ENVIRONMENTAL PRODUCT DECLARATION

WALLEN (in anodized aluminium)

Program: The International EPD® System
Program Operator: EPD International AB

PCR CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES, PCR 2019:14, v 1.3.2,
C-PCR-007 VERSION: 2020-04-09
CPC: 4212

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In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019

“An EPD should provide up-to-date information and may be updated if conditions change. The declared validity is therefore subject to continuous registration and publication on www.environdec.com.”

1 INTRODUCTION

Type III Environmental Declarations contain verifiable and accurate information on the environmental performance of a product, quantified based on a life cycle impact assessment. Their objective is to produce reliable information expressed on a common basis that allows a comparison of environmental performance between products that perform the same function. With this in mind of product sustainability, Type III Environmental Declarations are developed in compliance with the requirements and prescriptions dictated by the voluntary standard UNI EN ISO 14025:2010 and to ensure that LCA studies are conducted consistently for all covered products. within the same category, precise rules and methodologies are required to be respected. These rules are indicated by the PCR - Product Category Rules - which formulate clarifications regarding the carrying out of a life cycle analysis for a specific product category ensuring the harmony and comparability of the results.

2 COMPANY AND PRODUCT INFORMATION

2.1 THE COMPANY[1]

Adotta was born in early 2000. Today we are manufacturers, innovators and leaders in the office partition walls sector. During the first 15 years of existence, we have successfully produced, managed, and installed more than 700 projects worldwide. Our projects range from small configurations to multi- storey developments in large complexes and buildings under construction. Our products installed today in more than 20 countries around the world are evidence of Adotta 's ability to operate in international contexts. Our customers range from small businesses to large multinational corporations, from investment banks to the entertainment industry, up to architects, designers and professionals, united by a careful interest in the design of spaces. Adotta's mission is to create walls for offices that enhance interior architecture, through a unique design and constant innovation, giving sustainable added value to contemporary work environments .

2.2 THE PRODUCT

Glass partition wall for offices with aluminum and wood structure

Composition of the product in mass		Kg
PRODUCT	Aluminum profile covered in wood	2.8084
	Wooden doors and panels	6.7073
	Seals	0.1965
	Handle/Handles	0.1317
	Hinges	0.4996
	Screws	0.2672
	Glass sheets	20,208
PACKAGING	Wooden crate/cage	15
	Polystyrene	1
	Plastic strap	0.1
	Cardboard	0.3

[1] Owner Adotta Italia srl
Registered office: Via delle Pastorelle, 10, 36016 Thiene VI

Biogenic Carbon (C) Product	2.46E+01
Biogenic Carbon (C) Packaging	3.82E+01

It is specified that the glass components have a thickness of 12 mm and that the product configurations are based on the following rendering and on the pejorative case (anodized aluminium). The dimensions are shown in the renderings in Figure 1.

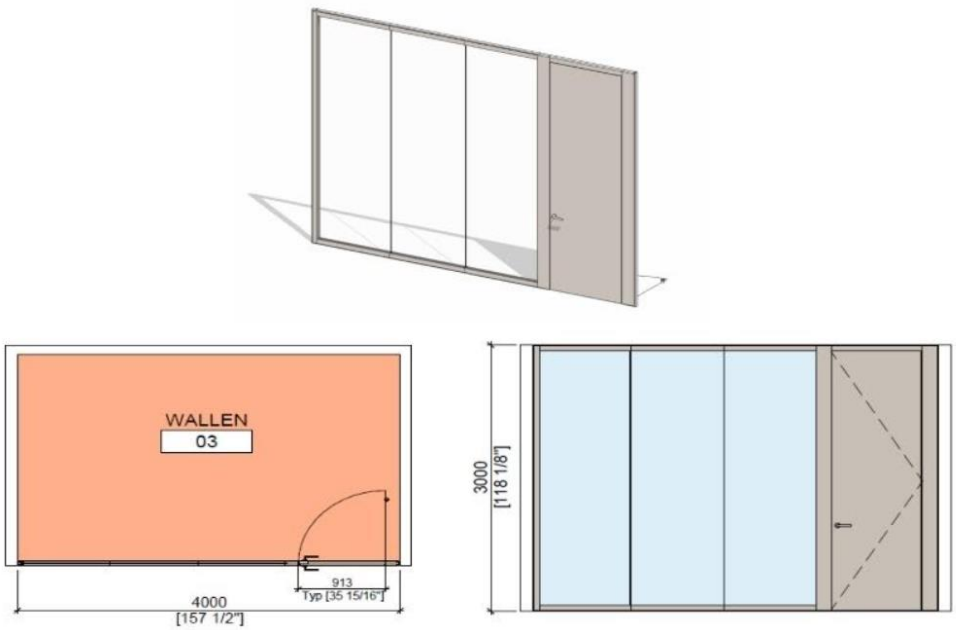

Figure 1

3 LCA INFORMATION

3.1 UNITY DECLARED

In accordance with the directives of the reference standard and the product rule, the following is considered as a declared unit: n 1 m2 of product (including packaging and including the extra material supplied to construction sites (A5))

3.2 REFERENCE SERVICE LIFE

With reference to what is reported in PCR 2019:14 v 1.3.2 par 4.2: For a “cradle to gate with options” EPD, the declaration of the RSL is only possible if B1-B5 are included”.

3.3 TIME BOUNDARIES

The temporal boundaries include the period from January 2022 - December 2022, a period considered to be representative of the company's activities. These were chosen given the most complete availability of information relating to the analysis.

3.4 SYSTEM BOUNDARIES

In accordance with the reference standard UNI EN 15804 and the PCR followed, the environmental impact assessment of the life cycle is "from cradle to gate with modules C1-C4 and module D".

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction, demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	IT	-	-	-	-	-	-	-	-	-	-	IT	IT	IT	IT
Specific data used	7.1%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – product	not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – site	not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Figure 2: System boundaries considered in the study. (ND=Module not declared); The climate impact of the energy source behind the electricity in the production process in A3 is 0.585kg/ CO2 eq./kWh (using the GWP-GHG indicator)

Table 1

MODULE	INDICATOR	
A1 – Raw material supply	Raw material	***UPSTREAM***
	Electricity consumption	
A2 – Transport	Raw material transport Internal transport	
A3 - Manufacturing	Material (packaging)	***CORE***
	Transport of generated waste	
	Treatment of generated waste	
C1 - De-construction demolition	Consumption linked to demolition	***END OF LIFE***
C2 - Transport	Waste transportation	
C3 - Waste processing	Waste treatment	
C4 - Disposal	Disposal	

Emissions were not accounted for in the study since the company is not subject to authorizations and does not use refrigerant gases. For the "core" phase, heat and water consumption were not counted as they were not preparatory to the processing of the products under study.

Other exclusions concerned the environmental loads of the machinery used in Adotta; auxiliary products and products used in research and development. However, it is specified that the scenarios adopted for the modeling of modules C1, C2, C3, C4 and D were considered in the following way:

- The impacts associated with demolition (C1) are assumed to be negligible. Any operations to remove the artefact do not require the use of electricity or other inputs. Generally, removal if necessary, can be done manually.

- A distance of 51.3 km is assumed for phase C2

- Furthermore, for the definition of modules C3/4 and D, the retrievable information from the following site (https://www.isprambiente.gov.it) was applied. The following percentages are therefore assumed: Recovery - 77.125%; Disposal 22.875%

3.5 SYSTEM DIAGRAM

For each information module, the characteristic environmental performance indicators were investigated. In choosing the data to use for the study, we tried to favor primary data that can be cataloged by the company. This data constitutes the primary source of information for inventory analysis. The latter can be grouped according to environmental performance indicators, to which the environmental performance results will subsequently be referred. The software model was developed based on these indicators and the inventory analysis was therefore developed according to macro consumption referring to the declared unit that characterizes the study. The production process can be summarized in the following points:

Table 2

Unit process name	Description of the unit process
Design	Our R&D office designs and develops a matrix
Extrusion	Forcing and compressing the appropriately preheated aluminum alloy billet in order to obtain the desired shape
Machining on the rough	The aluminum profile is covered with different types of veneer depending on the request
Finish	The covered profile is treated according to the order requirement with a veneer and painting process
Cut	The covered profile is cut internally to size per order
Assembly with glass	The covered profile, if required, is assembled with glass (door)
Purchase of components	Purchase of customized components
Finish	The aluminum hardware (hinges, door closers, etc.) is treated according to the order requirement with an anodizing or powder painting process
Assembly of components	The treated hardware is assembled
Purchase	The material is ordered and purchased from trusted sawmills
Processing	The material is cut and processed according to the order (door, panels, modules, etc.)
Purchase	Purchase of custom-made glass sheets
Processing	The glass sheet is processed according to the order requirement (tempering, silk-screen printing, gluing)
Quality check	The material is checked if everything OK
Packaging	Purchase of generic packaging material
Packaging	Material packaging
Shipping	Material is shipped by courier, by ship, by air, by road

3.6 DATABASE AND SOFTWARE

The SimaPro calculation software (SimaPro 9.4.0.2) and the selected databases: "ECOINVENT 3.8" were used to process the inventory and calculate the eco-profiles.

4 ENVIRONMENTAL PERFORMANCE

4.1 POTENTIAL ENVIRONMENTAL IMPACTS

Below are the results of the ecoprofile obtained from the analysis of the life cycle of the products subject to the environmental declaration, along the impact categories in compliance with UNI EN 15804.

Table 3: Distribution of the results of the impact assessment by environmental performance indicators with reference to the unit declared along the information modules investigated

IMPACT CATEGORY	UNIT	A1-A3	C1	C2	C3	C4	D
Climate change	kg CO2 eq	1.36E+02	0.00E+00	2.56E-01	8.28E-01	1.01E-01	-9.60E+01
Climate change - Fossil	kg CO2 eq	1.35E+02	0.00E+00	2.56E-01	6.03E-01	1.01E-01	-9.52E+01
Climate change - Biogenic	kg CO2 eq	9.41E-01	0.00E+00	6.76E-04	2,24E-01	1,13E-04	-6.69E-01
Climate change - Land use and LU change	kg CO2 eq	2,81E-01	0.00E+00	1.00E-04	5,46E-04	2,26E-05	-2.03E-01
Ozone depletion	kg CFC11 eq	7.93E-06	0.00E+00	5.91E-08	7,14E-08	4.98E-08	-6.04E-06
Acidification	mol H+ eq	9.07E-01	0.00E+00	1.04E-03	3.59E-03	9.87E-04	-6.65E-01
Eutrophication, freshwater***	kg P eq	3.25E-02	0.00E+00	1.65E-05	2,12E-04	5.74E-06	-2.47E-02
Eutrophication, marine	kg N eq	1.74E-01	0.00E+00	3,12E-04	1,28E-03	3.73E-04	-1.23E-01
Eutrophication, terrestrial	mol N eq	1.87E+00	0.00E+00	3,41E-03	1.07E-02	4.09E-03	-1.33E+00
Photochemical ozone formation	kg NMVOC eq	4.82E-01	0.00E+00	8.46E-04	2.55E-03	9.96E-04	-3.43E-01
Resource use, minerals and metals*	kg Sb eq	6.25E-04	0.00E+00	8.88E-07	1.75E-05	1.96E-07	-4.78E-04
Resource use, fossils*	MJ	1.44E+03	0.00E+00	3.78E+00	5.99E+00	3.21E+00	-9.85E+02
Water use*	m3 deprived	6.67E+01	0.00E+00	1,16E-02	8.31E-02	1.03E-02	-3.30E+01
Particulate matter	disease inc.	2.04E-05	0.00E+00	1.77E-08	4.95E-08	2,14E-08	-1,16E-05
Ionising radiation**	kBq U-235 eq	5.56E+00	0.00E+00	1.99E-02	8.15E-02	1.57E-02	-3.98E+00
Ecotoxicity, freshwater*	CTUe	3,11E+03	0.00E+00	3.01E+00	4.07E+01	1.80E+00	-2.34E+03
Human toxicity, non-cancer*	CTUh	2.45E-06	0.00E+00	3,15E-09	1.77E-08	8.44E-10	-1.83E-06
Human toxicity, cancer*	CTUh	1.82E-07	0.00E+00	9.76E-11	9,24E-10	4,12E-11	-1.38E-07
Land use*	Pt	9,11E+02	0.00E+00	2.65E+00	2.31E+01	7.24E+00	-6.64E+02

* The results of this environmental impact indicator must be used with caution as the uncertainties on these results are high or due to limited experience with this indicator (see UNI EN 15804:2019); ** This impact category deals primarily with the possible impact of low dose ionizing radiation on the human nuclear fuel cycle. It does not consider the effects due to possible nuclear accidents, occupational exposure or the disposal of radioactive waste in underground facilities. Potential ionizing radiation from soil, radon and some building materials is also not measured by this indicator; *** the results in kg PO4 eq. is obtained by multiplying the results in kg P eq. with a factor of 3.07

Table 4: Distribution of the results of the use of resources with reference to the unit declared along the information modules investigated

PARAMETERS		UNIT	A1-A3	C1	C2	C3	C4	D
Primary energy resources - Renewables	Used as an energy carrier	MJ	8.82E+01	0.00E+00	5,44E-02	7.04E-01	6,63E-02	-1.46E+02
	Used as raw materials	MJ	1.08E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ	1.96E+02	0.00E+00	5,44E-02	7.04E-01	6,63E-02	-1.46E+02
Primary energy resources - Non-renewable	Used as an energy carrier	MJ	1.43E+03	0.00E+00	3.86E+00	7.11E+00	3.26E+00	-1.03E+03
	Used as raw materials	MJ	8.23E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ	1.51E+03	0.00E+00	3.86E+00	7.11E+00	3.26E+00	-1.03E+03
Secondary material		kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels		MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels		MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water		m^3	1.14E+01	0.00E+00	4.03E-04	3.47E-03	3.91E-03	-4.56E+00

Table 5: Distribution of waste with reference to the unit declared along the information forms investigated.

PARAMETERS	UNIT	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed of	kg	4.33E-03	0.00E+00	1.01E-05	1.86E-05	3,61E-06	-3.32E-03
Non-hazardous waste disposed of	kg	2.28E+01	0.00E+00	1.99E-01	4,66E-01	2.37E+01	-1.74E+01
Radioactive waste disposed of	kg	7.99E-03	0.00E+00	2,61E-05	4,46E-05	2,19E-05	-4.25E-03

Table 6: Distribution of output flows with reference to the unit declared along the information modules investigated.

PARAMETERS	UNIT	A1-A3	C1	C2	C3	C4	D
CRU	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WED	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 8: The indicator includes all greenhouse gases included in the total GWP but excludes absorption and emissions of biogenic carbon dioxide and biogenic carbon stored in the product. This indicator is therefore equal to the GWP indicator originally defined in EN 15804: 2012 + A1: 2013

Potential environmental impacts – additional indicator	UNIT	A1-A3	C1	C2	C3	C4	D
GWP - GHG	Kg CO2 eq	1.32E+02	0.00E+00	2.53E-01	7.65E-01	9.93E-02	-9.34E+01

4 OTHER ENVIRONMENTAL INFORMATION

None of the substances present in the current version of the "Candidate List" European regulation 1907/2006/EC (REACH Registration, Evaluation, Authorization and Restriction of Chemicals) is present in concentrations higher than 0.1% by weight in the marketed articles.

5 REFERENCES

PCR CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES, PCR 2019:14, v 1.3.2,

C-PCR-007 VERSION: 2020-04-09

UNI EN 15804 – Sustainability of constructions - Environmental product declarations - Framework rules for development by product category.

UNI EN ISO 14025:2010 – Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

UNI EN ISO 14040:2021 – Environmental management - Life cycle assessment - Principles and reference framework.

UNI EN ISO 14044:2021 – Environmental management - Life cycle assessment - Requirements and guidelines.

GENERAL PROGRAM INSTRUCTIONS FOR THE INTERNATIONAL EPD® SYSTEM VERSION

Report LCA_Adotta_REV2

PROGRAM INFORMATION

Plan:	The International EPD ® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product category rules (PCR): PCR CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES, PCR 2019:14, v 1.3.2, C-PCR-007 VERSION: 2020-04-09
EPD REGISTRATION NUMBER: SP-13381
The PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025 ☒ External ☐ Internal ☐ EPD process certification ☒ EPD verification
Third party verifier: *DNV Business Assurance Italy Srl*
Accredited or approved by: Accredia
Procedure for follow-up of data during EPD validity involves third party verifier: XYes ☐No

The EPD owner has sole ownership and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

EPD owner	**ADOTTA ITALIA SRL**		**https://www.adottaitalia.com/it/**
Technical support	Document developed by **EcamRicert Srl**		**https://ecamricert.com/**