

DECLARACIÓN AMBIENTAL DE PRODUCTO ENVIRONMENTAL PRODUCT DECLARATION

DAPcons®.
According to ISO 14025
and UNE EN 15804 + A1



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

Product
Owner
Product description
PCR Reference
Production plant
Validity From: To:

ENVIRONMENTAL PRODUCT DECLARATION

EXECUTIVE SUMMARY

<p>PROGRAMME OPERATOR DAPconstrucción® Environmental product declarations of construction sector www.csontenible.net</p>	
<p>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</p>	
<p>Owner of the Declaration</p>	
<p>Declaration carried out by:</p>	
<p>Declaration Number</p>	
<p>Declared Product</p>	
<p>Product description</p>	
<p>Registration date</p>	
<p>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:</p>	
<p>Endorsed by CAATEEB</p>	<p>Endorsed by authorised verifier</p>

ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND APPLICATION

KRION® Porcelanosa Solid Surface is a pleasant and warm to the touch material similar to natural stone. It is made of two thirds of natural minerals (ATH - alumina trihydrate) and a low percentage of high strength resins. This composition gives Krion® a series of exclusive features: product without pores, durable, resistant and easy to repair, it only requires minimal maintenance and is easy to clean.

KRION® is a material that can be worked in a similar way to wood, allowing us to cut the sheets, join them and thermoforming them to create curved sections. It can also be cast during the production process obtaining shapes (sinks, bathtubs ...), making it possible to create different designs and projects unimaginable to achieve with other materials. KRION® has been classified as Euroclass B S1 d0 according to UNE-EN 13501-1: 2003 and as unrestricted material B1 according to DIN 4102

It has been declared non-toxic material by external laboratories and certified Greenguard Gold by UL, ANSI 51 "Food Equipment Materials" by NSF, REACH by SGS and free of Bisphenol A among others certificates.

This product is available in a wide range of colors and sheets of different thickness (3 mm, 6 mm, 9 mm, 12 mm and 19 mm).

The main recommended uses for this product are: exterior cladding, interior cladding and furniture.

Table 1: Main characteristics of the included products

Mechanical, structural and security properties

These properties refer to the ability of the material to withstand an external force. The mechanical properties are fundamental when making structural calculations and determining the design limits.

Below there are the fundamental KRION® tests normally used:

Property	Testing method	Result
Flexion modulus	ISO 178 / ASTM D790	9300 - 12000 MPa
		1348850 - 1740452 psi
flexion resistance	ISO 178 / ASTM D790	68 - 78 MPa
		9862 - 11312 psi
Elongation at break (flexion)	ISO 178 / ASTM D790	1% - 1,50%
Traction modulus	ISO 527 / ASTM D638	9500 - 11500 MPa
		1377858 - 1667933 psi
Traction resistance	ISO 527 / ASTM D638	40 - 50 MPa
		5800 - 7250 psi
Elongation at break (tension)	ISO 527 / ASTM D638	0,6% - 0,7%
Compression resistance	ISO 604 / ASTM C365	98-115 MPa
		14213 - 16679 psi
Ball impact resistance	ISO 19712-2(324g) / NEMA LD3 (224g)	>200 cm
IZOD impact resistance	ISO 180 / ASTM D256	4,2 kJ/m ²
Slip resistance (friction coefficient)	UNE 12633 / ASTM C1028	Coefficiente estático seco: 0,8-0,69 Coeficiente estático húmedo: 0,82-0,62
Load test	ISO 19712-2	Successful
Dimensional stability at 20 °C	ISO 4586-2 / NEMA LD3	Successful
Cracking resistance	UNE 438-2	Successful
Frost resistance	ISO 10545 - 12	Successful

Table 2: Main characteristics of the included products

Physical properties of use and durability

Physical properties are those that are related to the behaviour of the material against external actions. They are intrinsic properties of the material that characterize it and determine its use and application.

Below are the most relevant tests that help the application and use of KRION®:

Property	Testing method	Result
Density	ISO 1183 / ASTM D792	1,73-1,76 g/cm ³
Rockwell hardness	ISO 19712 (UNE-EN 2039-2) / ASTM D785	> 90
Barcol hardness	ISO 19712 / ASTM D2583	65-70
Brinelli Hardness	ISO 19712 (UNE-EN 2039-1)	250-290 N/mm ²
Thermal expansion	ISO 11359-2 (EN 14581) / ASTM D696	3,5±0,3 · 10 ⁻⁵ °C ⁻¹
		1,9±0,3 · 10 ⁻⁵ °F ⁻¹
first deflection under load	ISO 75 / ASTM D648	95 – 105°C
		203 – 221°F
Thermal conductivity	EN 12667 / ASTM C518	0,18 – 0,40 W/m · K
Dry heat resistance	ISO 19712	Successful
Humid heat resistance		
Cigarette resistance		
Thermal shock resistance		
High temperature resistance (dry heat)	NEMA LD3	Successful
Wear resistance	ISO 4586	0,028% / 25 rev
Boiling water resistance	ISO 4586 / NEMA LD3	Successful
Water absorption	ASTM D570	0,02% - 0,04%
Light stability (Arc Xenon) (3000h)	UNE-EN 438 / ISO 19712	Successful
Colour stability	NEMA LD3	Successful
General acoustic insulation	ISO 717-1	33,5 dBA
Resistance and electric resistivity	UNE-EN 61340	2 · 10 ¹² Ω

Table 3: Main characteristics of the included products

Hygienic, maintenance and sustainability properties

These properties usually condition the application of the materials for sensitive designs such as applications in clinics and hospitals or direct contact with food. In the same way, they give light on the cleaning and maintenance that the material will need during its useful life.

The most relevant KRION® tests that demonstrate its easy maintenance and high hygienic capacity are shown below:

Property	Testing method	Result
Bacterial resistance	ASTM G22	Does not admit growing
Fungus resistance	ISO 856 / ASTM G21	Does not admit growing
Microbiological resistance within construction materials	UL 2824 (ASTM D6329)	Does not admit growing
Wear and ease of cleaning	CSA B45.5-11 IAMPO Z1214-2011	OK
stain resistance (washability)	NEMA LD3	Successful
Chemical agents resistance	ISO 19712 (Method A)	Successful
Stain resistance to W.C. products	UNE 56867	Successful
Photocatalytic resistance to bacteria*	ISO 27447	Active
Self-clean photocatalytic*	ISO 10678	Active
photocatalytic depuration of the air*	ISO 22197	Active
Wear of chemical products*	ISO 10678	Active
Migration	Reglamento 10/2011 de la Comisión	Successful
Cut toxicity	MTA/-014/A11	Not toxic
	UNE-EN 12457-4	
	UNE-EN ISO 11348-3	
SiO₂	Instituto Nacional de Silicosis (INS)	Not found

* Only in Snow White 1100 EAST

Table 4: Main characteristics of the included products

Performance properties against fire

Fire is a dangerous element that is indirectly fought by the construction materials, preventing the propagation of the same and the generation of smoke derived from combustion. Flammability or flame spread are some of the parameters that the different regulations to take into account when allowing the installation of building materials in buildings.

The following are the most outstanding KRION® tests that demonstrate the good properties of the material against fire:

Property	Testing method	Result
Specific heat	UNE-EN 23721	1,361 J/g·K
Thermal resistance	UNE-EN 12667	0,064 m ² · K/W
Naval	IMO Certificate	Mod.B & Mod.D
Naval. Smoke toxicity	IMO FPTC Part 2	Pass
Ventilated façade	UNE-EN 13501-1	B-s1,d0
Fire reaction	UNE-EN 13501-1	B-s1,d0 (without support)
Flammability	UL94HB	Pass
	UL94V	V0
Burnt surface	ASTM E84 (NFPA 255)	Flame propagation 0
		Smoke produced 5
Burnt floor surface	CAN/ULC-S102.2	Flame propagation 0
		Smoke produced 0
Classification at fire	DIN 4102-1	B1 without restrictions
Calorific potential	ISO 1716 / NFPA 259	9,3 MJ/kg
Ignition	NFPA 268	Pass
Flammability. Superficial combustion characteristics of the construction materials	NFPA 101	Class A
temperature ignition flame	ASTM D1929	440°C
Auto ignition temperature	ASTM D1929	490°C
Unique test of article in combustion for materials and construction products	GB/T20284-2006	Pass
Gosudarstvennyy rule	GOST	Pass

Results for plates of solid colours and 12 mm thickness. The values are informative, based on tests carried out in external laboratories and checked periodically in the internal laboratories of KRION®, its purpose is not to serve as a basis for engineering calculations, for precise calculations, please contact KRION®.

2. LIFE CYCLE PHASES DESCRIPTION

2.1. Manufacture (A1, A2 and A3)

Raw materials (A1 and A2)

Manufacturing (A3)

2.2. Construction (A4 and A5)

Product transport to the building site (A4)

Table 1. Transport scenarios of product to the building site

Destination	Type of transport	Percentage (%)	Average Km
Spain			
Europe			
Rest of the world			
		Total 100%	

Construction and instalation process (A5)

2.3. Product use (B1-B7)

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

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

3. LIFE CYCLE ASSESSEMENT

3.1. Declared unit

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 = Included in LCA MND = Module Not Declared

3.3. Data analysis for the life cycle (ACV)

Table 3. Indicators of the environmental impact

Raw materials supply Manufacturing Product Transport Construction – Installation process Use Maintenance Repair Replacement Refurbishment Operational Energy use Operational water use Decosntruction and dermolition Transport Waste processing Disposal Reuse, recovery, recycling potential

A1. Raw materials supply	B1. Use	C1. Decosntruction and demolition	MND. Module not declared
A2. Transport	B2. Maintenance	C2. Transport	
A3. Manufacturing Product	B3. Repair	C3. Waste management for reuse, recovery and recycling.	
A4. Transport	B4. Replacement	C4. Disposal	
A5. Construction – Installation process	B5. Refurbishment		
	B6. Operational Energy use		
	B7. Operational water use		

Table 4. Indicators of resources use

A1. Raw materials supply	B1. Use	C1. Decostruction and demolition	MND. Module not declared
A2. Transport	B2. Maintenance	C2. Transport	
A3 Manufacturing Product	B3. Repair	C3. Waste management for reuse, recovery and recycling.	
A4. Transport	B4. Replacement	C4. Disposal	
A5. Construction – Installation process	B5. Refurbishment		
	B6. Operational Energy use		
	B7. Operational water use		

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

Table 5. Indicators of impact evolution. Reuse, recovery and recycling

Parameter	Unit expressed by functional unit or declared unit	D.
Potential depletion of abiotic resources (ADP-elements)*	Kg Sb eq	
Potential depletion of abiotic resources (ADP-fossil fuels)*	MJ, net calorific value	
Potential acidification of the ground and water resources, AP	Kg SO ₂ eq	
Ozone depletion potential, ODP	Kg CFC-11 eq	
Global warming potential, GWP	Kg CO ₂ eq	
Eutrophication potential, EP	Kg (PO ₄) ₃ eq	
Photochemical ozone creation potential, POCP	Kg ethene eq	

* ADP-elements: including all the non-renewable abiotic material resources

* ADP-fossil fuels: Including all the fossil resources

Table 6. Life cycle inventory data. Reuse, recovery and recycling

Parameter	Unit expressed by functional unit or declared unit	D.
Use of renewable primary energy, excluding the resources of non-renewable primary energy used as a raw material	MJ	
Use of renewable primary energy used as raw material	MJ	
Total use a renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)	MJ	
Use of non-renewable primary energy, excluding the resources of non-renewable primary energy used as a raw material	MJ	
Use of non-renewable primary energy used as raw material	MJ	
Total use of non-renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)	MJ	
Use of secondary materials	kg	
Use of renewable secondary fuels	MJ	
Use of non-renewable secondary fuels	MJ	
Net use of fresh water	m ³	
Hazardous waste disposed	kg	
Non-hazardous waste disposed	kg	
Radioactive waste disposed	kg	
Components for its reutilization	kg	
Materials to recycle	kg	
Materials for the energetic valorization	kg	
Exported energy	MJ	

MJ, net calorific value

3.5. Recommendations of this DAP

3.6. Cut-off rules

3.7. Additional environmental information

3.8. Other data

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	
Distance	
Utilization of the vehicle (including the empty return)	
Density of the transported product	
Factor of calculating the capacity of the volume used	

4.2. Installation processes (A5)

Parameter	Parameter expressed by declared unit
Auxiliary materials for installation	
Water consumption	
Consumption of other resources	
Quantitative description of the type of energy and consumption during the installation process	
Waste in the construction site, generated by the installation of the product (specify types)	
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	
Emissions to the air, ground or water	

4.3. Reference service life (B1)

Parameter	Parameter expressed by declared unit
Reference service life	
Properties and characteristics of the product	
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 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	
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	
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	

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	
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	
Recycling systems	
Disposal	

5. ADDITIONAL INFORMATION

6. PCR AND VERIFICATION

This declaration is based on the Document
Independent verification of the declaration and data according to ISO 14025 and UNE EN15804 + A1 <input type="checkbox"/> Internal <input type="checkbox"/> External
Independent verifier appointed
Verification date / /
References

ADMINISTRATOR OF PROGRAMME OPERATOR

Col·legi d'Aparelladors, Arquitectes Tècnics
 i Enginyers de l'Edificació de Barcelona
 (CAATEEB)
 Bon Pastor 5, 08021 Barcelona
www.apabcn.cat

