DAPHabitat System

ENVIRONMENTAL PRODUCT DECLARATION

[according to ISO 14025, EN 15804:2012+A1:2013 and EN 15942]

www.daphabitat.pt





ECO EPD Registration Number: 00000337

WEBER.THERM KAL

Valid until: 2020-10-19

SAINT-GOBAIN WEBER



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Index

1.	GENERAL INFORMATION	1
	1.1. ТНЕ DAPHABITAT SYSTEM	1
	1.2. EPD OWNER	1
	1.3. INFORMATION CONCERNING THE EPD	3
	1.4. DEMONSTRATION OF THE VERIFICATION	3
	1.5. EPD REGISTRATION	3
	1.6. PCR OF REFERENCE	4
	1.7. INFORMATION CONCERNING THE PRODUCT/PRODUCT CLASS	5
2.	ENVIRONMENTAL PERFORMANCE OF THE PRODUCT	7
	2.1. CALCULATION RULES OF THE LCA	7
	2.1.1. FLOW DIAGRAM OF INPUT AND OUTPUT OF THE PROCESSES	8
	2.1.2. DESCRIPTION OF THE SYSTEM BOUNDARIES	9
	2.2. PARAMETERS DESCRIBING ENVIRONMENTAL IMPACTS	10
	2.3. PARAMETERS DESCRIBING RESOURCE USE	10
	2.4. OTHER ENVIRONMENTAL INFORMATION DESCRIBING DIFFERENT WASTE CATEGORIES	11
	2.5. OTHER ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS	11
3.	SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION	12
	3.1. A4 TRANSPORT TO THE BUILDING SITE - CONSTRUCTION PROCESS STAGE	12
	3.2. A5 INSTALLATION OF THE PRODUCT IN THE BUILDING - CONSTRUCTION PROCESS STAGE	12
	3.3. B1 Use stage	12
	3.4. B2 MAINTENANCE	13
	3.5. B3 Repair	13
	3.6. B4 Replacement	14
	3.7. B5 REFURBISHMENT	14
	3.8. B6 Use of energy	14
	3.9. Use of water	15
	3.10. [C1 – C4] END OF LIFE OF THE PRODUCT	15
	3.11. Additional information on release of dangerous substances to indoor air, soil and water during the use	
	STAGE	16
R	EFERENCES	17



1. GENERAL INFORMATION

1.1. The DAPHabitat System

Program operator:	Sustainable Construction Platform www.centrohabitat.net centrohabitat@centrohabitat.net	CentroHabitat Plataforma para a Construção Sustentável
Address:	Departamento Engenharia Civil	
	Universidade de Aveiro	
	3810-193 Aveiro	
Email address:	deptecnico@centrohabitat.net	
Telephone number:	(+351) 234 401 576	
Website:	www.daphabitat.pt	
Logo:		

1.2. EPD OWNER

Name of the owner:	Saint-Gobain Weber Portugal, S.A.
Production site:	Industrial Center of Aveiro: Zona Industrial de Taboeira, 3800-055 Aveiro
	Industrial Center of Carregado: Quinta dos Cónegos, 2580-465 Carregado
Address (head office):	Centro Avelar - Tojeira, Apartado 16, 3240-908 Avelar
Telephone:	Industrial Center of Aveiro: 234 30 11 30
	Industrial Center of Carregado: 263 85 04 00
	Sara Lacerda (961710536)
E-mail:	sara.lacerda@saint-gobain.com; info@weber.com.pt
Website:	www.weber.com.pt
Logo:	
Information concerning the applicable management Systems:	Scope of certification: Design, manufacture and marketing of industrial mortars Certification NP EN ISO 9001: 2008 - certifier SGS - Compliance Certificate No. PT13 / 04354 Certification NP EN ISO 14001: 2012 - certifier SGS - Compliance Certificate No. PT13 / 04 393 Certification OHSAS 18001: 2007 - certifier SGS - Compliance Certificate No. PT13 / 04 394 Scope of certification: Manufacture of light expanded clay aggregates Certification NP EN ISO 9001: 2008 - certifier SGS - Compliance Certificate No. PT10 / 03 335 Certification NP EN ISO 14001: 2012 - certifier SGS - Compliance Certificate No. PT09 / 02 792



Specific aspects regarding the production:	SIC Code 23640: Manufacture of mortars
Organization's environmental	Integrated into the Quality, Environment and Safety Policy:
policy:	Comply with the three promises of the brand:
	- Caring about the well-being
	- Caring about what matters to people
	- Caring about long-term liability
	 Develop, produce and market quality products, minimizing their environmental impact and risk and respecting legislation, standards, existing regulations and other applicable requirements ensuring customer satisfaction.
	 Preventing the occurrence of incidents and accidents by active management of Safety an Environment.
	 Preventing environmental damage by:
	- Promoting rational use of materials and energy resources that lead to the goal of "zer environmental accidents" and the "Maximum possible reduction of the impact of ou activities."
	 Train and inform all employees and stakeholders to the importance of the issues of Quality, Environment and Safety.
	• Define goals in order to continually improve the effectiveness of the Integrate Management System (IMS).



1.3. Information concerning the EPD

Authors:	Saint-Gobain Weber Portugal, S.A.
	ECOCHOICE S.A.
Contact of the authors:	Saint-Gobain Weber Portugal, S.A.
	Centro Aveiro: 234 30 11 30
	Centro Carregado: 263 85 04 00
	Sara Lacerda (961710536)
	• ECOCHOICE S.A.
	Т. 213 879 412
	E. marta.matos@ecochoice.pt
Emission date:	2015-10-20
Registration date:	2015-10-21
Registration number:	DAP 002:2015
ECOPlatform registration number:	
Valid until:	2020-10-19
Representativity of the EPD (location, manufacturer, group of manufacturers):	EPD of one (1) product (beige) produced in two (2) industrial units belonging to a single producer (Saint-Gobain Weber Portugal, S.A.).
Where to consult explanatory material:	www.weber.com.pt
Type of EPD:	EPD from cradle-to-gate

1.4. Demonstration of the verification



1.5. EPD Registration





1.6. PCR of reference

Name:	PCR: basic module for construction products and services
Name.	
Emission date:	Edition of February 2013
Number of registration on the data base:	RCP-mb001
Version:	Version 1.0.
Identification and contact of the	António Baio dias <u>baiodias@ctcv.pt</u>
coordinator (s):	Marisa Almeida <u>marisa@ctcv.pt</u>
	Luis Arroja <u>arroja@ua.pt</u>
Identification and contact of the	António Baio dias <u>baiodias@ctcv.pt</u>
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	Luis Arroja <u>arroja@ua.pt</u>
	Karina Lopes <u>deptecnico@centrohabitat.net</u>
Composition of the Sector Panel:	-
Consultation period:	01/11/2012 - 31/01/2013
Valid until:	February of 2018



Identification of the product:	weber.therm kal							
	Produced in manufacturing cente	ers of Aveiro and Carrega	ado.					
Illustration of the product:								
Brief description of the product:	Bonding and coating of agglomerate cork insulating boards in the system weber.therm natura or substrates with absorption.							
	Composition: HL5 hydraulic organic/inorganic additives, synth		olan, aggregates	and specific				
		Composition of weber.	therm kal					
		Percentage (mass)						
	Hydraulic lime Cement	20% 8%						
	Pozzolan	5%						
	Inert material	62,2%						
	Additives	4,8%						
Main technical characteristics of the	Tabl	e 2: Technical character	istics					
product:								
producti	CE mark: EN 998-1:2010	Testing / Decision	Declared value	Units				
	Density	EN 1015-10	[1200-1350]	kg/m ³				
	Adherence	EN 1015-12	≥ 0,80	N/mm ²				
	Thermal conductivity	EN 1745 Tabulated value; P=50%	(λ10,dry) 0,45	W/m.K				
	Water absorption	EN 1015-18	W2					
	Permeability to water vapor	EN 1015-19	≤ 15					
	Class of reaction to fire	Commission decision 2000/147/CE	Classe F					
Description of the products application:	Application: Bonding and coatin system weber.therm on substrate		(insulation cork bo	ard) in natura				
Reference service life:	Not specified.							
Placing on the market / Rules of application in the market / Technical	 Decision No. 768/2008 / EC of the European Parliament and of the Council of 9 July 2008 Decision (FC) No. 76F (2008 of the European Parliament and of the Council of 							
rules of the product:	9 July 2008 • Regulation (EC) No 76 9 July 2008 • Regulation (EU) No 30	4/2008 of the Europear 05/2011 of the Europear						
Quality control:	9 July 2008 • Regulation (EC) No 76 9 July 2008 • Regulation (EU) No 30	4/2008 of the Europear 05/2011 of the Europear eir rectifications						



Components and substances to declare:

Table 3: Components and chemical substances



DANGER							
Contains:	Portland Cement and Hydraulic Lime						
H318	Causes serious eye damage.						
H315	Causes skin irritation.						
P101	If medical advice is needed, have product container or label at hand.						
P102	Keep out of reach of children.						
P103	Read label before use.						
P280	Wear protective gloves/protective clothing/eye protection/face protection.						
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.						
P310	Immediately call a POISON CENTER or doctor/physician.						
P362	Take off contaminated clothing and wash before reuse.						
P302+P352	IF ON SKIN: Wash with plenty of soap and water.						
P501	Dispose of contents/container to in accordance with local/regional/national/ international regulation.						

History of the LCA studies: --



2. ENVIRONMENTAL PERFORMANCE OF THE PRODUCT

2.1. Calculation rules of the LCA

Declared unit:	1 kg of product in powder				
Functional unit:	-				
System boundaries:	EPD from cradle-to-gate				
Criteria for the exclusion:	 The following processes were not considered in this study, since they fell on the cut-off criteria: Construction of industrial infrastructures and manufacture of equipment and machinery; The burdens of infrastructures (vehicle manufacturing, road maintenance) associated to transportation of pre-products and raw materials; Raw material packaging were considered negligible and falling in the cut-off criteria, since the raw materials with a higher percentage (in weight) in the products analyzed are bought in bulk. Water consumption or waste and wastewater produced from administrative areas and laboratories was also not considered, since these burdens are not directly associated to the production process; Waste from changing the filters since their impact is under 1%, falling under the cut-off criteria. Transport of propane to the industrial units. 				
Assumption and limitations:	: This EPD is intended to represent one (1) product that can be produced in two manufacturing units, with the color beige (typical of the product). The results presented in this EPD, by impact category, are a simple average of the impa of Aveiro and Carregado.				
Quality and other characteristics about the information used in the LCA:	Specific data from the manufacturer is referred to one year average production in 2014. During this year, weber.therm kal was produced in Carregado, while in Aveiro weber.therm kal was produced only in 2013 and 2015. Considering these facts, the specific production data from 2014 used in this study regarding Aveiro is referred to average values of mortars that do not include weber.therm kal, since this is a new product and is not yet being produced in a larger scale. The generic data used belongs to Ecoinvent v2.2 and v3 and meets the quality criteria (age, geographical and technology coverage, plausibility, etc.) for generic data.				
Allocation rules:	In the industrial units it is also produced other powder products that have an equivalent manufacturing process. Considering this fact, it was considered that the energy consumption, emissions and waste production are the same for each 1 kg of powder product produced. Energy consumption, waste materials and air emissions per mass of material produced were estimated based on annual inputs/outputs of each industrial unit and the amount of powders and pastes produced. It was calculated by dividing the annual input/output for the annual production of pastes and mortar powders.				
Comparability of EPD for construction products:	The EPD of construction products and services cannot be comparable in case they are not produced according to EN 15804 and EN 15948 and according to the comparability conditions determined by ISO 14025.				



2.1.1. Flow diagram of input and output of the processes



Figure 1: Product stage of the product weber.therm kal (A1-A3).



2.1.2. Description of the system boundaries

Prc	PRODUCT STAGE CONSTRUCTION PROCESS STAGE				DDUCT 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-constructions, demolition	Transport	Waste processing	Disposal	Re-use, recovery, recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	С3	C4	D
✓	✓	~	×	×	×	×	×	×	×	×	×	×	×	×	×	×

(✓ = included; **×**= module not declared)

The raw materials are received in the industrial units in tankers, plastic bags or big-bags. Storing bulk materials in silos can be made directly or through a pneumatic conveying system.

The final powder product is obtained from the mixture of different components, following a pre-established formulation. The dosage of the raw materials can be carried out by a worm screw with frequency controller and volumetric dosage through a rotary valve. The weighing of the different components is performed within one of the three weighing hoppers.

Once dosed the components are discharged into the empty blender through pneumatic valves for homogenization. The mixing time varies depending on the specific composition of the product. After this, the product falls into the hopper of the blender and is then discharged.

The last stage consists in packing and palletizing the product. Regarding powder products, they are packed in printed kraft paper bags (coated on the inside with PE film) through electric equipment and then placed on a pallet. At last, the pallet and bags are wrapped in a plastic film and covered with a plastic bag. The packed product is transported by forklift and stored until dispatch.



2.2. Parameters describing environmental impacts

		Global warming potential; GWP	Depletion potential of the stratospheric ozone layer; ODP	Acidification potential of soil and water, AP	Eutrophication potential, EP	Formation potential of tropospheric ozone, POCP	Abiotic depletion potential for non- fossil resources	Abiotic depletion potential for fossil resources
		kg CO₂ equiv.	kg CFC 11 equiv.	kg SO₂ equiv.	kg (PO₄)³- equiv.	kg C₂H₄ equiv.	kg Sb equiv.	MJ, P.C.I.
Raw material supply	A1							
Transport	A2	3,90E-01	2,53E-08	1,27E-03	6,39E-04	7,13E-05	4,35E-07	4,90E+00
Manufacturing	A3							
LEGEND: Product stage NOTES: P.C.I. – Low Heating Value (LHV). Units expressed per declared unit (1kg).								

2.3. Parameters describing resource use

		ЕР R мյ, р.с.і.	RR MJ, P.C.I.	ТRR MJ, P.C.I.	EPNR MJ, P.C.I.	RNR MJ, P.C.I.	TRNR MJ, P.C.I.	MS kg	CSR MJ, P.C.I.	CSNR MJ, P.C.I.	Net use of fresh water m ³
Raw material	A1										
supply											
Transport	A2	3,91E-01	2,21E-01	6,11E-01	3,95E+00	1,02E+00	4,97E+00	*	*	*	9,25E-05
Manufacturing	A3										
LEGEND:											•
Product stage											

EPR = use of renewable primary energy excluding renewable primary energy resources used as raw materials;

RR = use of renewable primary energy resources used as raw materials;

TRR = total use of renewable primary energy resources (EPR + RR);

EPNR = use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;

RNR = use of non-renewable primary energy resources used as raw materials;

TRNR = total use of non-renewable primary energy resources (EPRN + RNR);

MS = use of secondary material;

CSR = use of renewable secondary fuels;

CSNR = use of non-renewable secondary fuels.

* Not applicable to processes in these factories

NOTE: Units expressed per declared unit (1kg).



2.4. Other environmental information describing different waste categories

		Hazardous waste disposed	Non hazardous waste disposed	Radioactive waste disposed	
		kg	kg	kg	
Raw material supply	A1				
Transport	A2	3,44E-06	2,54E-02	1,33E-05	
Manufacturing	A3				
LEGEND: Product stage					
NOTE: Units expressed per declared unit (1kg).					

2.5. Other environmental information describing output flows

Parameters	Units*	Results		
Components for re-use	kg	**		
Materials for recycling	kg	5,14E-03		
Radioactive waste disposed	kg	1,33E-05		
Materials for energy recovery	kg	**		
Exported energy	MJ per energy carrier	**		
* expressed by declared unit				
** Not applicable to processes in these factories				
NOTE: Units expressed per declared unit (1kg).				



3. SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

3.1. A4 Transport to the building site – Construction process stage

Parameters	Units*	Results
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Litre of fuel type per distance, or vehicle type, Commission Directive 2007/37/EC (European Emission Standard)	N/A
Distance	km	N/A
Capacity utilization (including empty returns)	%	N/A
Bulk density of transported products	kg/m³	N/A
Volume capacity utilisation factor (factor=1 or < 1 or > 1 for compressed or nested packaged products)	Not applicable	N/A
* expressed per declared unit		

3.2. A5 Installation of the product in the building – Construction process stage

Parameters	Units*	Results
Ancillary materials for installation (specified by material)	kg or other units as appropriate	N/A
Water use	m ³	N/A
Other resource use	kg	N/A
Quantitative description of energy type (regional mix) and consumption during the installation process	kWh ou MJ	N/A
Waste of materials on the building site before waste processing, generated by the product's installation (specified by type)	kg	N/A
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route)	kg	N/A
Direct emissions to ambient air, soil and water	kg	N/A
* expressed per declared unit		

3.3. B1 Use stage

(Relevant information about the use of the product) if applicable



3.4. B2 Maintenance

Process	Units*	Results
Maintenance cycle	Number per RSL or year	N/A
Ancillary materials for maintenance e.g. cleaning agent, specify materials	kg/cycle	N/A
Waste material resulting from maintenance (specify materials)	kg	N/A
Net fresh water consumption during maintenance	m ³	N/A
Energy input during maintenance e.g. vacuum cleaning, energy carrier type, e.g. electricity, and amount, if applicable and relevant	kWh	N/A
¹ Description of other scenarios	Units as appropriate	N/A

3.5. B3 Repair

Repair process

(Description or source where description can be found)

Inspection process (Description or source where description can be found))

Process	Units*	Results
Repair cycle	Number per RSL or year	N/A
Ancillary materials, e.g. lubricant, specific materials	Kg or kg/ cycle	N/A
Waste material resulting from repair (specify materials)	kg	N/A
Net fresh water consumption during repair	m³	N/A
Energy input during repair, e.g. crane activity, energy carrier type, e.g. electricity, and amount	kWh /RSL, kWh / cycle	N/A
² Description of other scenarios	units as appropriate	N/A
* expressed per declared unit		

 ¹ In case there are no more described scenarios, this line should be eliminated in the final document.
 ² In case there is no more described scenarios, this line should be eliminated in the final document



3.6. B4 Replacement

Process	Units*	Results
Replacement cycle	Number per RSL or year	N/A
Energy input during replacement, e.g. crane activity, energy carrier type, e.g. electricity and amount if applicable and relevant	kWh	N/A
Exchange of worn parts during the product's life cycle, e.g. zinc galvanized steel sheet, specify materials	kg	N/A
⁵ Description of other scenarios	units as appropriate	N/A
* expressed per declared unit		

3.7. B5 Refurbishment

Refurbishment process (Description or source where description can be found)

Process	Units*	Results
Refurbishment cycle	Number per RSL or year	N/A
Energy input during refurbishment, energy carrier type e.g. electricity, and amount if applicable and relevant	kWh	N/A
Material input for refurbishment e.g. bricks, including ancillary materials for the refurbishment process e.g. lubricant	kg or kg/cycle	N/A
Waste material during from refurbishment	kg	N/A
³ Further assumptions for scenario development e.g. frequency and time period of use, number of occupants	units as appropriate	N/A
* expressed per declared unit		

3.8. B6 Use of energy

Parameters	Units*	Results
Ancillary materials specified by material	kg or units as appropriate	N/A
Net fresh water consumption	m ³	N/A
Type of energy carrier e.g. electricity, natural gas, district heating	kWh	N/A
Power output of equipment	kW	N/A
Characteristic performance e.g. energy efficiency, emissions, variation of performance with capacity utilization, etc	units as appropriate	N/A
⁶ Further assumptions for scenario development e.g. frequency and period of use, number of occupants	units as appropriate	N/A
* expressed per declared unit		

 $^{^{\}rm 3}$ In case there are no more described scenarios, this line should be eliminated in the final document.



3.9. Use of water

Parameters	Units*	Results
Ancillary materials specified by material	kg or units as appropriate	N/A
Net fresh water consumption	m³	N/A
Type of energy carrier e.g. electricity, natural gas, district	kWh	N/A
Power output of equipment	kW	N/A
Characteristic performance e.g. energy efficiency, emissions, variation of performance with capacity utilization, etc.	units as appropriate	N/A
⁶ Further assumptions for scenario development e.g. frequency and period of use, number of occupants	units as appropriate	N/A

3.10. [C1 – C4] End of life of the product

Processes	Units*	Results
Collection process specified by type	kg collected separately	N/A
	kg collected with mixed construction waste	N/A
Recovery system specified by type	kg for re-use	N/A
	kg for recycling	N/A
	kg for energy recovery	N/A
Disposal specified by type	kg product or material for final deposition	N/A
⁴ Assumptions for scenario development e.g. transportation	units as appropriate	N/A
Definition of scenario ⁷	units as appropriate	N/A
* expressed per declared unit		

 $^{^{\}rm 4}$ In case there is no more described scenarios, this line should be eliminated in the final document



3.11. Additional information on release of dangerous substances to indoor air, soil and water

during the use stage

Scenario title	Parameters	Units*	Results
	Test results according to CEN/TC 351		N/A
Release scenario	Description scenario 1 ⁷	units as appropriate	N/A
Indoor air	Description scenario n ⁷	units as appropriate	N/A
Release scenario Soil	Test results according to CEN/TC 351		N/A
	Description scenario 1 ⁷	units as appropriate	N/A
	Description scenario n ⁷	units as appropriate	N/A
Release scenario Water	Test results according to CEN/TC 351	()	N/A
	Description scenario 1 ⁷	units as appropriate	N/A
	Description scenario n ⁷	units as appropriate	N/A

* expressed per declared unit

Note: Emissions to indoor air and releases to soil and water according to the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised testing methods according to the provisions of the respective Technical Committees for European product standards, when available.



REFERENCES

✓ General Instructions of the DAPHabitat System, Version 1.0, Edition March 2013 (in <u>www.daphabitat.pt</u>);

✓ PCR – basic module for construction products and services. DAPHabitat System. Version 1.0, 2013 (in www.daphabitat.pt);

✓ **ISO 14025:2009** Environmental declarations and labels – Type III environmental declarations – Principles and procedures;

✓ EN 15804:2012+A1:2013 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products;

✓ **EN 15942:2011** Sustainability of construction works – Environmental product declarations – Communication format business-to-business.