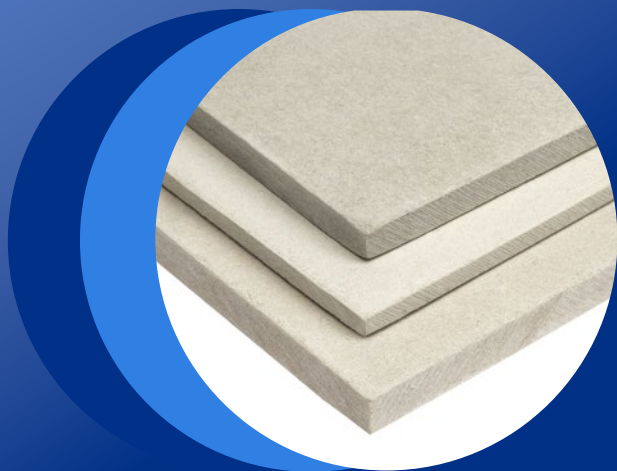


# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025 AND  
EN 15804:2012+A2:2019 FOR



## Fibercement Products By VOLCÁN



EPD®

THE INTERNATIONAL EPD® SYSTEM

EPD®  
LATIN AMERICA



## VOLCANBOARD

**Programme:**

The International EPD® System  
EPD registered through the fully  
aligned regional programme:  
Hub EPD® Latin America

**Programme operator:**

EPD International AB,  
Regional Hub: EPD Latin America

**EPD registration  
number:**

S-P-05622

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2027-03-30

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com)

## General information

### Programme information

<b>Programme:</b>	The International EPD® System <a href="http://www.environdec.com">www.environdec.com</a> EPD registered through the fully aligned regional programme: Hub EPD® Latin America <a href="http://www.epd-americalatina.com">www.epd-americalatina.com</a>
<b>Programme Operator</b>	EPD International AB Box 210 60 SE-100 31 Stockholm  Sweden  EPD Latin America Chile office: Alonso de Ercilla 2996, Ñuñoa, Santiago. Mexico office: Av. Convento de Actopan 24 Int. 7ª, Colonia Jardines de Santa Mónica. Tlalnepantla de Baz, Estado de México, México. C.P. 54050.

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product category rules (PCR): PCR 2019:14 Construction Products and Construction Services VERSION 1.1, 2019-12-20, UN CPC 37570	
PCR review was conducted by: <i>Technical Committee of the International EPD® System</i>	
Independent third-party verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification	
Third party verifier: <i>Ruben Carnerero</i> Email: <i>r.carnerero@ik-ingenieria.com</i> Approved by: <i>The International EPD® System</i>	
Procedure for follow-up of data during EPD validity involves third party verifier: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Developed by: EDGE Chile Email: <a href="mailto:contacto@edgechile.com">contacto@edgechile.com</a> Web: <a href="http://www.edgeenvironment.com">www.edgeenvironment.com</a>	

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 EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

## What is an EPD?

An Environmental Product Declaration (EPD) is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products.

The following EPD has been developed by Volcán for its fibercement products.

## Company information

### Owner of the EPD

Volcán S.A.

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Phone: (56) 600 399 2000

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Email: [rfernandez@volcan.cl](mailto:rfernandez@volcan.cl)

Address: Agustinas 1357 Piso 10 - Santiago, Chile

### Description of the organisation

Volcán is a Company leader in constructive solutions that generate habitability, comfort, efficiency and sustainability. Its purpose is to create a better living standar for people in each habituated space, for this and future generations.

Volcán's portfolio of constructive solutions is formed by:

- Solutions for facades and internal division, such as Volcanita for different uses, Volcoglass, fibercement Volcanboard Siding and Volcanboard Deck, and celing access panels;
- Solutions for roofing and climatization, such as asphalt shingles, membranes, felt and ducts;
- Solutions for thermic isolation, acoustic absorption and energy efficiency, such as glass wool Aislanglass, mineral wool Aislan, Sonoglass and Rigitone;
- Solutions for perfect finishes like gypsum plaster, fillers, composites, tape, Levelline corners, Volcastic, Volcabond, and;
- Tools and solutions for passive protection to fire, such as compartments, seals and protection of metallic structures.

Additionally, Volcán offers technical advisory to answer the diverse needs of clients.

### Sustainability

Responsible environmental management, protection of the environment and natural resources are a strategic priority for Volcán. This is why in 2014 the company created a Sustainability division, in charge of registering, controlling and learning about all the events that imply environmental impacts, as well as creating and consolidating a cross wise program called "Sustainable Volcán", formed by pillars structured according to all fields of environmental management, with the goal of configuring a sustainable management of waste, emissions, energy use, water use, noise levels, rainfall control, among others; in order to achieve a responsible environmental management.

At the moment, Volcán has the following ISO Standards:

- ISO 9001:2015 - Quality management systems — Requirements  
([https://www.volcan.cl/system/files/iso\\_9001.pdf](https://www.volcan.cl/system/files/iso_9001.pdf))
- ISO 14001:2015 - Environmental management systems  
([https://www.volcan.cl/system/files/iso\\_14001.pdf](https://www.volcan.cl/system/files/iso_14001.pdf))
- OHSAS 18001:2007 Occupational Health and Safety Management Systems  
([https://www.volcan.cl/system/files/ohsas\\_18001.pdf](https://www.volcan.cl/system/files/ohsas_18001.pdf))
- ISO 50001:2018 — Energy management systems  
([https://www.volcan.cl/system/files/certificaciones\\_iso\\_50001.pdf](https://www.volcan.cl/system/files/certificaciones_iso_50001.pdf))

Additionally, since 2016, Volcán has been developing its Sustainability Report, where sustainability strategic priorities are being addressed within the organization, including analysis of best practices, and research and focus group with internal and external stakeholders. This report is elaborated following Global Reporting Initiative (GRI) guidelines. The report represents a new era for Volcán, where it is not only about responding to the needs of clients, but also a concern about the surroundings and communities. The latest version of the Sustainability Report and be downloaded from the following link:

<https://www.volcan.cl/informe-de-sostenibilidad>

**Name and location of production site(s):**

Volcán S.A.

Planta Fibrocemento- Los Boldos 620, Parque Industrial Valle Grande, Lampa, Región Metropolitana

## Product information

### Product name

The products included in this EPD are Volcán's fibercement products

### Product identification and description

UN CPC code: 37570

Volcán's fibercement products are designed to line facades in all kinds of buildings, both new constructions and remodelling. The product provides dimensional stability, humidity resistance, it is not affected by termites, easy to work with (cut, drill, sand), not flammable, can be easily painted, etc.

Table 1 shows the different products covered in this study, with the specifications and the most common uses.

**Table 1- Characteristics of fibercement products covered in the study**

Product	Short description and application	Wide (m)	Length (m)	Thickness (mm)	Weight (kg/m <sup>2</sup> )
Volcanboard	<ul style="list-style-type: none"> <li>Smooth board recommended as indoor and outdoor cladding for all types of buildings</li> </ul>	1.20	2.40	6.00	7.86
Volcanboard Base Cerámica	<ul style="list-style-type: none"> <li>Board to attach sheets or ceramics in floors or walls for wet areas such as bathrooms, kitchens, and sinks.</li> </ul>	1.20	2.40	6.00	7.86
Volcanboard Textura Madera	<ul style="list-style-type: none"> <li>Board with wood texture, specially designed for cladding of facades and eaves in housing and commercial buildings.</li> </ul>	1.20	2.40	6.00	7.86
Volcanboard Siding	<ul style="list-style-type: none"> <li>Planking with wood grain for outdoor cladding, without color</li> </ul>	0.19	3.66	6.00	7.86
Volcanboard Siding Color Plus	<ul style="list-style-type: none"> <li>Planking with wood color for outdoor cladding available in different colors</li> </ul>	0.19	3.66	6.00	7.86

Some pictures of products are presented in the following illustrations.



Illustration 1- Volcanboard 6mm



Illustration 2- Volcanboard Base Cerámica 6mm



Illustration 3- Volcanboard Textura Madera



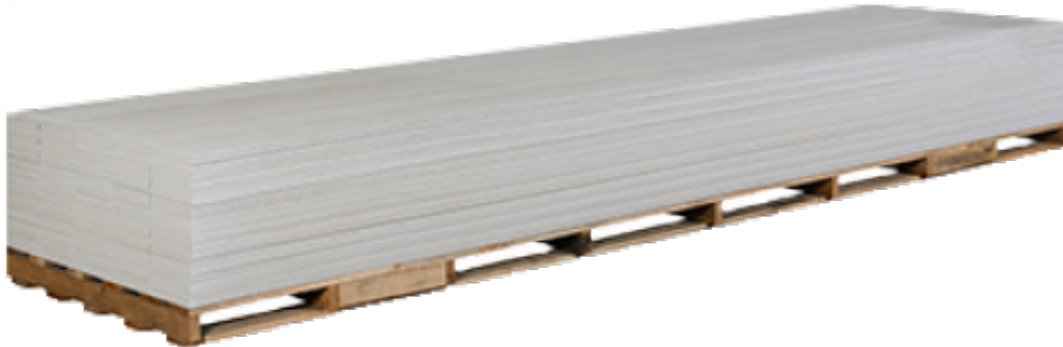


Illustration 4- Volcanboard Siding 6mm



Illustration 5- Volcanboard Siding Color Plus 6mm

### Content information

Table 2 presents the composition of Volcán’s fibercement products, as well as packaging materials. No dangerous substances from the candidate list of SVHC are included in the product.

Table 2- Product components

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Sand	3.98	0%	0%
Cement	2.99	0%	0%

Pulp	0.55	0%	100%
Additives and others	0.34	0%	0%
TOTAL	7.86	0%	7%
<b>Packaging materials</b>	<b>Weight, kg</b>	<b>Weight-% (versus the product)</b>	
Polyethylene	0.001	0.02%	
TOTAL	0.001	0.02%	

<b>Dangerous substances from the candidate list of SVHC for Authorisation</b>	<b>EC No.</b>	<b>CAS No.</b>	<b>Weight-% per functional or declared unit</b>
Not applicable			

## LCA information

A life cycle assessment is a technique for assessing the environmental aspects and potential impacts associated with a product. By considering potential impacts throughout the life cycle of a product (upstream and downstream), the analysis avoids the shifting of burdens from one type of environmental impact to another, from one political region to another and from one stage to the other.

An Environmental Product Declaration (EPD) is an independently verified and registered document that communicates transparent and comparable information about the life cycle environmental impacts of products. The following information describes the scope and methodology of this EPD for Volcán's fibercement products.

### Declared unit

This EPD has a cradle to gate with options approach, with a declared unit of 1 m<sup>2</sup> of fibercement panel installed in Chile.

### Reference service life

The typical Volcán fibercement product life is assumed to be the life of the building or 50+ years. This is aligned with several EPDs<sup>1</sup>, and also indicated by Collins- Cecil, American Institute of Architects (AIA) associate (Collins- Cecil, 2018) and the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), code 335.511.

### Geographical scope

The geographical scope of this EPD is Chile.

<sup>1</sup> Equitone (<https://bermanwright.com/built-to-last-general-rules-of-thumb-for-estimating-the-useful-life-of-your-building-envelope/>), Etex UK ([https://www.cedral.world/-/dam/epd\\_cedral\\_fibre\\_cement\\_slates\\_2020/pd17719/original/epd\\_cedral\\_fibre\\_cement\\_slates\\_2020.pdf?v=1699837704](https://www.cedral.world/-/dam/epd_cedral_fibre_cement_slates_2020/pd17719/original/epd_cedral_fibre_cement_slates_2020.pdf?v=1699837704)), James Hardie ([https://epd-australasia.com/wp-content/uploads/2018/04/epd849\\_James-Hardie\\_External-Claddings\\_2017.pdf](https://epd-australasia.com/wp-content/uploads/2018/04/epd849_James-Hardie_External-Claddings_2017.pdf)) and Wienerberger ([https://www.wienerberger.co.uk/content/dam/wienerberger/united-kingdom/marketing/documents-magazines/technical/svk-technical-documents/UK\\_MKT\\_DOC\\_TEC\\_FAC\\_SVK\\_Environmental\\_Product\\_Declaration.pdf](https://www.wienerberger.co.uk/content/dam/wienerberger/united-kingdom/marketing/documents-magazines/technical/svk-technical-documents/UK_MKT_DOC_TEC_FAC_SVK_Environmental_Product_Declaration.pdf))



### Time representativeness

The information collected for the analysis is 2020, considering the production of all products in this year.

### Database(s) and LCA software used

The inventory data for the process are entered in SimaPro LCA program and linked to the pre-existing data for the upstream feedstocks and services. Data were selected per geographic relevance from ecoinvent 3.6 database (Ecoinvent Centre, 2019).

### Description of system boundaries

This EPD is cradle to gate grave, however, given that some of the modules are not applicable for Volcán's fibercement products, the scope is cradle to gate with options<sup>2</sup>. Table 3 has the detail of the modules included. The following life cycle stages have not been declared, as they are deemed not applicable for Volcán: Material emissions from usage (B1); Repair (B3); Replacement (B4); Refurbishment (B5), Operational energy use (B6); Operational water use (B7); Waste processing (C3) and Reuse, recycle or recovery (D).

**Table 3- 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		
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	NR	x	NR	NR	NR	NR	NR	x	x	NR	x	NR	
Geography	Suppliers mostly from Chile, but also Brazil and Switzerland			Chile		Chile											NA	
Specific data used	86%					-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	8% max variation between each product and the average					-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not applicable, only one production site					-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>2</sup> Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules). The additional modules may be one or more selected from A4–A5 and/or B1–B7.

## System diagram

Figure 1 presents the system diagram for fibrecement manufacturing process. This is described below:

- **Mix:** mixing of raw materials with water, transforming it to a plaster that is later distributed.
- **Board formation:** the plaster is distributed over a conveyer belt with a cloth that absorbs humidity and dries the plaster, generating a board that goes to a cylinder that gives it the expected thickness.
- **Sizing and pilling:** once the board has the adequate thickness, it loses from the cylinder and arrives to a conveyer belt, where the sizing of the board is done. Any cuts enter the system again.
- **Pre forging:** boards are stacked up and left to forge for 12 hours.
- **Autoclave:** autoclave (functioning with natural gas) of boards for the curing of fibrecement. Boards are left 12 hours in the autoclave.
- **Final inspection and palletizing:** final inspection and palletizing.
- **Storage:** storage of board approved after the inspection.

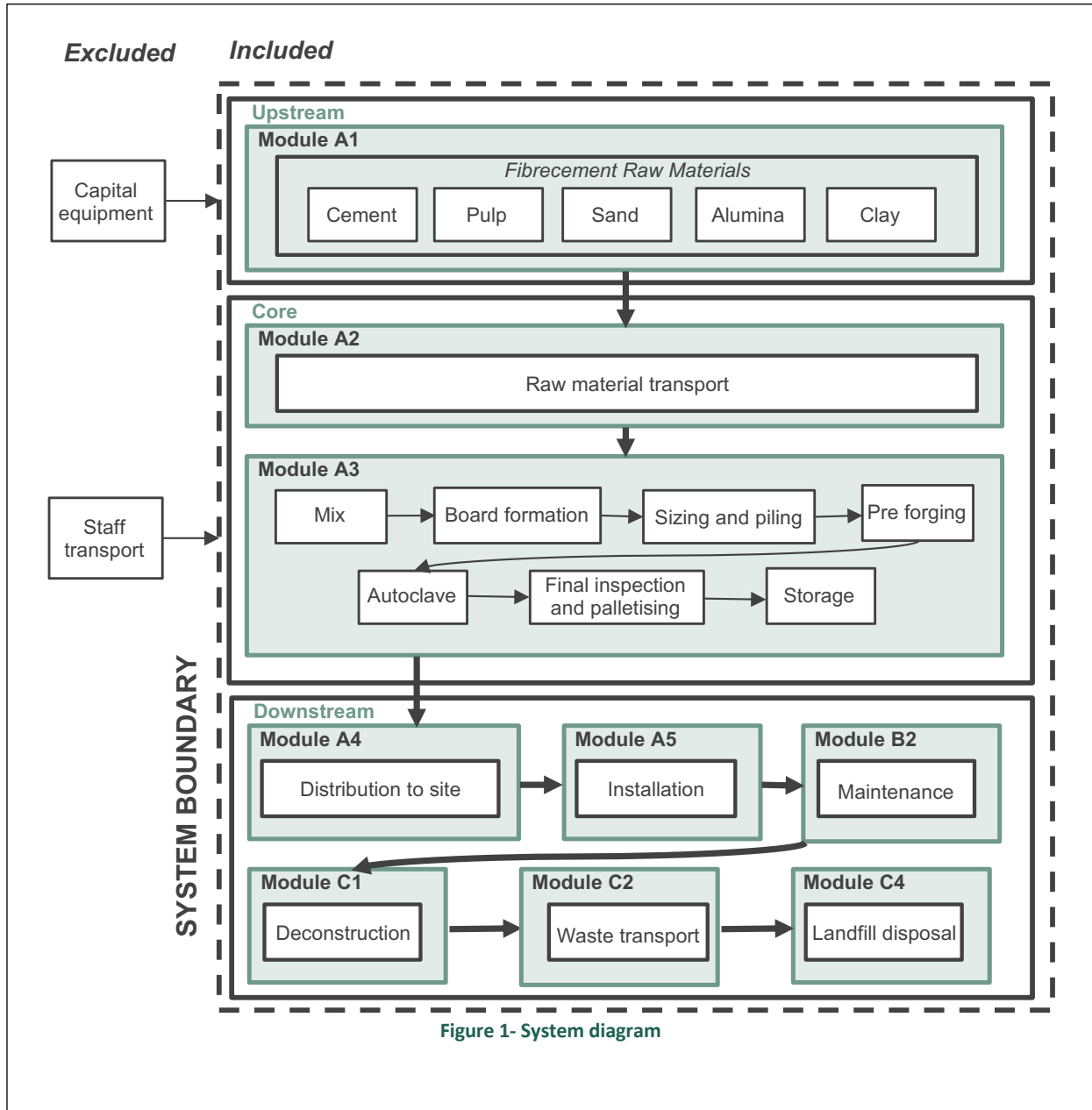


Figure 1- System diagram

### Foreground data sources and quality

Foreground data on raw material requirements, manufacture and distribution was provided by Volcán for the year 2020. Background data was retrieved from ecoinvent 3.6, which dates from 2019, for processes occurring in Chile and countries supplying raw materials. In compliance with the relevant PCR, generic processes were used for feedstock materials.

Data quality is considered medium to good. More details in Table 4 below.

**Table 4- Foreground data sources and quality**

	<b>Product data</b>	<b>Module A1</b>	<b>Module A2</b>	<b>Module A3</b>	<b>Module A4</b>	<b>Module A5</b>	<b>Module B</b>	<b>Module C</b>
<b>Data</b>	Range and physical properties	Raw material inputs Energy inputs	Transportation from national and overseas suppliers to Volcán's installations	Water inputs Consumable inputs Waste outputs Internal transport distances Emissions	Distribution information	Ancillary materials and energy for installation	Ancillary materials and energy for deinstallation	End of life of products
<b>Source</b>	Collected by Volcán staff for 2020	Collected by Volcán staff for 2020	Supplier locations provided by Volcán staff for 2020. Distances calculated with online tool. Transport specifications assumed fromecoinvent 3.6 processes.	Collected by Volcán staff for 2020	Collected by Volcán staff for 2020	Estimations based on products description and use made by Volcán staff	Estimations based on products description and use made by Volcán staff	Conservative assumptions given no take back scheme and low recyclability in Chile
<b>Quality</b>	Good.	Good.	Good.	Good.	Good	Medium	Medium	Medium

### **Exclusion of small amounts and cut off criteria**

Environmental impacts relating to personnel, infrastructure, and production equipment not directly consumed in the process are excluded from the system. All other reported data were incorporated and modelled using the best available life cycle inventory data.

No other cut offs were necessary for the modules included in this EPD.

### **Allocation**

For Volcán's fibercement production there are no co-products from production and therefore allocation issues were avoided.

# Environmental Information

## Potential environmental impacts

- Module A1+A2 has the highest impact contribution to most environmental impacts (12 out of 13 indicators, with an average 46% contribution among them). Within these impacts, A1+A2 has the highest contribution in Abiotic depletion potential - minerals and metals (68%) and Global warming potential - Total (48%), with cement presenting the highest contribution to both impacts (38% and 75% of the module, respectively). The later can be observed in Figure 2, where cement is also the highest impact contributor of the entire life cycle for Global Warming Potential.
- Module B2 shows an important impact in water depletion potential (26%), mostly related to the paint and its water content. This stage also presents the second highest impact in other indicators, such as Global warming potential - Land use and Land use change (24%), Acidification potential (21%), Eutrophication- freshwater (23%) and Abiotic depletion potential - Fossil (19%).
- Module A4 presents an important contribution to ozone depletion potential (30%, the highest and equal to module A1+A2) due to the road transport.
- Module A5 has the highest impact contribution in photochemical ozone formation (55%) due to the sealant use in the installation phase.
- Overall, deconstruction (Module C1) and end of life (Modules C2 and C4) have a low impact contribution to all indicators, while the manufacturing of the product (Module A3) only has impact contribution higher than 10% for Global warming potential - Biogenic (18%) and Water depletion potential (10%).

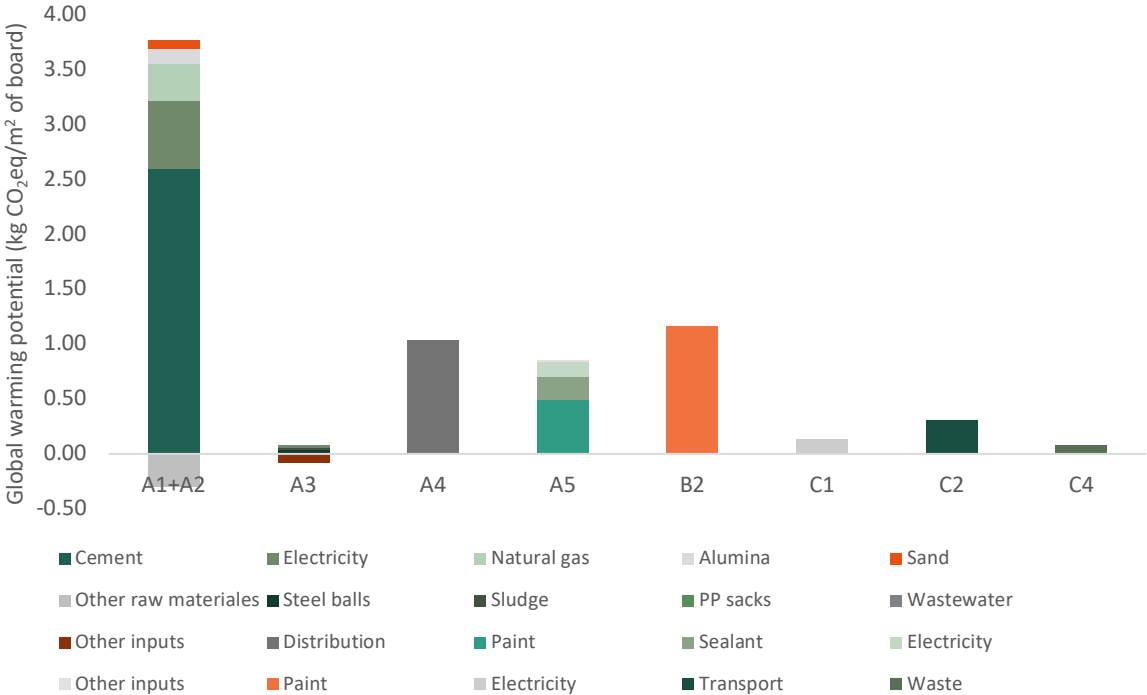


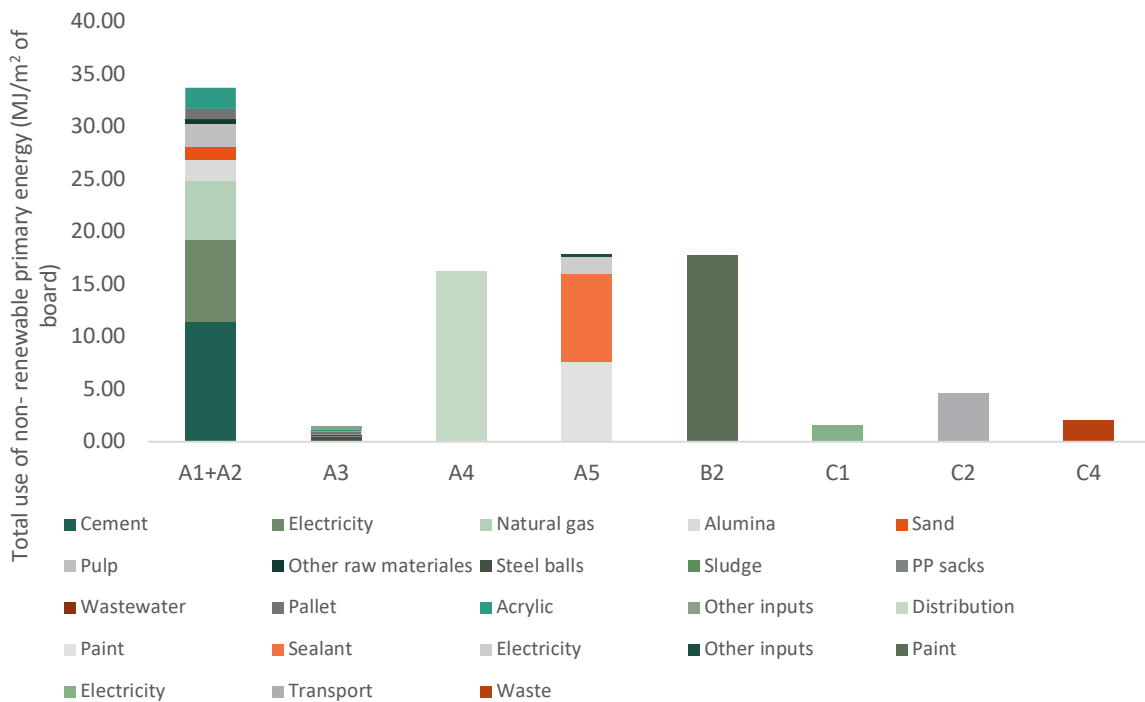
Figure 2- Input contribution to global warming potential, by module for 1m² Volcanboard 6mm

## Resource use

- Module A1+A2 has the highest use of resources in all indicators, although some of these can be considered positive impact, such as Total use of renewable primary energy resources (86%) because of the use of pulp and the Use of Secondary Materials (100%) because of cement. It is however important to mention that the later indicator was not assessed for modules downstream and outside the control of Volcán. Module A1+A2 also presents the

highest contribution to Total non- renewable primary energy (Figure 3), with cement and electricity representing the highest contribution in this module (37% and 25%, respectively).

- Modules A4, A5 and B2 have similar impact contribution to Total non- renewable primary energy, with 18% in the case of distribution and 19% for installation and maintenance. The use of painting has a relevant contribution to this impact, in fact, it is the highest individual contribution of any input or output, as can be seen in Figure 3.
- Module B2 also presents a relevant contribution to Use of fresh water (28%), only surpassed by Module A1+A2 with 36% contribution.
- Again, deconstruction (Module C1) and end of life (Modules C2 and C4) have a low impact contribution to all resource use indicators. The manufacturing process (Module A3) only presents a relevant impact in Use of fresh water, with a 12% contribution.

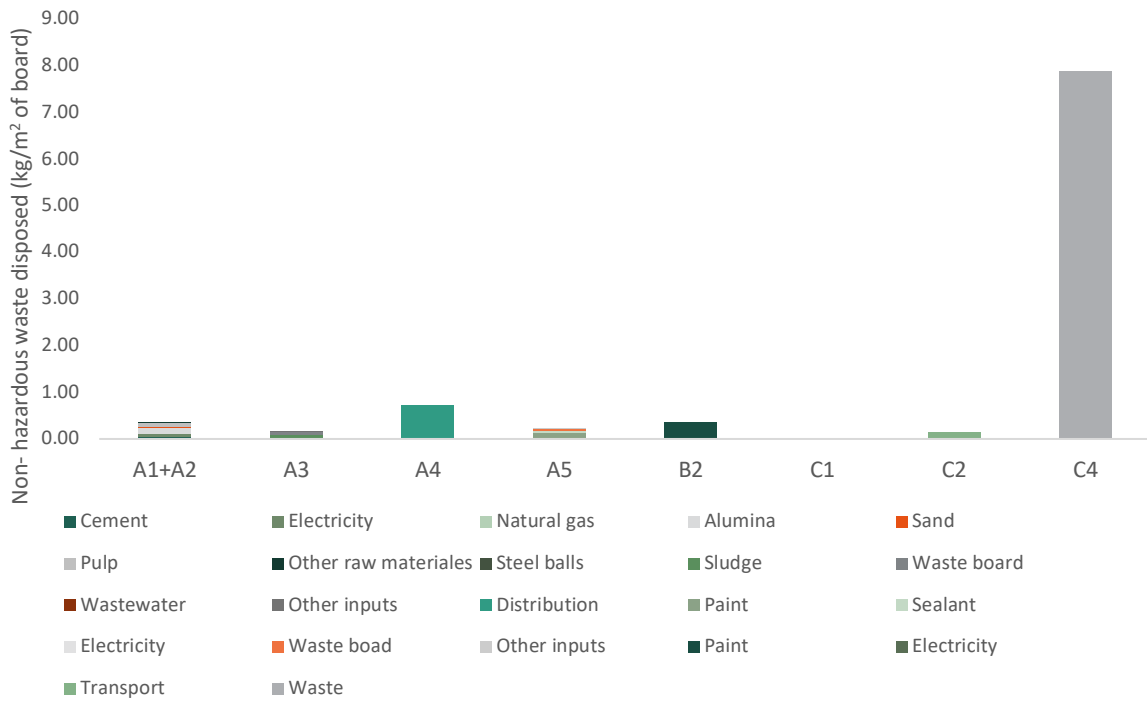


**Figure 3- Input contribution to total use of non- renewable primary energy, by module for 1m² Volcanboard 6mm**

#### Waste and Output flows

- Module C4 (disposal) has the highest Non- hazardous waste disposed (Figure 4, equivalent to 80% contribution), due to the conservative assumption that all products go to landfill and the end of life.
- Module C2 (transport to disposal) has the highest contribution to Hazardous waste disposed due to wire drawing processes related to road transport.
- Modules A4 and A1+A2 have a relevant contribution to radioactive waste disposed (33% and 25%, respectively) related to the production of fossil fuels that generates this type of waste.





**Figure 4- Input contribution to non- hazardous waste disposed, by module for 1m² Volcanboard 6mm**

## Volcanboard and Volcanboard Textura Madera 6mm

Table 5- Potential environmental impact – mandatory indicators according to EN 15804

Results per 1 m <sup>2</sup> of Volcanboard and Volcanboard Textura Madera 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	3.93E+00	9.32E-02	4.02E+00	1.04E+00	8.48E-01	ND	1.16E+00	ND	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0
GWP-biogenic	kg CO <sub>2</sub> eq.	-4.51E-01	-9.59E-02	-5.47E-01	3.99E-04	1.08E-03	ND	3.78E-03	ND	ND	ND	ND	ND	-1.00E-04	3.22E-04	0	9.09E-04	0
GWP-luluc	kg CO <sub>2</sub> eq.	1.58E-03	1.24E-04	1.70E-03	3.73E-04	5.44E-04	ND	9.24E-04	ND	ND	ND	ND	ND	8.86E-06	1.93E-04	0	3.73E-05	0
GWP-total	kg CO <sub>2</sub> eq.	3.48E+00	-2.54E-03	3.48E+00	1.04E+00	8.49E-01	ND	1.16E+00	ND	ND	ND	ND	ND	1.29E-01	3.07E-01	0	8.38E-02	0
ODP	kg CFC 11 eq.	2.17E-07	8.38E-09	2.25E-07	2.25E-07	1.09E-07	ND	9.40E-08	ND	ND	ND	ND	ND	4.11E-09	6.03E-08	0	2.57E-08	0
AP	mol H <sup>+</sup> eq.	1.56E-02	7.95E-04	1.64E-02	4.32E-03	5.79E-03	ND	7.97E-03	ND	ND	ND	ND	ND	1.09E-03	1.72E-03	0	7.08E-04	0
EP-freshwater	kg PO <sub>4</sub> <sup>3-</sup> eq.	4.15E-03	3.51E-04	4.50E-03	7.91E-04	1.61E-03	ND	2.17E-03	ND	ND	ND	ND	ND	3.75E-04	3.68E-04	0	1.76E-04	0
EP-freshwater	kg P eq.	8.21E-04	5.25E-05	8.73E-04	8.72E-05	3.48E-04	ND	4.44E-04	ND	ND	ND	ND	ND	9.40E-05	5.49E-05	0	2.53E-05	0
EP-marine	kg N eq.	4.18E-03	3.97E-04	4.58E-03	1.27E-03	9.91E-04	ND	1.23E-03	ND	ND	ND	ND	ND	2.50E-04	5.13E-04	0	2.42E-04	0
EP-terrestrial	mol N eq.	4.61E-02	2.08E-03	4.82E-02	1.39E-02	1.03E-02	ND	1.24E-02	ND	ND	ND	ND	ND	2.61E-03	5.65E-03	0	2.64E-03	0
POCP	kg NMVOC eq.	1.20E-02	6.63E-04	1.27E-02	4.23E-03	2.98E-02	ND	4.23E-03	ND	ND	ND	ND	ND	6.57E-04	1.82E-03	0	7.63E-04	0
ADP-minerals&metals*	kg Sb eq.	2.70E-04	1.75E-06	2.72E-04	2.73E-05	2.99E-05	ND	5.87E-05	ND	ND	ND	ND	ND	1.72E-07	6.67E-06	0	8.85E-07	0
ADP-fossil*	MJ	2.87E+01	1.41E+00	3.01E+01	1.53E+01	1.67E+01	ND	1.67E+01	ND	ND	ND	ND	ND	1.50E+00	4.38E+00	0	1.95E+00	0
WDP	m <sup>3</sup>	1.00E+00	2.58E-01	1.26E+00	4.95E-02	4.08E-01	ND	6.52E-01	ND	ND	ND	ND	ND	5.49E-03	2.02E-02	0	8.42E-02	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.

“ND” (Not Declared)

**Table 6- Potential environmental impact – additional mandatory and voluntary indicators**

Results per 1 m <sup>2</sup> of Volcanboard and Volcanboard Textura Madera 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>3</sup>	kg CO <sub>2</sub> eq.	3.93E+00	9.32E-02	9.32E-02	1.04E+00	8.48E-01	ND	1.16E+00	ND	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0

*Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017*

“ND” (Not Declared)

**Table 7- Use of resources**

Results per 1 m <sup>2</sup> of Volcanboard and Volcanboard Textura Madera 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1.61E+01	1.54E+00	1.76E+01	1.71E-01	8.81E-01	ND	9.81E-01	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PERM	MJ	8.73E+00	0.00E+00	8.73E+00	0	0	ND	0	0	ND	ND	ND	ND	0	0	0	0	0
PERT	MJ	2.48E+01	1.54E+00	2.64E+01	1.71E-01	8.81E-01	ND	9.81E-01	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PENRE	MJ	3.08E+01	1.50E+00	3.23E+01	1.63E+01	1.79E+01	ND	1.78E+01	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
PENRM	MJ.	0	0	0	0	0	ND	0	0	ND	ND	ND	ND	0	0	0	0	0
PENRT	MJ	3.08E+01	1.50E+00	3.23E+01	1.63E+01	1.79E+01	ND	1.78E+01	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
SM	kg	2.84E+00	0	2.84E+00	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
RSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
FW	m <sup>3</sup>	2.17E-02	7.00E-03	2.87E-02	1.50E-03	1.04E-02	ND	1.66E-02	ND	ND	ND	ND	ND	2.20E-04	6.88E-04	0	2.03E-03	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																	

“ND” (Not Declared)

<sup>3</sup> 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.

**Table 8- Waste production**

Results per 1 m <sup>2</sup> of Volcanboard and Volcanboard Textura Madera 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	3.48E-05	4.55E-06	3.93E-05	4.04E-05	1.56E-05	ND	1.61E-05	ND	ND	ND	ND	ND	4.87E-07	8.34E-05	0	2.98E-06	0
Non-hazardous waste disposed	kg	3.36E-01	1.57E-01	4.93E-01	7.24E-01	2.34E-01	ND	3.48E-01	ND	ND	ND	ND	ND	9.35E-03	1.29E-01	0	7.88E+00	0
Radioactive waste disposed	kg	7.70E-05	3.77E-06	8.08E-05	1.01E-04	4.26E-05	ND	3.86E-05	ND	ND	ND	ND	ND	1.07E-06	2.78E-05	0	1.16E-05	0

*"ND" (Not Declared)*

**Table 9- Output flows**

Results per 1 m <sup>2</sup> of Volcanboard and Volcanboard Textura Madera 6mm																		
Indicator	Unit	A1+A2	A3	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	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0

*"ND" (Not Declared)*

**Table 10- Information on biogenic carbon content**

Results per 1 m <sup>2</sup> of Volcanboard and Volcanboard Textura Madera 6mm		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	1.68
Biogenic carbon content in packaging	kg C	0.43

*Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>.*

## Volcanboard Base Cerámica 6mm

Table 11- Potential environmental impact – mandatory indicators according to EN 15804

Results per 1 m <sup>2</sup> of Volcanboard Base Cerámica 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	3.93E+00	2.00E-01	4.13E+00	1.04E+00	3.53E-01	ND	0	ND	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0
GWP-biogenic	kg CO <sub>2</sub> eq.	-4.51E-01	-9.55E-02	-5.47E-01	3.99E-04	-5.44E-04	ND	0	ND	ND	ND	ND	ND	-1.00E-04	3.22E-04	0	9.09E-04	0
GWP-luluc	kg CO <sub>2</sub> eq.	1.58E-03	2.07E-04	1.78E-03	3.73E-04	1.48E-04	ND	0	ND	ND	ND	ND	ND	8.86E-06	1.93E-04	0	3.73E-05	0
GWP-total	kg CO <sub>2</sub> eq.	3.48E+00	1.04E-01	3.58E+00	1.04E+00	3.52E-01	ND	0	ND	ND	ND	ND	ND	1.29E-01	3.07E-01	0	8.38E-02	0
ODP	kg CFC 11 eq.	2.17E-07	1.66E-08	2.33E-07	2.25E-07	6.85E-08	ND	0	ND	ND	ND	ND	ND	4.11E-09	6.03E-08	0	2.57E-08	0
AP	mol H <sup>+</sup> eq.	1.56E-02	1.51E-03	1.71E-02	4.32E-03	2.37E-03	ND	0	ND	ND	ND	ND	ND	1.09E-03	1.72E-03	0	7.08E-04	0
EP-freshwater	kg PO <sub>4</sub> <sup>3-</sup> eq.	4.15E-03	5.56E-04	4.70E-03	7.91E-04	6.86E-04	ND	0	ND	ND	ND	ND	ND	3.75E-04	3.68E-04	0	1.76E-04	0
EP-freshwater	kg P eq.	8.21E-04	9.27E-05	9.13E-04	8.72E-05	1.58E-04	ND	0	ND	ND	ND	ND	ND	9.40E-05	5.49E-05	0	2.53E-05	0
EP-marine	kg N eq.	4.18E-03	5.08E-04	4.69E-03	1.27E-03	4.63E-04	ND	0	ND	ND	ND	ND	ND	2.50E-04	5.13E-04	0	2.42E-04	0
EP-terrestrial	mol N eq.	4.61E-02	3.19E-03	4.93E-02	1.39E-02	5.03E-03	ND	0	ND	ND	ND	ND	ND	2.61E-03	5.65E-03	0	2.64E-03	0
POCP	kg NMVOC eq.	1.20E-02	1.04E-03	1.30E-02	4.23E-03	2.80E-02	ND	0	ND	ND	ND	ND	ND	6.57E-04	1.82E-03	0	7.63E-04	0
ADP-minerals&metals*	kg Sb eq.	2.70E-04	7.19E-06	2.78E-04	2.73E-05	4.72E-06	ND	0	ND	ND	ND	ND	ND	1.72E-07	6.67E-06	0	8.85E-07	0
ADP-fossil*	MJ	2.87E+01	2.97E+00	3.16E+01	1.53E+01	9.58E+00	ND	0	ND	ND	ND	ND	ND	1.50E+00	4.38E+00	0	1.95E+00	0
WDP	m <sup>3</sup>	1.00E+00	3.16E-01	1.32E+00	4.95E-02	1.28E-01	ND	0	ND	ND	ND	ND	ND	5.49E-03	2.02E-02	0	8.42E-02	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.

“ND” (Not Declared)

**Table 12- Potential environmental impact – additional mandatory and voluntary indicators**

Results per 1 m <sup>2</sup> of Volcanboard Base Cerámica 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>4</sup>	kg CO <sub>2</sub> eq.	3.93E+00	2.00E-01	2.00E-01	1.04E+00	3.53E-01	ND	0	0	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0

*Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017*

“ND” (Not Declared)

**Table 13- Use of resources**

Results per 1 m <sup>2</sup> of Volcanboard Base Cerámica 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1.61E+01	1.62E+00	1.77E+01	1.71E-01	4.61E-01	ND	0	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PERM	MJ	8.73E+00	0.00E+00	8.73E+00	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
PERT	MJ	2.48E+01	1.62E+00	2.65E+01	1.71E-01	4.61E-01	ND	0	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PENRE	MJ	3.08E+01	3.17E+00	3.39E+01	1.63E+01	1.02E+01	ND	0	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
PENRM	MJ.	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
PENRT	MJ	3.08E+01	3.17E+00	3.39E+01	1.63E+01	1.02E+01	ND	0	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
SM	kg	2.84E+00	0	2.84E+00	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
RSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
FW	m <sup>3</sup>	2.17E-02	8.46E-03	3.02E-02	1.50E-03	3.29E-03	ND	0	ND	ND	ND	ND	ND	2.20E-04	6.88E-04	0	2.03E-03	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																	

“ND” (Not Declared)

<sup>4</sup> 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.



**Table 14- Waste production**

Results per 1 m <sup>2</sup> of Volcanboard Base Cerámica 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	3.48E-05	6.00E-06	4.08E-05	4.04E-05	8.71E-06	ND	0	ND	ND	ND	ND	ND	4.87E-07	8.34E-05	0	2.98E-06	0
Non-hazardous waste disposed	kg	3.36E-01	1.92E-01	5.28E-01	7.24E-01	8.48E-02	ND	0	ND	ND	ND	ND	ND	9.35E-03	1.29E-01	0	7.88E+00	0
Radioactive waste disposed	kg	7.70E-05	7.13E-06	8.41E-05	1.01E-04	2.60E-05	ND	0	ND	ND	ND	ND	ND	1.07E-06	2.78E-05	0	1.16E-05	0

*"ND" (Not Declared)*

**Table 15- Output flows**

Results per 1 m <sup>2</sup> of Volcanboard Base Cerámica 6mm																		
Indicator	Unit	A1+A2	A3	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	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0

*"ND" (Not Declared)*

**Table 16- Information on biogenic carbon content**

Results per 1 m <sup>2</sup> of Volcanboard Base Cerámica 6mm		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	1.68
Biogenic carbon content in packaging	kg C	0.42

*Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>.*

## Volcanboard Siding 6mm

Table 17- Potential environmental impact – mandatory indicators according to EN 15804

Results per 1 m <sup>2</sup> of Volcanboard Siding 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	3.95E+00	1.10E-01	4.06E+00	1.04E+00	9.88E-01	ND	1.16E+00	ND	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0
GWP-biogenic	kg CO <sub>2</sub> eq.	-4.51E-01	-2.14E-01	-6.65E-01	4.02E-04	7.91E-04	ND	3.78E-03	ND	ND	ND	ND	ND	-1.00E-04	3.22E-04	0	9.09E-04	0
GWP-luluc	kg CO <sub>2</sub> eq.	1.58E-03	1.85E-04	1.76E-03	3.75E-04	6.21E-04	ND	9.24E-04	ND	ND	ND	ND	ND	8.86E-06	1.93E-04	0	3.73E-05	0
GWP-total	kg CO <sub>2</sub> eq.	3.50E+00	-1.04E-01	3.39E+00	1.05E+00	9.89E-01	ND	1.16E+00	ND	ND	ND	ND	ND	1.29E-01	3.07E-01	0	8.38E-02	0
ODP	kg CFC 11 eq.	2.17E-07	9.62E-09	2.26E-07	2.27E-07	1.50E-07	ND	9.40E-08	ND	ND	ND	ND	ND	4.11E-09	6.03E-08	0	2.57E-08	0
AP	mol H <sup>+</sup> eq.	1.57E-02	8.76E-04	1.66E-02	4.34E-03	6.59E-03	ND	7.97E-03	ND	ND	ND	ND	ND	1.09E-03	1.72E-03	0	7.08E-04	0
EP-freshwater	kg PO <sub>4</sub> <sup>3-</sup> eq.	4.17E-03	3.76E-04	4.54E-03	7.96E-04	1.82E-03	ND	2.17E-03	ND	ND	ND	ND	ND	3.75E-04	3.68E-04	0	1.76E-04	0
EP-freshwater	kg P eq.	8.21E-04	5.72E-05	8.78E-04	8.78E-05	3.87E-04	ND	4.44E-04	ND	ND	ND	ND	ND	9.40E-05	5.49E-05	0	2.53E-05	0
EP-marine	kg N eq.	4.24E-03	4.21E-04	4.66E-03	1.28E-03	1.12E-03	ND	1.23E-03	ND	ND	ND	ND	ND	2.50E-04	5.13E-04	0	2.42E-04	0
EP-terrestrial	mol N eq.	4.67E-02	2.35E-03	4.91E-02	1.40E-02	1.18E-02	ND	1.24E-02	ND	ND	ND	ND	ND	2.61E-03	5.65E-03	0	2.64E-03	0
POCP	kg NMVOC eq.	1.21E-02	7.85E-04	1.29E-02	4.25E-03	4.75E-02	ND	4.23E-03	ND	ND	ND	ND	ND	6.57E-04	1.82E-03	0	7.63E-04	0
ADP-minerals&metals*	kg Sb eq.	2.70E-04	1.94E-06	2.72E-04	2.75E-05	3.27E-05	ND	5.87E-05	ND	ND	ND	ND	ND	1.72E-07	6.67E-06	0	8.85E-07	0
ADP-fossil*	MJ	2.88E+01	1.77E+00	3.06E+01	1.54E+01	2.19E+01	ND	1.67E+01	ND	ND	ND	ND	ND	1.50E+00	4.38E+00	0	1.95E+00	0
WDP	m <sup>3</sup>	1.01E+00	2.61E-01	1.27E+00	4.98E-02	4.86E-01	ND	6.52E-01	ND	ND	ND	ND	ND	5.49E-03	2.02E-02	0	8.42E-02	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.

"ND" (Not Declared)

**Table 18- Potential environmental impact – additional mandatory and voluntary indicators**

Results per 1 m <sup>2</sup> of Volcanboard Siding 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>5</sup>	kg CO <sub>2</sub> eq.	3.95E+00	1.10E-01	1.10E-01	1.04E+00	9.88E-01	ND	1.16E+00	ND	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0

*Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017*

“ND” (Not Declared)

**Table 19- Use of resources**

Results per 1 m <sup>2</sup> of Volcanboard Siding 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1.61E+01	2.96E+00	1.91E+01	1.72E-01	9.60E-01	ND	9.81E-01	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PERM	MJ	8.73E+00	0.00E+00	8.73E+00	0	0	ND	0	0	ND	ND	ND	ND	0	0	0	0	0
PERT	MJ	2.48E+01	2.96E+00	2.78E+01	1.72E-01	9.60E-01	ND	9.81E-01	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PENRE	MJ	3.09E+01	1.89E+00	3.28E+01	1.64E+01	2.34E+01	ND	1.78E+01	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
PENRM	MJ.	0	0	0	0	0	ND	0	0	ND	ND	ND	ND	0	0	0	0	0
PENRT	MJ	3.09E+01	1.89E+00	3.28E+01	1.64E+01	2.34E+01	ND	1.78E+01	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
SM	kg	2.84E+00	0	2.84E+00	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
RSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
FW	m <sup>3</sup>	2.17E-02	7.10E-03	2.88E-02	1.51E-03	1.24E-02	ND	1.66E-02	ND	ND	ND	ND	ND	2.20E-04	6.88E-04	0	2.03E-03	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																	

“ND” (Not Declared)

<sup>5</sup> 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.

**Table 20- Waste production**

Results per 1 m <sup>2</sup> of Volcanboard Siding 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	3.48E-05	5.21E-06	4.00E-05	4.06E-05	2.08E-05	ND	1.61E-05	ND	ND	ND	ND	ND	4.87E-07	8.34E-05	0	2.98E-06	0
Non-hazardous waste disposed	kg	3.36E-01	1.61E-01	4.97E-01	7.28E-01	2.50E-01	ND	3.48E-01	ND	ND	ND	ND	ND	9.35E-03	1.29E-01	0	7.88E+00	0
Radioactive waste disposed	kg	7.70E-05	4.44E-06	8.15E-05	1.01E-04	5.84E-05	ND	3.86E-05	ND	ND	ND	ND	ND	1.07E-06	2.78E-05	0	1.16E-05	0

*"ND" (Not Declared)*

**Table 21- Output flows**

Results per 1 m <sup>2</sup> of Volcanboard Siding 6mm																		
Indicator	Unit	A1+A2	A3	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	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0

*"ND" (Not Declared)*

**Table 22- Information on biogenic carbon content**

Results per 1 m <sup>2</sup> of Volcanboard Siding 6mm		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	1.68
Biogenic carbon content in packaging	kg C	0.86

*Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>.*

## Volcanboard Siding Color Plus 6mm

Table 23- Potential environmental impact – mandatory indicators according to EN 15804

Results per 1 m <sup>2</sup> of Volcanboard Siding Color Plus 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	3.93E+00	6.84E-01	4.61E+00	1.04E+00	4.93E-01	ND	0	ND	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0
GWP-biogenic	kg CO <sub>2</sub> eq.	-4.51E-01	-2.18E-01	-6.69E-01	4.02E-04	-8.30E-04	ND	0	ND	ND	ND	ND	ND	-1.00E-04	3.22E-04	0	9.09E-04	0
GWP-luluc	kg CO <sub>2</sub> eq.	1.58E-03	7.25E-04	2.30E-03	3.75E-04	2.25E-04	ND	0	ND	ND	ND	ND	ND	8.86E-06	1.93E-04	0	3.73E-05	0
GWP-total	kg CO <sub>2</sub> eq.	3.48E+00	4.67E-01	3.95E+00	1.05E+00	4.92E-01	ND	0	ND	ND	ND	ND	ND	1.29E-01	3.07E-01	0	8.38E-02	0
ODP	kg CFC 11 eq.	2.17E-07	5.11E-08	2.68E-07	2.27E-07	1.10E-07	ND	0	ND	ND	ND	ND	ND	4.11E-09	6.03E-08	0	2.57E-08	0
AP	mol H <sup>+</sup> eq.	1.56E-02	4.61E-03	2.02E-02	4.34E-03	3.17E-03	ND	0	ND	ND	ND	ND	ND	1.09E-03	1.72E-03	0	7.08E-04	0
EP-freshwater	kg PO <sub>4</sub> <sup>3-</sup> eq.	4.15E-03	1.51E-03	5.66E-03	7.96E-04	8.89E-04	ND	0	ND	ND	ND	ND	ND	3.75E-04	3.68E-04	0	1.76E-04	0
EP-freshwater	kg P eq.	8.21E-04	2.61E-04	1.08E-03	8.78E-05	1.97E-04	ND	0	ND	ND	ND	ND	ND	9.40E-05	5.49E-05	0	2.53E-05	0
EP-marine	kg N eq.	4.18E-03	1.03E-03	5.21E-03	1.28E-03	5.96E-04	ND	0	ND	ND	ND	ND	ND	2.50E-04	5.13E-04	0	2.42E-04	0
EP-terrestrial	mol N eq.	4.61E-02	8.33E-03	5.44E-02	1.40E-02	6.54E-03	ND	0	ND	ND	ND	ND	ND	2.61E-03	5.65E-03	0	2.64E-03	0
POCP	kg NMVOC eq.	1.20E-02	2.84E-03	1.48E-02	4.25E-03	4.57E-02	ND	0	ND	ND	ND	ND	ND	6.57E-04	1.82E-03	0	7.63E-04	0
ADP-minerals&metals*	kg Sb eq.	2.70E-04	2.72E-05	2.98E-04	2.75E-05	7.52E-06	ND	0	ND	ND	ND	ND	ND	1.72E-07	6.67E-06	0	8.85E-07	0
ADP-fossil*	MJ	2.87E+01	1.13E+01	4.00E+01	1.54E+01	1.47E+01	ND	0	ND	ND	ND	ND	ND	1.50E+00	4.38E+00	0	1.95E+00	0
WDP	m <sup>3</sup>	1.00E+00	5.70E-01	1.57E+00	4.98E-02	2.07E-01	ND	0	ND	ND	ND	ND	ND	5.49E-03	2.02E-02	0	8.42E-02	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.

"ND" (Not Declared)

**Table 24- Potential environmental impact – additional mandatory and voluntary indicators**

Results per 1 m <sup>2</sup> of Volcanboard Siding Color Plus 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>6</sup>	kg CO <sub>2</sub> eq.	3.93E+00	6.84E-01	6.84E-01	1.04E+00	4.93E-01	ND	0	0	ND	ND	ND	ND	1.29E-01	3.06E-01	0	8.28E-02	0

*Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017*

*“ND” (Not Declared)*

**Table 25- Use of resources**

Results per 1 m <sup>2</sup> of Volcanboard Siding Color Plus 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1.61E+01	3.48E+00	1.96E+01	1.72E-01	5.40E-01	ND	0	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PERM	MJ	8.73E+00	0.00E+00	8.73E+00	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
PERT	MJ	2.48E+01	3.48E+00	2.83E+01	1.72E-01	5.40E-01	ND	0	ND	ND	ND	ND	ND	3.29E-01	1.00E-01	0	3.18E-02	0
PENRE	MJ	3.08E+01	1.21E+01	4.28E+01	1.64E+01	1.58E+01	ND	0	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
PENRM	MJ.	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
PENRT	MJ	3.08E+01	1.21E+01	4.28E+01	1.64E+01	1.58E+01	ND	0	ND	ND	ND	ND	ND	1.59E+00	4.65E+00	0	2.07E+00	0
SM	kg	2.84E+00	0	2.84E+00	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
RSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
FW	m <sup>3</sup>	2.17E-02	1.50E-02	3.67E-02	1.51E-03	5.25E-03	ND	0	ND	ND	ND	ND	ND	2.20E-04	6.88E-04	0	2.03E-03	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																	

*“ND” (Not Declared)*

<sup>6</sup> 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.



**Table 26- Waste production**

Results per 1 m <sup>2</sup> of Volcanboard Siding Color Plus 6mm																		
Indicator	Unit	A1+A2	A3	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	3.48E-05	1.24E-05	4.72E-05	4.06E-05	1.39E-05	ND	0	ND	ND	ND	ND	ND	4.87E-07	8.34E-05	0	2.98E-06	0
Non-hazardous waste disposed	kg	3.36E-01	3.43E-01	6.79E-01	7.28E-01	1.01E-01	ND	0	ND	ND	ND	ND	ND	9.35E-03	1.29E-01	0	7.88E+00	0
Radioactive waste disposed	kg	7.70E-05	2.16E-05	9.86E-05	1.01E-04	4.19E-05	ND	0	ND	ND	ND	ND	ND	1.07E-06	2.78E-05	0	1.16E-05	0

*"ND" (Not Declared)*

**Table 27- Output flows**

Results per 1 m <sup>2</sup> of Volcanboard Siding Color Plus 6mm																		
Indicator	Unit	A1+A2	A3	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	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	ND	0	ND	ND	ND	ND	ND	0	0	0	0	0

*"ND" (Not Declared)*

**Table 28- Information on biogenic carbon content**

Results per 1 m <sup>2</sup> of Volcanboard Siding Color Plus 6mm		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	1.68
Biogenic carbon content in packaging	kg C	0.89

*Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>*

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