOURCE USE





Parameters	Product stage		Construction process stage		Use stage	End-of-life stage			Beyond the building life cycle
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 – B7		C1 Demolition	C2 Transport	C4 Disposal	
		5,23E-01	8,73E-03	3,68E-03	-	-	1,79E-05	2,91E-03	1,26E-03
 Use of renewable primary energy excluding renewable primary energy resources used as raw materials - MJ/FU	0,00E+00	0,00E+00	0,00E+00	-	-	0,00E+00	0,00E+00	0,00E+00	-
 Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) MJ/FU	5,23E-01	8,73E-03	3,68E-03	-	-	1,79E-05	2,91E-03	1,26E-03	-
 Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - MJ/FU	2,44E+00	5,10E-01	5,67E-02	-	-	3,38E-03	1,70E-01	1,56E-01	-
 Use of non-renewable primary energy used as raw materials MJ/FU	0,00E+00	0,00E+00	0,00E+00	-	-	0,00E+00	0,00E+00	0,00E+00	-
 Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ/FU	2,44E+00	5,10E-01	5,67E-02	-	-	3,38E-03	1,70E-01	1,56E-01	-
 Use of secondary material kg/FU	1,03E-01	0,00E+00	0,00E+00	-	-	0,00E+00	0,00E+00	0,00E+00	-
 Use of renewable secondary fuels- MJ/FU	0,00E+00	0,00E+00	0,00E+00	-	-	0,00E+00	0,00E+00	0,00E+00	-
 Use of non-renewable secondary fuels - MJ/FU	0,00E+00	0,00E+00	0,00E+00	-	-	0,00E+00	0,00E+00	0,00E+00	-
 Use of net fresh water - m ³ /FU	4,64E-02	1,62E-03	1,11E-02	-	-	4,57E-06	5,40E-04	6,62E-03	-



WASTE CATEGORIES

Parameters	Product stage		Construction process stage		Use stage	End-of-life stage			Beyond the building life cycle
	A1 / A2 / A3	A4	A5 Installation	A4 Transport		A5 Installation	B1 – B7	C1 Demolition	
 Hazardous waste disposed kg/FU	3,58E-06	1,26E-06	2,73E-08		-	8,64E-09	4,20E-07	2,18E-07	-
 Non-hazardous (excluding inert) waste disposed kg/FU	4,90E-02	1,90E-02	2,23E-03		-	3,98E-06	6,33E-03	1,00E+00	-
 Inert waste disposed kg/FU	4,25E-04	3,23E-05	1,13E-05		-	9,67E-08	1,08E-05	1,18E-05	-
 Radioactive waste disposed kg/FU	1,15E-05	3,25E-06	2,50E-07		-	2,22E-08	1,08E-06	9,68E-07	-

OUTPUT FLOWS

Parameters	Product stage		Construction process stage		Use stage	End-of-life stage			Beyond the building life cycle
	A1 / A2 / A3	A4 Transport	A5 Installation	A4 Transport		A5 Installation	B1 – B7	C1 Demolition	
 Components for re-use kg/FU	0	0	0		-	0	0	0	-
 Materials for recycling kg/FU	0	0	0		-	0	0	0	-
 Materials for energy recovery kg/FU	0	0	0		-	0	0	0	-
 Exported energy, detailed by energy carrier MJ/FU	0	0	0		-	0	0	0	-



Environmental parameters description

Environmental impacts



Global warming potential

The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas CO₂, which is assigned a value of 1. For example, if CH₄ (methane) has a global warming potential of 25, it means that 1kg of methane has the same impact on climate change as 25 kg of CO₂ and thus 1kg of CH₄ would count as 25 kg of CO₂ equivalent.



Ozone Depletion

Ozone depletion is the destruction of the stratospheric ozone layer which shields the earth from UV radiation harmful to life.



Acidification potential

Acid depositions have negative impacts on natural ecosystems and the man-made environment, incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.



Eutrophication potential

It corresponds to an excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.



Photochemical ozone creation

Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction. It corresponds to the pollution of the air at ground level.



Abiotic depletion potential for fossil and non-fossil resources

The abiotic depletion potential is the consumption of non-renewable resources, thereby lowering their availability for future generations.

Resource Use

Use of primary energy resources



Renewable energy is energy from non-fossil sources (wind, solar, geothermal, etc).

Renewable resource is a resource that is grown, naturally replenished or naturally cleansed, on a human time scale.



Non-Renewable energy is energy from sources which are not defined as renewable energy sources.

Non-renewable resource is resource that exists in a finite amount that cannot be replenished on a human scale.



Use of secondary material

Secondary material is material recovered from previous use or from waste which substitutes primary materials. Materials recovered from previous use or from waste from one product system and used as an input in another product system are secondary materials (recycled scrap metal, recycled plastic, recycled wood chips, etc.)



Use of secondary fuels

Secondary fuel is fuel recovered from previous use or from waste which substitutes primary fuels. Any combustible material recovered from previous use or from waste from the previous product

system and used as a fuel in a following system is a secondary fuel (e.g. solvents, used tyres, used oil, etc.)



Use of net fresh water

Fresh water is naturally occurring water on the Earth's surface (ice, lakes, rivers, groundwater, etc.) It is generally characterized by having low concentrations of dissolved salts; the term specifically excludes seawater and brackish water.

Waste categories



Hazardous waste disposed

This kind of waste poses substantial or potential threats to public health or the environment



Non-hazardous waste disposed

This kind of waste is a waste that can burn, produce chemical, physical or biological reaction but without being hazardous or toxic for human health (e.g. PE, PVC, PS, metals, non-treated wood, construction waste mixed with non-mineral waste without any hazardous substance inside, etc.).



Radioactive waste disposed

These kinds of wastes contain radioactive material. Radioactive wastes are usually by-products or nuclear power generation and other applications of nuclear fission or nuclear technology, such research and medicine. Radioactive waste is hazardous to most forms of life and the environment, and is regulated by government in order to protect human health and the environment.

Output flows



Components for re-use

To re-use is to use again after it has been used: this includes conventional reuse where the item is used again for the same function and new-life reuse where it is used for a different function.



Material for recycling

In contrast with re-use, recycling is the breaking down of the used item into raw materials which are used to make new items.



Materials for energy recovery

It includes any technique or method of minimizing the input of energy to an overall system by the exchange of energy from one sub-system to another.



Exported energy

It relates to energy exported from waste incineration and landfill



LCA results interpretation (LOD 520)



[1] This indicator corresponds to the abiotic depletion potential of fossil resources.

[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.

Comments:

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

- The main environmental impacts of the product life cycle come from extraction and processing of raw materials (A1-A3). The Product stage is responsible for over 90 % of the impact for following indicators: Global Warming, Non-renewable resources consumption, Energy consumption and Water consumption.
- As expected, waste production is mainly generated (over 90 %) during the end-of-life stage with building demolition.
- The formula mix and distribution pattern have identifiable impacts on the total



Additional information

Integrated management system policy

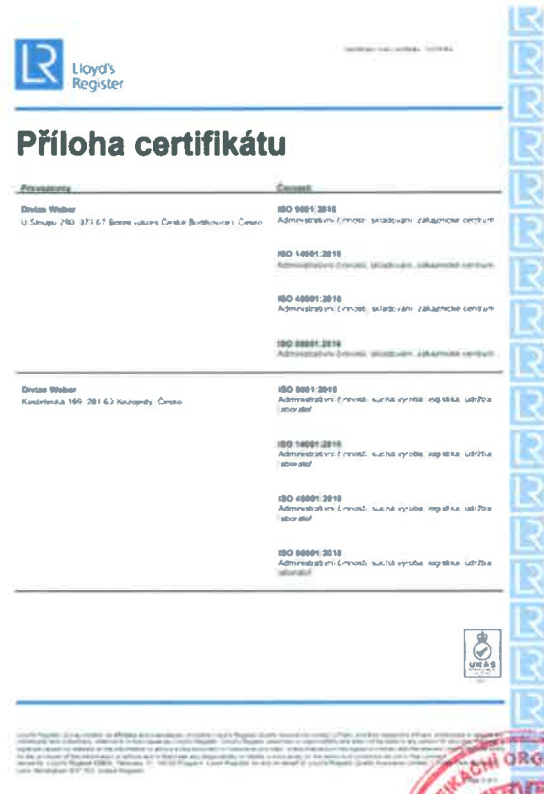
Saint-Gobain Construction Products CZ a.s., division Weber has released Integrated management system policy as part of the integrated management system.

The efforts and commitments set out in this policy are also based on the "Charter EHS", by which the Saint-Gobain group declares its aim to achieve the so-called "Target Zero" - or if:

- no occupational accidents,
- no occupational diseases, and
- no non-recyclable waste.

For more information, see CSR (Corporate Sustainability Report) at www.saint-gobain.com.

The production process in all Weber plants in the Czech Republic meets the international standards ČSN EN ISO 9001:2016, ČSN EN ISO 14001:2016, ČSN EN ISO 50001:2019 a ČSN OHSAS 18001:2008. The proof of that is certificate identification number: 10374403, valid at the time of issue of EPD.



LEED & BREEAM

Several different methods have been developed to assess buildings for sustainable development. Worldwide, American LEED and British BREEAM are the most widespread. All of these methods are based on a scoring system that assesses a set of individual sustainability criteria.

Eligible credits for Weber products:

LEEDv4	
INc1	thermal insulation systems are undergoing continuous innovation in terms of materials and design solutions
MRC1	EPD environmental data can be used at building level
MRC2	the product has a third party verified EPD and a comparison with industry average
MRC3	Corporate Sustainability report is available
MRC4	Health Certificate (HPD), process documentation according to EMS (ISO 14001:2016), product composition according to CASRN, REACH protocol, documentation of supply Chain are available
BREEAM 2016	
Hea 04	allows to achieve the appropriate level of thermal comfort and model the thermal behavior of a building by providing BIM (Building Information Modeling)
Mat 01	EPD can be used for LCA at building level
Mat 02	process documentation according to EMS (ISO 14001:2016)
Mat 03	product recognizes and encourages the specification and procurement of responsibly sourced construction products

More detailed information on the use of EPD in LEED and BREEAM certification systems is available in the SG publication for environmental certification of buildings.

More info at <https://www.cz.weber/> or at info@weber-terranova.cz.



Data Quality

Scope: Czech Republic

Period: 2020

Background information is taken from the Ecoinvent 3 database, trade association or suppliers data.

Raw Materials	Generic database, trade association and supplier data
Production	Own specific data (2020)
Transport	Generic and specific data
Application	Generic and specific data
Life in Use	Generic data
End of Life	Generic data
Energy	Generic average Czech Republic (2020)

References

1. EN 15804+A1:2014, Sustainability of construction works – Environmental product declaration – core rules of the product category of construction products
2. ISO 14025:2006 environmental labels and declarations – type III Environmental Declarations Principles and procedure
3. ISO 14040:2006 Environmental management – Life Cycle Assessment – Principles and framework
4. ISO 14044:2006 Environmental management – Life Cycle Assessment – Requirements and guidelines

