Parklex®

ENVIRONMENTAL PRODUCT DECLARATION

HPL boards with natural wood finish

Facade and Wet Internal

PCR 2012:01 Construction products and construction services
EPD comply with EN 15804 standard
Registration number: S-P-00975
Geographical validity: international
Review date : 26-10-2016
Validity: 26-10-2021
CPC: 314

EPD®

THE INTERNATIONAL EPD® SYSTEM

General information

Programme holder

International EPD System-EPD International AB

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Declaration number

S-P-00975

This declaration is based on the Product Category Rules

PCR 2012:01 Construction products and construction services.V2.01

CPC: 314

Issue date	Valid until
26/10/2016	26/10/2021

Holder of the declaration

Parklex

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Declared product/unit

1m^2 of HPL panel

Area of applicability

The life cycle analysis is based on data from Parklex production in 2015.

Geographic validity

International

1. Description of the company and the product

Parklex is a company dedicated to the manufacture of HPL boards with natural wood finish for external (Facade) and internal (Wet Internal) cladding .

Our first determination is to provide the world of architecture with exclusive materials that will enable architects to design warm, beautiful and comfortable spaces that improve the quality of life of their users. Efficient buildings dressed in the elegance of natural wood.

Environmental Management System Certificate	UNE-EN ISO 14001 GA-2011/0535
Certificate of Conformity of the Forestry Products Chain of Custody	PEFC/14-35-00042

Summary of different certificates of Parklex

The company has acquired a commitment to nature by promoting a respectful and sustainable management with the environment, and particularly with the sustainable exploitation of forests.

The panels are formed of a high density bakelite core, coated with a natural wood treated with synthetic resin.

In the case of Facade an additional film improves the durability of the panels, conferring anti-adherent properties protecting against of solar radiation, atmospheric agents, dirt and chemical attacks.

Both product families are produced in two different ranges in relation to their fire behaviour, standard (S) and fireproof (F) for the improved fire reaction class.

Technical data

Characteristics	Standard	Unit	Results
	Dimensional tolerances		
Thickness	EN 438	mm	Nominal ± 0,5
Flatness	EN 438	mm/m	≤ 5
Length and width	EN 438	mm	+ 10/0
Edge straightness	EN 438	mm/m	≤ 1,5
Edge squareness	EN 438	mm/m	≤ 1,5
	Physical properties		
Dimensional stability	EN 438	%max	0,3/0,6
Resistance to impact	EN 438	Height (mm)	≥ 1.800
Tensile strength	EN ISO 527	MPa	≥ 60
Graffiti resistance	ASTM D 6578:2000	Cleanability level	Permanent level 4 Spray level 4 Wax level 1 Ink level 2
	Weather resistance		
Resistance to UV light	EN 438	Grey scale	≥ 3
		Aspect	≥ 4
Resistance to artificial weathering	EN 438	Grey scale	≥ 3
		Aspect	≥ 4

Dimensional characteristics of the product

Length and width

2440 mm x 1220 mm

Thickness

6, 8, 10, 12, 14, 16, 18, 20, 22 mm

Weight by unit surface area

Thickness (mm)	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**
kg/m²	8,10	11,09	12,95	16,20	18,90	21,60	24,30	27,00	29,70

2. LCA information

2.1 Functional unit

The declared unit to analyse the life cycle is 1m^2 of board.

EXTERNAL USE BOARDS	INTERNAL USE BOARDS
FACADE S 8mm	Wet Internal S 8mm
FACADE S 10mm	Wet Internal S 10mm
FACADE F 8mm	Wet Internal F 8mm
FACADE F 10mm	Wet Internal F 10mm

2.2 Product composition

Raw materials 8mm

MATERIALS	SUBSTANCES	FACADE S		FACADE F		Wet internal S		Wet Internal F	
		Weight		Weight		Weight		Weight	
		%	kg	%	kg	%	kg	%	kg
Plastics	Polymethyl Methacrylate	0.54	0.06	0.54	0.06	-	-	-	-
	Polyvinylidene fluoride	0.09	0.01	0.09	0.01	-	-	-	-
Synthetic resins	Phenol/formaldehyde resin	34.37	3.82	6.48	0.72	34.59	3.82	6.52	0.72
	Fire-proof resin	-	-	29.25	3.25	-	-	29.43	3.25
	Melamine resin	3.24	0.36	3.24	0.36	3.26	0.36	3.26	0.36
Wood veneer	Wood	5.59	0.62	5.59	0.62	5.62	0.62	5.62	0.62
Paper	Kraft paper	54.08	6.01	52.73	5.86	54.42	6.01	53.07	5.86
	Bleached paper	2.09	0.23	2.09	0.23	2.10	0.23	2.10	0.23
	Total	**100.00**	**11.11**	**100.00**	**11.11**	**100.00**	**11.04**	**100.00**	**11.04**

Facade and Wet internal 8mm standard and fire-proof raw materials

Raw materials 10mm

MATERIALS	SUBSTANCES	FACADE S		FACADE F		Wet internal S		Wet Internal F	
		Weight		Weight		Weight		Weight	
		%	kg	%	kg	%	kg	%	kg
Plastics	Polymethyl methacrylate	0,46	0,06	0,45	0,06	-	-	-	-
	Polyvinylidene fluoride	0,08	0,01	0,08	0,01	-	-	-	-
Synthetic resins	Phenol/formaldehyde resin	29,49	3,82	9,03	1,20	29,65	3,82	9,08	1,20
	Fire-proof resin	-	-	27,38	3,64	-	-	27,53	3,64
	Melamine resin	2,78	0,36	2,71	0,36	2,79	0,36	2,72	0,36
Wood veneer	Wood	4,79	0,62	4,67	0,62	4,82	0,62	4,70	0,62
Paper	Kraft paper	60,60	7,85	53,94	7,17	60,93	7,85	54,22	7,17
	Bleached paper	1,79	0,23	1,75	0,23	1,80	0,23	1,75	0,23
	Total	**100,00**	**12,95**	**100,00**	**13,29**	**100,00**	**12,88**	**100,00**	**13,22**

Facade and Wet internal 10mm standard and fire-proof raw materials

* Approximately 10% of the end product is made up of recycled raw materials. The recycled raw materials are kraft paper and polymethyl methacrylate.
* Any hazardous substance listed in the Candidate list of substances of Very High Concern (SVHC) has been used in a percentage higher than 0,1% of the weight of the product.
* During the life cycle analysis 99% of the raw materials of the product were considered.

2.3 Auxiliary materials

Product packaging includes different layers of plastic films, a recovered panel, wooden wedges and a polyester strip.

Panels that do not meet quality standards are reused as recovered panels for packaging.

2.4 Production process and system limits

2.4.1 System limits

The Environmental Product Declaration (EPD) is a cradle-to-gate analysis, bearing in mind the raw material extraction and energy (A1) generation processes, transport (A2) and manufacturing (A3).

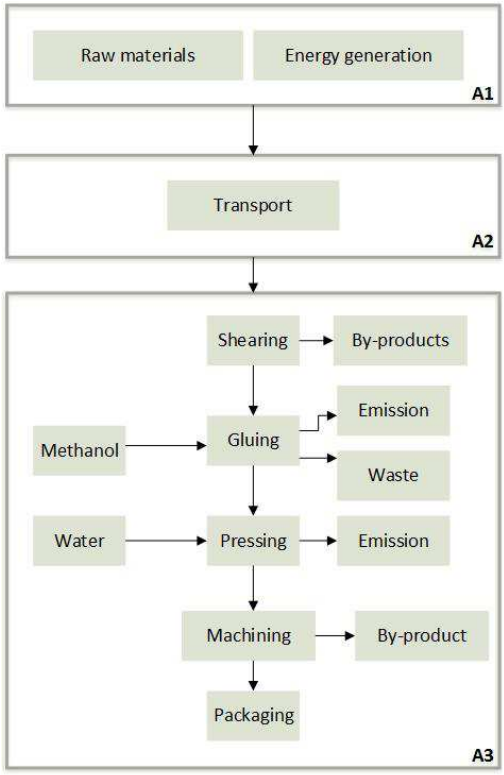


Diagram of processes for each LCA stage

2.4.2 Production

Product manufacturing takes place over 5 steps:

1. Raw material reception and selection. In some cases, shearing is necessary to achieve appropriate dimensions.

2. Preparing packages, joining different layers of film and paper to be pressed later on.

3. Pressing.

4. Machining the boards, adjusting them to client requirements with an automatic saw.

5. Packaging the end product with the different protective layers required and final product shipment to the client.

2.5 Cutting criteria

All energy and material flows greater than 1% were considered in the study.

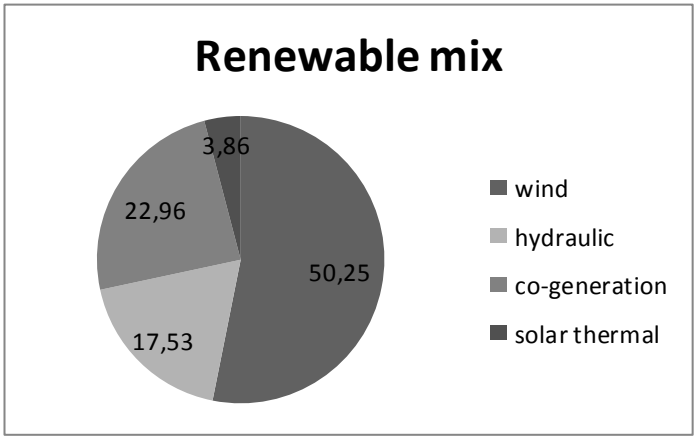
2.6 Data source and quality

The energy that Parklex uses comes from a 100%-renewable source.

The mix of renewable energy used to produce certain raw materials and the in-factory production process is based on data obtained from the Spanish electric network in the year 2015.

The production data collected by the company are updated on a yearly basis.

For the simulation, data from the year 2015 were used.



Renewable electricity grid (source: REE)

2.7 Assignation rules

The different flows affecting production were equally assigned per m^2 of board produced

2.8 Evaluation methodology

For the life cycle analysis, the Simapro 8.1 software was used, along with the Ecoinvent 3.1 database.

The methodology used to perform calculations was CML-IA version 4.2(2013).

Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
Raw materials	Transport	Manufacturing	Transport	Construct instalation	Use	Maintenace	Repair	Replacement	Refurbishment	Operational energy use	Operational wáter use	De-construction 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														

Stages of the analysed product's life cycle: raw materials, transport and manufacture.

3 Environmental impact evaluation

3.1 Environmental impact

FACADE S

		8mm				10mm			
Impact category	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Abiotic depletion	kg Sb eq	3,46E-05	1,57E-09	1,84E-05	5,30E-05	4,72E-05	1,57E-09	1,84E-05	6,56E-05
Abiotic depletion (fossil fuels)	MJ	4,54E+02	4,86E+00	1,11E+01	4,70E+02	5,77E+02	4,87E+00	1,11E+01	5,93E+02
Global warming (GWP100a)	kg CO_2 eq	1,90E+01	3,19E-01	6,85E-01	2,00E+01	2,38E+01	3,19E-01	6,85E-01	2,48E+01
Ozone layer depletion (ODP)	kg CFC-11 eq	1,54E-06	5,90E-08	4,45E-08	1,64E-06	1,85E-06	5,91E-08	4,45E-08	1,95E-06
Photochemical oxidation	kg C_2H_4 eq	1,38E-02	3,61E-05	9,31E-04	1,48E-02	1,81E-02	3,62E-05	9,31E-04	1,91E-02
Acidification	kg SO_2 eq	1,11E-01	5,34E-04	9,57E-03	1,21E-01	1,43E-01	5,35E-04	9,57E-03	1,53E-01
Eutrophication	kg $PO_4^{=}$ eq	2,23E-02	6,15E-05	1,88E-03	2,43E-02	2,96E-02	6,16E-05	1,88E-03	3,16E-02

Environmental indicators obtained by using the CML baseline method

FACADE F

		8mm				10mm			
Impact category	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Abiotic depletion	kg Sb eq	3,47E-05	1,57E-09	1,84E-05	5,31E-05	4,25E-05	1,57E-09	1,84E-05	6,09E-05
Abiotic depletion (fossil fuels)	MJ	4,99E+02	4,86E+00	1,11E+01	5,15E+02	5,81E+02	4,87E+00	1,11E+01	5,97E+02
Global warming (GWP100a)	kg CO_2 eq	2,08E+01	3,19E-01	6,85E-01	2,18E+01	2,40E+01	3,19E-01	6,85E-01	2,50E+01
Ozone layer depletion (ODP)	kg CFC-11 eq	1,76E-06	5,90E-08	4,45E-08	1,87E-06	1,98E-06	5,91E-08	4,45E-08	2,08E-06
Photochemical oxidation	kg C_2H_4 eq	1,51E-02	3,61E-05	9,31E-04	1,60E-02	1,79E-02	3,62E-05	9,31E-04	1,88E-02
Acidification	kg SO_2 eq	1,20E-01	5,34E-04	9,57E-03	1,31E-01	1,41E-01	5,35E-04	9,57E-03	1,51E-01
Eutrophication	kg $PO_4^{=}$ eq	2,30E-02	6,15E-05	1,88E-03	2,50E-02	2,76E-02	6,16E-05	1,88E-03	2,96E-02

Environmental indicators obtained by using the CML baseline method

WET INTERNAL S

		8mm				10mm			
Impact category	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Abiotic depletion	kg Sb eq	3,45E-05	1,50E-09	1,74E-05	5,19E-05	4,64E-05	1,81E-09	1,74E-05	6,38E-05
Abiotic depletion (fossil fuels)	MJ	4,29E+02	4,63E+00	6,91E+00	4,41E+02	5,40E+02	5,58E+00	6,91E+00	5,52E+02
Global warming (GWP100a)	kg CO_2 eq	1,88E+01	3,04E-01	5,52E-01	1,97E+01	2,33E+01	3,66E-01	5,52E-01	2,42E+01
Ozone layer depletion (ODP)	kg CFC-11 eq	1,68E-06	5,62E-08	4,62E-08	1,78E-06	2,02E-06	6,78E-08	4,62E-08	2,13E-06
Photochemical oxidation	kg C_2H_4 eq	1,47E-02	3,45E-05	3,00E-04	1,50E-02	1,90E-02	4,15E-05	3,00E-04	1,94E-02
Acidification	kg SO_2 eq	1,14E-01	5,10E-04	8,90E-03	1,24E-01	1,46E-01	6,14E-04	8,90E-03	1,55E-01
Eutrophication	kg $PO_4^{=}$ eq	2,27E-02	5,86E-05	1,84E-03	2,46E-02	2,98E-02	7,07E-05	1,84E-03	3,17E-02

Environmental indicators obtained by using the CML baseline method

WET INTERNAL F

		8mm				10mm			
Impact category	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Abiotic depletion	kg Sb eq	3,39E-05	1,45E-09	1,74E-05	5,13E-05	4,17E-05	1,62E-09	1,74E-05	5,91E-05
Abiotic depletion (fossil fuels)	MJ	4,71E+02	4,48E+00	6,91E+00	4,82E+02	5,49E+02	5,00E+00	6,91E+00	5,61E+02
Global warming (GWP100a)	kg CO_2 eq	2,08E+01	2,94E-01	5,52E-01	2,16E+01	2,40E+01	3,28E-01	5,52E-01	2,49E+01
Ozone layer depletion (ODP)	kg CFC-11 eq	1,85E-06	5,44E-08	4,62E-08	1,95E-06	2,10E-06	6,07E-08	4,62E-08	2,20E-06
Photochemical oxidation	kg C_2H_4 eq	1,60E-02	3,34E-05	3,00E-04	1,63E-02	1,90E-02	3,72E-05	3,00E-04	1,93E-02
Acidification	kg SO_2 eq	1,29E-01	4,93E-04	8,90E-03	1,38E-01	1,52E-01	5,50E-04	8,90E-03	1,61E-01
Eutrophication	kg $PO_4^{=}$ eq	2,35E-02	5,67E-05	1,84E-03	2,53E-02	2,82E-02	6,33E-05	1,84E-03	3,01E-02

Environmental indicators obtained by using the CML baseline method

3.2 Use of resources

FACADE

	S		F	
	8mm	10mm	8mm	10mm
	A_1-A_2-A_3	A_1-A_2-A_3	A_1-A_2-A_3	A_1-A_2-A_3
Use of renewable primary energy (MJ)	2,69E+02	3,46E+02	2,70E+02	3,18E+02
Use of renewable primary energy resources as raw materials (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (MJ)	2,69E+02	3,46E+02	2,70E+02	3,18E+02
Use of non-renewable primary energy (MJ)	5,01E+02	1,76E+01	5,49E+02	6,37E+02
Use of non-renewable primary energy resources used as raw materials (MJ)	4,15E+01	4,15E+01	4,15E+01	4,15E+01
Total use of non-renewable primary energy resources (MJ)	5,43E+02	5,91E+01	5,90E+02	6,78E+02
Use of secondary material (kg)	1,22E+01	1,22E+01	1,26E+01	1,29E+01
Use of renewable secondary fuels (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (m3)	3,16E+02	4,14E+02	3,34E+02	3,97E+02

Use of resources for each Facade unit declared

WET INTERNAL

	S		F	
	8mm	10mm	8mm	10mm
	A_1-A_2-A_3	A_1-A_2-A_3	A_1-A_2-A_3	A_1-A_2-A_3
Use of renewable primary energy (MJ)	3,28E+02	4,22E+02	2,62E+02	3,10E+02
Use of renewable primary energy resources as raw materials (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (MJ)	3,28E+02	4,22E+02	2,62E+02	3,10E+02
Use of non-renewable primary energy (MJ)	4,71E+02	5,90E+02	5,11E+02	5,95E+02
Use of non-renewable primary energy resources used as raw materials (MJ)	4,15E+01	4,15E+01	4,15E+01	4,15E+01
Total use of non-renewable primary energy resources (MJ)	5,12E+02	6,31E+02	5,53E+02	6,36E+02
Use of secondary material (kg)	1,21E+01	1,21E+01	1,26E+01	1,28E+01
Use of renewable secondary fuels (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (m3)	3,28E+02	4,22E+02	3,41E+02	4,04E+02

Use of resources for each Wet internal unit declared

3.3 Other environmental information

FACADE S

		8mm				10mm			
Parameter	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Hazardous waste	kg	2,30E-04	8,38E-07	2,29E-05	2,54E-04	2,63E-04	1,01E-06	2,29E-05	2,87E-04
Non hazardous waste	kg	5,08E-01	2,98E-04	4,57E-01	9,64E-01	6,57E-01	3,59E-04	4,57E-01	1,11E+00
Radioactive waste	kg	5,92E-04	3,18E-05	2,15E-05	6,46E-04	7,35E-04	3,83E-05	2,15E-05	7,95E-04

Waste types obtained with the EDIP 2003 method

FACADE F

		8mm				10mm			
Parameter	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Hazardous waste	kg	2,39E-04	8,11E-07	2,29E-05	2,62E-04	2,61E-04	9,05E-07	2,29E-05	2,85E-04
Non hazardous waste	kg	5,25E-01	2,88E-04	4,57E-01	9,82E-01	6,26E-01	3,21E-04	4,57E-01	1,08E+00
Radioactive waste	kg	6,75E-04	3,08E-05	2,15E-05	7,27E-04	7,79E-04	3,44E-05	2,15E-05	8,35E-04

Waste types obtained with the EDIP 2003 method

WET INTERNAL S

		8mm				10mm			
Parameter	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Hazardous waste	kg	2,39E-04	8,79E-07	2,33E-05	2,63E-04	2,76E-04	8,81E-07	2,33E-05	3,00E-04
Non hazardous waste	kg	4,87E-01	3,12E-04	4,61E-01	9,48E-01	6,32E-01	3,13E-04	4,61E-01	1,09E+00
Radioactive waste	kg	6,06E-04	3,34E-05	2,42E-05	6,63E-04	7,59E-04	3,34E-05	2,42E-05	8,17E-04

Waste types obtained with the EDIP 2003 method

WET INTERNAL F

		8mm				10mm			
Parameter	**Unit**	**A1**	**A2**	**A3**	**Total**	**A1**	**A2**	**A3**	**Total**
Hazardous waste	kg	2,52E-04	8,79E-07	2,33E-05	2,76E-04	2,76E-04	8,81E-07	2,33E-05	3,00E-04
Non hazardous waste	kg	7,21E-04	3,34E-05	2,42E-05	7,79E-04	8,31E-04	3,34E-05	2,42E-05	8,88E-04
Radioactive waste	kg	5,11E-01	3,12E-04	4,61E-01	9,73E-01	6,04E-01	3,13E-04	4,61E-01	1,07E+00

Waste types obtained with the EDIP 2003 method

4. Significant changes from the previous version

The current version of the Environmental Product Declaration was prepared in accordance with EN 15804 standard.

5. Information about the organization and verifier

CEN standard EN 15804 served as the core PCR	
PCR:	2012:01 Construction materials and construction services. V2.01
PCR review was conducted by:	Chair: Massimo Marino
Independent verification of the declaration and data, according to ISO 14025:	☐ EPD process certification(internal) ☒ EPD verification (external)
Third party verifier:	Tecnalia R&I Certificacion, accreditation nº 125/C-PR283 by ENAC Elisabet Amat eli.amat@tecnaliacertificacion.com
Accredited or approved by:	International EPD System-EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden www.environdec.com

The verifier and programme operator are not legally liable for the content of this product environmental declaration.

EPDs from different products cannot be comparable if they do not meet with standard EN 15804.

Product declarations in one same product category, but with different verification programmes, cannot be compared to one another.

6. References

- ISO 14040:2006. Environmental management. Life cycle assessment. Principles and framework.
- ISO 14044:2006. Environmental management. Life cycle assessment. Requirements and guidelines.
- PCR: 2012:01 Construction materials and construction services
- UNE-EN 15804:2012 Sustainability of construction works. Environmental product declarations.
- UNE-EN ISO 14025:2010. Environmental labels and declarations. Type III declarations. Principles and procedures.