

DECLARACIÓN AMBIENTAL DE PRODUCTO ENVIRONMENTAL PRODUCT DECLARATION

DAPcons®. 100.110

According to ISO 14025
and UNE EN 15804 + A1



COL·LEGI D'APARELLADORS,
ARQUITECTES TÈCNICS
I ENGINYERS D'EDIFICACIÓ
DE BARCELONA

Product

MULTI-WALL CELLULAR POLYCARBONATE PANEL

Owner



Product description

The multi-wall cellular polycarbonate panel product is a modular system made up of coextruded polycarbonate panels and accessories including as well specific products from the ARCOPLUS AISLUX range.

PCR Reference

RCP 100 Productos de Construcción en general versión 2 - 29.02.2016

Production plant

DOTT. GALLINA S.R.L.
Strada Carignano 104
10040 La Loggia (Torino) Italia



Validity

From: 12/01/2022 To: 12/01/2027

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ENVIRONMENTAL PRODUCT DECLARATION

MULTI-WALL CELLULAR POLYCARBONATE PANEL

EXECUTIVE SUMMARY

PROGRAMME OPERATOR DAPconstrucción® Environmental product declarations of construction sector www.csontenible.net	
Administrator of Programme Operator Col·legi d'Aparelladors, Arquitectes Tècnics de Barcelona i Enginyers de l'Edificació (CAATEEB) Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat	
Owner of the Declaration AISLUX S.A. Polígono La Catalana. Ctra de Vicalvaro a estación O´Donell, 5 - 28032 Madrid	
Declaration carried out by: LEADER ENGINEERING AND CONSULTING S.L.U. C/ Entença 227 - 231, Local 1º - 08029 Barcelona	
Declaration Number DAPcons@.100.110	
Declared Product Multi-wall cellular polycarbonate panel	
Product description Multi-wall cellular polycarbonate panel product is a modular system made up of coextruded polycarbonate panels and accessories including as well specific products from the ARCOPLUS AISLUX range.	
Registration date 12/01/2022	
Validity This verified declaration authorises the owner to use the DAPcons® eco-label logo. The declaration is applicable exclusively to the product in question and for five years as of the date of registration. The responsible for the information contained in this declaration is: AISLUX S.A.	
Endorsed by CAATEEB Celestí Ventura Cisternas, President of the CAATEEB	Endorsed by authorised verifier Ferran Pérez by ITeC. Verifier accredited by the DAPcons® Program
This environmental product declaration complies with standards ISO 14025 and UNE EN 15804 + A1 and contains information of an environmental nature about the life cycle of Multi-wall cellular polycarbonate panel manufactured by DOTT. GALLINA S.L.R at its plant in Italy. This declaration is based on the document RCP100 Productos de Construcción en general, version 2 - 29.02.2016. The environmental product declaration (DAPcons®) may not be comparable to another EPD if it is not based on the UNE EN 15804 + A1	



ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND APPLICATION

Multi-wall cellular polycarbonate panel is a modular system made up of cellular polycarbonate coextruded panels and accessories and includes specific ARCOPLUS AISLUX products. The design is suitable for use as skylights in covers. Stands out for its lightness, light transmission, isolation and ease of installation (easy to install). It has a great resistance to ultraviolet rays, hail and any kind of impact.

Studied Products and included in the DAP:

Universal 30, Universal 40, Universal 50, Polivalente 900, Polivalente 1000, Polivalente 1100 and Complet 573

Three reference models have been adopted in this DAP. For each of them, their results are representative for other models in the range since the difference between the impacts of their respective life cycles is less than 10%.

Reference models adopted:

- Universal 30.
- Universal 40.
- Universal 50.



Technical characteristics of cellular polycarbonate of the products

ARCOPLUS AISLUX	Universal 30	Universal 40	Universal 50	Polivalente 900	Polivalente 1000	Polivalente 1100	Complet 573
COMPOSITION	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
THICKNESS	30 mm	40 mm	50 mm	32 mm	30 mm	30 mm	30 mm
STRUCTURE	7 walls	7 walls	7 walls	7 walls	7 walls	6 walls	7 walls
EFFECTIVE MODULAR WIDTH	1.000-1.100-1.150 mm	1.000-1.100-1.150mm	1.000-1.100-1.150mm	900 mm	1.000 mm	1.100 mm	573 mm
PANEL LENGTH	No limits	No limits	No limits	No limits	No limits	No limits	No limits
DENSITY (ISO 1183)	1.200 Kg/m ³	1.200 Kg/m ³	1.200 Kg/m ³	1.200 Kg/m ³	1.200 Kg/m ³	1.200 Kg/m ³	1.200 Kg/m ³
THERMAL INSULATION U	1,4 W/m ² K	1,2 W/m ² K	1,1 W/m ² K	1,3 W/m ² K	1,3 W/m ² K	1,6 W/m ² K	1,2 W/m ² K
FIRE REACTION (UNE EN 13501-1)	Euroclass B s1 d0	Euroclass B s1 d0	Euroclass B s1 d0	Euroclass B s1 d0	Euroclass B s1 d0	Euroclass B s1 d0	Euroclass B s1 d0
ACOUSTIC INSULATION R _w (ISO 717-1)	20 dB	21 dB	21 dB	21 dB	21 dB	21 dB	21 dB
LINEAR THERMAL EXPANSION (EN 16153)	0,065mm/m°C	0,065mm/m°C	0,065mm/m°C	0,065mm/m°C	0,065mm/m°C	0,065mm/m°C	0,065mm/m°C
UV RAYS PROTECTION	Coextrusion	Coextrusion	Coextrusion	Coextrusion	Coextrusion	Coextrusion	Coextrusion
USEFUL LIFE OF CELLULAR POLYCARBONATE	25 years	25 years	25 years	25 years	25 years	25 years	25 years
REPRESENTATIVE MODEL	Universal 30	Universal 40	Universal 50	Universal 40	Universal 30	Universal 30	Universal 30

2. LIFE CYCLE PHASES DESCRIPTION

2.1. Manufacture (A1, A2 and A3)

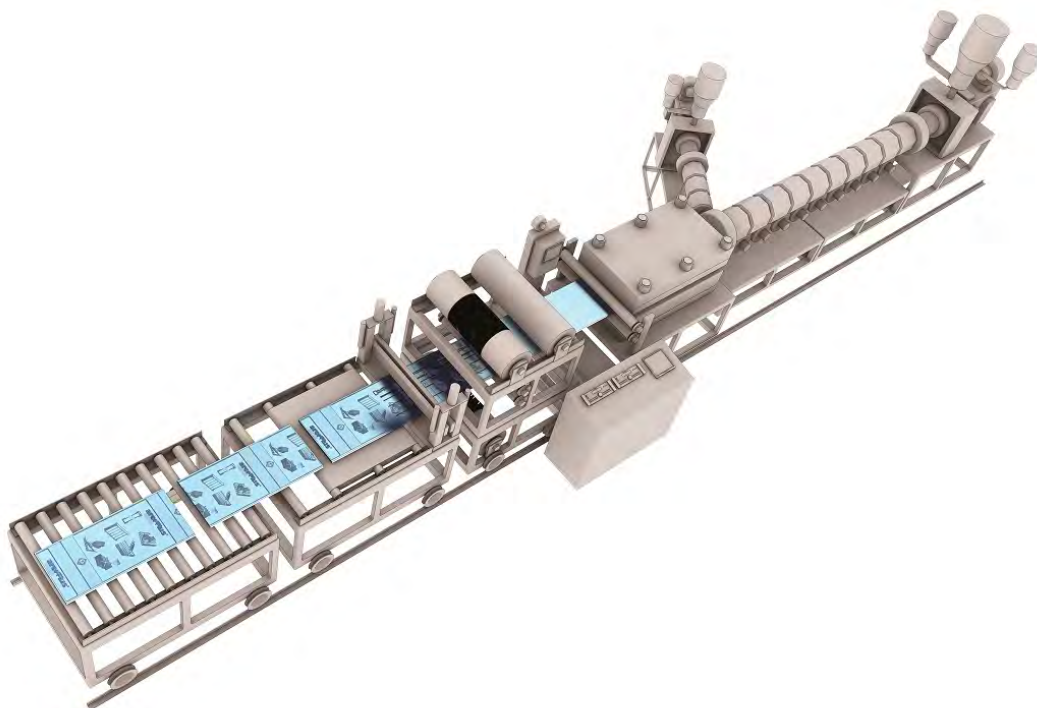
Raw materials (A1 and A2)

The A1 module includes the raw materials supply. The cellular polycarbonate is produced in the DOTT. GALLINA S.R.L. factory in La Loggia (Torino-Italy). To produce this product it has been considered the following components: granulated polycarbonate, pigments, standard additives and polyethylene.

The A2 module includes raw materials transportation to the DOTT. GALLINA S.R.L. factory in La Loggia (Torino-Italy). It has been provided the distance and kind of lorry for each raw.

Manufacturing (A3)

The multi-wall cellular polycarbonate panel is manufactured by an extrusion process which begins with the granulated polycarbonate in a hopper. A heating camera softens thermoplastic polymers which made them flow through an helical endless screw in a continuous process until a discharg nozzle where a matrix shapes them. A second extrusion process, coupled to the principal, ensures the coextrusion of ultraviolet protection of its external face. Later, once the panel exits the matrix, a calibration system gives it the final dimension and at the same time cools it reaching the solidity and stability desired. Finally, a protection film is applied and the panel is cut at the demanded measurement through a hot shears knife. To close the alveolus it is used microperforated aluminium tape. For packaging it is used paperboard, polyethylene and wood pallets.



2.2. Construction (A4 and A5)

Product transport to the building site (A4)

The product is transported from the factory DOTT. GALLINA in La Loggia (Torino-Italy) to the building site where it will be installed.

Table 1. Transport scenarios of product to the building site

Destination	Type of transport	Percentage (%)	Average Km
Spain	Lorry EURO VI 16 Ton - 32 Ton Diesel Consumption 25 L/100 Km	95	1.300
Europe	Lorry EURO VI 16 Ton - 32 Ton Diesel Consumption 25 L/100 Km	5	2.030
Rest of the world			
		Total 100%	

Construction and instalation process (A5)

The product will be installed manually. It includes stainless steel screws, aluminium plates, rubbers, pre-lacquered steel and the energy that will be needed for its installation. The management of product losses(1,5%) and packaging waste (100%) generated during the process are taken into account.

Product losses: polycarbonate (Plastic Europe 2020): 42% recycling, 19% energy recovery and 39% landfill.

Packaging waste: plastic waste (Plastic Europe 2020): 51% recycling, 15% energy recovery and 34% landfill; paperboard (it is considered like plastic waste); wood: 100% recycling.

It is also considered the transport: 50 Km by lorry EURO VI diesel.

2.3. Product use (B1-B7)

It has been studied that there is no product impact in the modules B1-USES, B2-MAINTENANCE, B3-REPAIR, B5-REHABILITATION, B6-OPERATIONAL ENERGY USES and B7-OPERATIONAL WATER USES during the 50 years of the reference period.

B4-SUBSTITUTION. It will be necessary one substitution during the 50 years of the reference period.

2.4. End-of-life (C1-C4)

C1-DECONSTRUCTION AND DEMOLITION: Once ended the product life, it will be removed either as a substitution, rehabilitation or demolition of the building. If it was a substitution, the desinstallation impacts would be the same as the installation ones. If it was a rehabilitation or demolition of the building, the desinstallation impacts are minimum.

C2-TRANSPORTATION: All waste generated by the end of the product life will be transported by lorry EURO VI for an estimated distance of 50 Km.

C3-WASTE MANAGEMENT FOR REUSE, RECOVERY AND RECYCLING:

- Recycling: 42% polycarbonate (Plastic Europe 2020), 95% aluminium (European Aluminium Association), 100% stainless steel and 100% pre-lacquered steel.

C4-FINAL DISPOSAL:

- Controlled landfill: 39% polycarbonate (Plastic Europe 2020), 5% aluminium (European Aluminium Association) and 100% rubbers.

2.5. Benefits and loads beyond the system boundary (D)

It has been taken into account the environmental burdens and benefits generated by the recycling and energy recovery of packaging waste produced during the installation stage.

It has been taken into account the environmental burdens and benefits generated by the recycling and energy recovery of cellular polycarbonate and accessories waste during the stages of installation, use and end of product life.

3. LIFE CYCLE ASSESSEMENT

This statement of life cycle assesment is based on the ISO 14040 and ISO 14044-2006 norms and they meet the requirements of the UNE-EN 15804:2012 +A1 2014 norm and Product Category Rules RCP 100 - General Building Products 2-29.02.2016 from DAPconstruction and it is the type "from the cradle to the grave", that is, it covers all stages until the end of the product life. It has been used the software LCA Simapro 9.2 with the impact model CML IA 2016 version 4.7 and it has been used specific data from DOTT. GALLINA S.R.L. factory in La Loggia (Torino-Italy) corresponding to 2019 for the inventory of the manufacturing stage. For the rest of stages it has been used data given by AISLUX S.A. and generic data from the database Ecoinvent version 3.5 2018 with great international prestige.

3.1. Functional unit

The functional unit is 1 m2 of translucent multi-wall cellular polycarbonate cladding installed on a building which will have 50 years of useful life in a geographical and technological environment in Europe 2019.

3.2. System boundary

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction – Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy use	Operational water use	De-construction	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	x	x	x	x	x	x	x	x	x	x	x	x	x	x

X = Included in LCA MND = Module Not Declared

3.3. Data analysis for the life cycle (ACV)

Table 3. Indicators of the environmental impact

ARCOPLUS UNIVERSAL 1100 30 Results per m² of product

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Abiotic depletion	1.50E-04	kg Sb eq	1.25E-05	8.37%	3.25E-06	2.17%	1.29E-04	86.14%	4.79E-06	3.20%	0.00E+00	1.25E-07	0.08%	4.04E-08	0.03%	9.41E-09	0.01%	3.58E-06
Abiotic depletion (fossil fuels)	7.16E+02	MJ	3.70E+02	51.78%	1.61E+01	2.26%	5.25E+01	7.33%	2.75E+02	38.46%	0.00E+00	6.20E-01	0.09%	3.32E-01	0.05%	2.84E-01	0.04%	4.94E+00
Global warming (GWP100a)	6.56E+01	kg CO2 eq	3.22E+01	49.06%	1.06E+00	1.62%	5.01E+00	7.64%	2.57E+01	39.18%	0.00E+00	4.09E-02	0.06%	1.58E+00	2.41%	8.66E-03	0.01%	2.76E-01
Ozone layer depletion (ODP)	1.04E-06	kg CFC-11 eq	5.11E-07	49.28%	1.97E-07	18.96%	2.64E-07	25.46%	5.03E-08	4.85%	0.00E+00	7.55E-09	0.73%	3.96E-09	0.38%	3.47E-09	0.34%	5.58E-07
Photochemical oxidation	1.22E-02	kg C2H4 eq	6.19E-03	50.66%	1.62E-04	1.32%	1.71E-03	13.97%	4.15E-03	33.92%	0.00E+00	6.22E-06	0.05%	5.76E-06	0.05%	2.44E-06	0.02%	-6.06E-04
Acidification	2.09E-01	kg SO2 eq	1.06E-01	50.56%	2.54E-03	1.21%	2.58E-02	12.30%	7.48E-02	35.72%	0.00E+00	9.76E-05	0.05%	2.62E-04	0.13%	6.43E-05	0.03%	1.56E-02
Eutrophication	1.84E-02	kg PO4--- eq	9.32E-03	50.61%	3.37E-04	1.83%	2.73E-03	14.85%	5.91E-03	32.10%	0.00E+00	1.29E-05	0.07%	8.81E-05	0.48%	1.24E-05	0.07%	3.50E-03

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Use of renewable energy resources, excluding energy resources used as raw materials	3.77E+01	MJ	2.50E+01	66.17%	1.75E-01	0.46%	1.11E+01	29.42%	1.47E+00	3.89%	0.00E+00	6.71E-03	0.02%	1.13E-02	0.03%	3.81E-03	0.01%	1.79E+01
Use of renewable energy resources used as raw material	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Total use of renewable energy resources	3.77E+01	MJ	2.50E+01	66.17%	1.75E-01	0.46%	1.11E+01	29.42%	1.47E+00	3.89%	0.00E+00	6.71E-03	0.02%	1.13E-02	0.03%	3.81E-03	0.01%	1.79E+01
Use of non-renewable energy resources, excluding energy resources used as raw materials	8.35E+02	MJ	4.35E+02	52.02%	1.74E+01	2.09%	6.01E+01	7.19%	3.22E+02	38.54%	0.00E+00	6.70E-01	0.08%	3.74E-01	0.04%	3.09E-01	0.04%	5.75E+01
Use of non-renewable energy resources used as raw material	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Total use of non-renewable energy resources	8.35E+02	MJ	4.35E+02	52.02%	1.74E+01	2.09%	6.01E+01	7.19%	3.22E+02	38.54%	0.00E+00	6.70E-01	0.08%	3.74E-01	0.04%	3.09E-01	0.04%	5.75E+01
Total primary energy use	8.73E+02	MJ	4.60E+02	52.63%	1.76E+01	2.02%	7.12E+01	8.15%	3.23E+02	37.04%	0.00E+00	6.76E-01	0.08%	3.86E-01	0.04%	3.12E-01	0.04%	7.54E+01
Use of secondary materials	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Use of renewable secondary fuels	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Use of non-renewable secondary fuels	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Water footprint	4.19E-01	m3	2.26E-01	53.97%	3.00E-03	0.72%	2.79E-02	6.66%	1.59E-01	38.00%	0.00E+00	1.15E-04	0.03%	2.29E-03	0.55%	3.42E-04	0.08%	6.45E-02

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Hazardous waste	5.81E-04	kg	1.76E-04	30.33%	1.05E-05	1.80%	3.88E-04	66.92%	3.98E-06	0.69%	0.00E+00	4.02E-07	0.07%	1.03E-06	0.18%	9.93E-08	0.02%	4.61E-06
Bulk waste	1.01E+01	kg	1.03E+00	10.17%	7.85E-01	7.78%	4.60E+00	45.61%	1.59E+00	15.71%	0.00E+00	3.02E-02	0.30%	2.64E-02	0.26%	2.04E+00	20.18%	5.82E-01
Radioactive waste	4.86E-04	kg	2.07E-04	42.53%	1.11E-04	22.83%	1.37E-04	28.12%	2.45E-05	5.05%	0.00E+00	4.26E-06	0.88%	8.98E-07	0.18%	1.99E-06	0.41%	8.71E-04
Components for reuse	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Materials for recycling	1.28E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	6.65E-02	5.18%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	1.22E+00	94.82%	0.00E+00	0.00%	0.00E+00
Materials for energy recovery	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Exported energy	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00

A1. Raw materials supply
A2. Transport
A3 Manufacturing Product
A4. Transport
A5. Construction – Installation process

B1. Use
B2. Maintenance
B3. Repair
B4. Replacement
B5. Refurbishment
B6. Operational Energy use
B7. Operational water use

C1. Deconstruction and demolition
C2. Transport
C3. Waste management for reuse, recovery and recycling.
C4. Disposal

MND. Module not declared

ARCOPLUS UNIVERSAL 1000 40 Results per m² of product

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Abiotic depletion	1.52E-04	kg Sb eq	1.37E-05	8.99%	3.58E-06	2.35%	1.29E-04	84.93%	5.47E-06	3.60%	0.00E+00	1.37E-07	0.09%	4.62E-08	0.03%	1.03E-08	0.01%	4.89E-06
Abiotic depletion (fossil fuels)	8.06E+02	MJ	4.19E+02	52.02%	1.78E+01	2.20%	5.32E+01	6.60%	3.14E+02	39.00%	0.00E+00	6.82E-01	0.08%	3.80E-01	0.05%	3.11E-01	0.04%	2.79E+01
Global warming (GWP100a)	7.37E+01	kg CO2 eq	3.62E+01	49.15%	1.17E+00	1.59%	5.08E+00	6.89%	2.94E+01	39.84%	0.00E+00	4.49E-02	0.06%	1.81E+00	2.45%	9.49E-03	0.01%	2.41E+00
Ozone layer depletion (ODP)	1.20E-06	kg CFC-11 eq	6.39E-07	53.46%	2.16E-07	18.09%	2.66E-07	22.25%	5.74E-08	4.80%	0.00E+00	8.30E-09	0.69%	4.52E-09	0.38%	3.81E-09	0.32%	8.51E-07
Photochemical oxidation	1.36E-02	kg C2H4 eq	6.90E-03	50.91%	1.78E-04	1.31%	1.72E-03	12.68%	4.74E-03	34.97%	0.00E+00	6.83E-06	0.05%	6.58E-06	0.05%	2.67E-06	0.02%	-1.76E-04
Acidification	2.31E-01	kg SO2 eq	1.16E-01	50.35%	2.80E-03	1.21%	2.59E-02	11.22%	8.55E-02	37.02%	0.00E+00	1.07E-04	0.05%	2.99E-04	0.13%	7.05E-05	0.03%	2.98E-02
Eutrophication	1.99E-02	kg PO4--- eq	9.94E-03	49.86%	3.71E-04	1.86%	2.74E-03	13.76%	6.75E-03	33.88%	0.00E+00	1.42E-05	0.07%	1.01E-04	0.51%	1.36E-05	0.07%	5.70E-03

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Use of renewable energy resources, excluding energy resources used as raw materials	3.99E+01	MJ	2.68E+01	67.33%	1.92E-01	0.48%	1.11E+01	27.92%	1.68E+00	4.21%	0.00E+00	7.38E-03	0.02%	1.29E-02	0.03%	4.18E-03	0.01%	2.68E+01
Use of renewable energy resources used as raw material	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Total use of renewable energy resources	3.99E+01	MJ	2.68E+01	67.33%	1.92E-01	0.48%	1.11E+01	27.92%	1.68E+00	4.21%	0.00E+00	7.38E-03	0.02%	1.29E-02	0.03%	4.18E-03	0.01%	2.68E+01
Use of non-renewable energy resources, excluding energy resources used as raw materials	9.57E+02	MJ	5.07E+02	52.99%	1.92E+01	2.00%	6.12E+01	6.39%	3.68E+02	38.46%	0.00E+00	7.36E-01	0.08%	4.28E-01	0.04%	3.38E-01	0.04%	1.09E+02
Use of non-renewable energy resources used as raw material	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Total use of non-renewable energy resources	9.57E+02	MJ	5.07E+02	52.99%	1.92E+01	2.00%	6.12E+01	6.39%	3.68E+02	38.46%	0.00E+00	7.36E-01	0.08%	4.28E-01	0.04%	3.38E-01	0.04%	1.09E+02
Total primary energy use	9.97E+02	MJ	5.34E+02	53.56%	1.94E+01	1.94%	7.23E+01	7.25%	3.70E+02	37.09%	0.00E+00	7.43E-01	0.07%	4.41E-01	0.04%	3.42E-01	0.03%	1.36E+02
Use of secondary materials	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Use of renewable secondary fuels	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Use of non-renewable secondary fuels	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Water footprint	4.49E-01	m3	2.32E-01	51.80%	3.30E-03	0.74%	2.80E-02	6.23%	1.82E-01	40.54%	0.00E+00	1.27E-04	0.03%	2.62E-03	0.58%	3.75E-04	0.08%	1.05E-01

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Hazardous waste	5.54E-04	kg	1.48E-04	26.77%	1.15E-05	2.08%	3.88E-04	70.02%	4.55E-06	0.82%	0.00E+00	4.41E-07	0.08%	1.18E-06	0.21%	1.09E-07	0.02%	6.73E-05
Bulk waste	1.07E+01	kg	1.16E+00	10.84%	8.64E-01	8.08%	4.56E+00	42.64%	1.81E+00	16.96%	0.00E+00	3.31E-02	0.31%	3.02E-02	0.28%	2.23E+00	20.89%	7.91E-01
Radioactive waste	7.24E-04	kg	4.26E-04	58.86%	1.22E-04	16.84%	1.40E-04	19.34%	2.80E-05	3.87%	0.00E+00	4.68E-06	0.65%	1.03E-06	0.14%	2.18E-06	0.30%	1.29E-03
Components for reuse	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Materials for recycling	1.36E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	7.50E-02	5.54%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	1.28E+00	94.66%	0.00E+00	0.00%	0.00E+00
Materials for energy recovery	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Exported energy	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00

A1. Raw materials supply
A2. Transport
A3. Manufacturing Product
A4. Transport
A5. Construction - Installation process

B1. Use
B2. Maintenance
B3. Repair
B4. Replacement
B5. Refurbishment
B6. Operational Energy use
B7. Operational water use

C1. Deconstruction and demolition
C2. Transport
C3. Waste management for reuse, recovery and recycling.
C4. Disposal

MND. Module not declared

ARCOPLUS UNIVERSAL 1000 50 Results per m² of product

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Abiotic depletion	1.54E-04	kg Sb eq	1.47E-05	9.53%	3.91E-06	2.54%	1.29E-04	83.76%	6.16E-06	3.99%	0.00E+00	1.50E-07	0.10%	1.18E-07	0.08%	8.31E-09	0.01%	5.97E-06
Abiotic depletion (fossil fuels)	9.00E+02	MJ	4.71E+02	52.33%	1.94E+01	2.16%	5.40E+01	6.00%	3.54E+02	39.29%	0.00E+00	7.43E-01	0.08%	9.66E-01	0.11%	2.51E-01	0.03%	3.75E+01
Global warming (GWP100a)	8.51E+01	kg CO2 eq	4.10E+01	48.13%	1.28E+00	1.51%	5.16E+00	6.06%	3.30E+01	38.83%	0.00E+00	4.90E-02	0.06%	4.60E+00	5.41%	7.65E-03	0.01%	3.32E+00
Ozone layer depletion (ODP)	1.19E-06	kg CFC-11 eq	6.04E-07	50.58%	2.36E-07	19.79%	2.66E-07	22.25%	6.46E-08	5.41%	0.00E+00	9.05E-09	0.76%	1.15E-08	0.96%	3.07E-09	0.26%	1.08E-06
Photochemical oxidation	1.50E-02	kg C2H4 eq	7.69E-03	51.37%	1.95E-04	1.30%	1.73E-03	11.56%	5.33E-03	35.60%	0.00E+00	7.45E-06	0.05%	1.68E-05	0.11%	2.15E-06	0.01%	3.30E-05
Acidification	2.61E-01	kg SO2 eq	1.34E-01	51.54%	3.06E-03	1.17%	2.62E-02	10.04%	9.62E-02	36.88%	0.00E+00	1.17E-04	0.04%	7.62E-04	0.29%	5.68E-05	0.02%	3.83E-02
Eutrophication	2.28E-02	kg PO4--- eq	1.18E-02	51.54%	4.05E-04	1.78%	2.77E-03	12.14%	7.60E-03	33.30%	0.00E+00	1.55E-05	0.07%	2.56E-04	1.12%	1.09E-05	0.05%	7.22E-03

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Use of renewable energy resources, excluding energy resources used as raw materials	3.98E+01	MJ	2.66E+01	66.70%	2.10E-01	0.53%	1.11E+01	27.93%	1.89E+00	4.74%	0.00E+00	8.04E-03	0.02%	3.28E-02	0.08%	3.36E-03	0.01%	3.35E+01
Use of renewable energy resources used as raw material	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Total use of renewable energy resources	3.98E+01	MJ	2.66E+01	66.70%	2.10E-01	0.53%	1.11E+01	27.93%	1.89E+00	4.74%	0.00E+00	8.04E-03	0.02%	3.28E-02	0.08%	3.36E-03	0.01%	3.35E+01
Use of non-renewable energy resources, excluding energy resources used as raw materials	1.05E+03	MJ	5.53E+02	52.57%	2.10E+01	1.99%	6.19E+01	5.88%	4.14E+02	39.35%	0.00E+00	8.02E-01	0.08%	1.09E+00	0.10%	2.72E-01	0.03%	1.39E+02
Use of non-renewable energy resources used as raw material	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Total use of non-renewable energy resources	1.05E+03	MJ	5.53E+02	52.57%	2.10E+01	1.99%	6.19E+01	5.88%	4.14E+02	39.35%	0.00E+00	8.02E-01	0.08%	1.09E+00	0.10%	2.72E-01	0.03%	1.39E+02
Total primary energy use	1.09E+03	MJ	5.80E+02	53.08%	2.12E+01	1.94%	7.30E+01	6.69%	4.16E+02	38.09%	0.00E+00	8.10E-01	0.07%	1.12E+00	0.10%	2.76E-01	0.03%	1.72E+02
Use of secondary materials	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Use of renewable secondary fuels	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Use of non-renewable secondary fuels	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Water footprint	5.31E-01	m3	2.87E-01	54.06%	3.61E-03	0.68%	2.88E-02	5.42%	2.05E-01	38.50%	0.00E+00	1.38E-04	0.03%	6.67E-03	1.26%	3.02E-04	0.06%	1.31E-01

Indicator	TOTAL	UNIT	Manufacture		Distribution		Installation		Use		End of life				Module D			
			A1-A3	A4	A4	A5	B4	C1	C2	C3	C4							
Hazardous waste	6.06E-04	kg	1.96E-04	32.33%	1.26E-05	2.08%	3.89E-04	64.16%	5.12E-06	0.84%	0.00E+00	4.81E-07	0.08%	3.01E-06	0.50%	8.77E-08	0.01%	1.15E-04
Bulk waste	1.08E+01	kg	1.29E+00	12.02%	9.44E-01	8.78%	4.57E+00	42.46%	2.04E+00	18.97%	0.00E+00	3.61E-02	0.34%	7.68E-02	0.71%	1.80E+00	16.72%	9.89E-01
Radioactive waste	5.66E-04	kg	2.54E-04	44.90%	1.33E-04	23.55%	1.38E-04	24.31%	3.15E-05	5.57%	0.00E+00	5.10E-06	0.90%	2.61E-06	0.46%	1.76E-06	0.31%	1.60E-03
Components for reuse	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Materials for recycling	1.53E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	9.10E-02	5.94%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	1.44E+00	94.06%	0.00E+00	0.00%	0.00E+00
Materials for energy recovery	0.00E+00	kg	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00
Exported energy	0.00E+00	MJ	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00	0.00%	0.00E+00

A1. Raw materials supply
A2. Transport
A3. Manufacturing Product
A4. Transport
A5. Construction - Installation process

B1. Use
B2. Maintenance
B3. Repair
B4. Replacement
B5. Refurbishment
B6. Operational Energy use
B7. Operational water use

C1. Deconstruction and demolition
C2. Transport
C3. Waste management for reuse, recovery and recycling.
C4. Disposal

MND. Module not declared

3.4. Potential environmental benefits and impacts derived from activities of reuse, recovery and recycling

Table. Indicators of impact evolution. Reuse, recovery and recycling

Data included in the point tables 3.3. (pages 8 -10):

ARCOPLUS UNIVERSAL 1100 30	Results per m ² of product	page 8
ARCOPLUS UNIVERSAL 1000 40	Results per m ² of product	page 9
ARCOPLUS UNIVERSAL 1000 50	Results per m ² of product	page 10

3.5. Recommendations of this DAP

Comparing construction products of the same category should be done applying the same functional unit and including the whole product life cycle. The Environmental Product Declarations of the same category of product but from different programs may not be comparables because the calculations rules could be different.

Products included in this EPD: Universal 30, Universal 40, Universal 50, Polivalente 900, Polivalente 1000, Polivalente 1100 and Complet 573.

3.6. Cut-off rules

As a cut-off rule, it is stipulated that at least the inventory data will add up to 99% of the total use of the material and energy of the product life cycle studied and 95% of the use of material and energy per module excluding factory diffuse materials.

3.7. Additional environmental information

There are no plus 0,1% of dangerous substances in the product according to "Candidate List of Substances of Very High Concern for Authorisation" of the European Agency of Substances and Chemical Preparations.

3.8. Other data

The waste generated in the installation, use and end of life phases are included as no dangerous on the waste european list with the codes LER 17 04 02 Aluminium, 17 02 03 Plastic, 17 02 03 Rubbers and 17 04 05 steel.

4. TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport from the factory to the building site (A4)

Parameter	Parameter expressed by declared unit
Type and consumption of fuel or vehicle used	Lorry EURO VI 16 Ton - 32 Ton, diesel. Consumption 25 L/100 Km.
Distance	95% Spain 1.300 Km. 5% Europe 2.030 Km.
Utilization of the vehicle (including the empty return)	% assumed in Ecoinvent version 3.5 2018
Density of the transported product	PC 1.200 Kg/m3 Packaging products are not included.
Factor of calculating the capacity of the volume used	1

4.2. Installation processes (A5)

Parameter	Parameter expressed by declared unit
Auxiliary materials for installation	Stainless steel screws 0,013 Kg/m ² , aluminium plates 0,106 Kg/m ² Rubbers 0,013 Kg/m ² , Pre-lacquered steel 0,781 Kg/m ²
Water consumption	No water consumption
Consumption of other resources	Telescopic crane. Diesel. Consumption 0,43 MJ/m ² .
Quantitative description of the type of energy and consumption during the installation process	Electric energy (mix of consumption in Spain 2019) Consumption 3 x 10E-03 MJ/m ² .
Waste in the construction site, generated by the installation of the product (specify types)	Product losses: - PC (1,5%) Packaging: - Plastic waste: - Polyethylene (100%) - Polypropylene (100%) - Paperboard (100%) - Wood (100%)
Material output as a result of the waste management processes in the place of installation. For example: collection for recycling, for energetic recovery and final disposal	PC: 42% recycling, 19% energy recovery and 39% dump. Plastic waste: 51% recycling, 15% energy recovery and 34% dump. Paperboard (it is considered like plastic waste). Wood: 100% recycling.
Emissions to the air, ground or water	--

4.3. Reference service life (B1)

Parameter	Parameter expressed by declared unit
Reference service life	25 years
Properties and characteristics of the product	Density 1.200 Kg/m ³ . UV protection by coextrusion.
Requirements (maintenance frequency, ways of using, repair, etc.)	--

4.4. Maintenance (B2), repair (B3), replacement (B4) or refurbishment (B5)

Parameter	Parameter expressed by fdeclared unit
Maintenance, for example: cleaning agent, type of surfactant	Maintenance is not required.
Maintenance cycle	--
Auxiliar materials for the maintenance process	--
Energy input for the maintenance process	--
Net consumption of fresh water during the maintenance or repair process	--
Inspection, maintenance or repair process	--
Inspection, maintenance or repair cycle	--
Auxiliary materials, e.g. lubricant	--
Changing of parts during the product life cycle	1.200 Kg/m ³
Energy input during the process of maintenance, type of energy, e.g. electricity and quantity	--
Energy input during the process of reparation, renovation, replacement, if it is applicable and significant	6 x 10E-3
Loss of material during maintenance or repair	--
Service life of the product for inclusion as a basis to calculate the number of times a change is needed in the building	PC 25 years, other products 50 years

4.5. Operational use of energy (B6) and water (B7)

Parameter	Parameter expressed by declared unit
Energy type, for example: electricity, natural gas, use of heat for a district	Neither water nor energy are required
Output power potential of equipments	--
Net consumption of fresh water	--
Characteristic representation (energy efficiency, emissions...)	--

4.6. End of life (C1-C4)

Process	Parameter expressed for declared unit of the components, products or materials
Collection processes	100% of the product
Recycling systems	PC: 42%, aluminium: 95%, stainless and P steel:100%
Disposal	PC: 39%, aluminium: 5%, rubber profiles: 100%.

5. ADDITIONAL INFORMATION

The product has:

CE marking according to the Harmonised Standard EN 16153:2013+A1:2015

6. PCR AND VERIFICATION

This declaration is based on the Document RCP 100 Productos de construcción en general , versión 2 - 29.02.2016
Independent verification of the declaration and data according to ISO 14025 and UNE EN15804 + A1 <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
Independent verifier appointed ITeC. Ferran Pérez. Verifier accredited by the DAPcons® Program  Oficina d'Accreditació d'Entitats Col·laboradores  Verificació VEDAP-001-10
Verification date 02 / 12 / 2021
References <ul style="list-style-type: none">- ISO 14025: 2006 Environmental Labels and declarations - Type III environmental declarations - Principles and procedures- ISO 14040: 2006 Environmental management - Life cycle assesment - Principles and framework.- ISO 14044: 2006 Environmental management - Life cycle assesment - Requirements and guidelines.- UNE EN 15804:2012 + A1 2014 Sostenibilidad en la construcción - Declaraciones ambientales de producto - RCP.

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