

# GlobalEPD

A VERIFIED ENVIRONMENTAL DECLARATION

Environmental  
Product  
Declaration

EN ISO 14025:2010

EN 15804:2012+A1:2013

# AENOR

ADAPTA VIVENDI SDS (Super  
Durable System) powder coating

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ADAPTA POWDER COATINGS (ADAPTA COLOR S.L.)



The EPD holder is responsible for the content of the Declaration. The holder is responsible for keeping the records and documents supporting the content of the Declaration

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European Standard EN 15804:2012+A1:2013	
Independent verification of the declaration and data, according to EN ISO 14025:2010	
Internal	√ External
Verification body <b>AENOR</b>	

# 1 General Information

## 1.1. The organization

ADAPTA POWDER COATINGS began manufacturing powder coatings in 1997. With the majority of its net capital coming from Spain, it represents a combination of experience and youth in the manufacture of powder coatings. A human team with a lot of experience in the sector and an entrepreneurial leadership have thrust it to the forefront of the market in a short period of time. Its foremost objective is to manufacture coatings that offer sustainable competitive advantages to its clients:

- With the firm commitment to providing bespoke solutions.
- With technical assistance of the very highest rank.
- Continuously innovating and learning, disrupting and seeking change.
- Exploring the environment to be able to get ahead of future needs.
- Adapting to each situation in a rapid and flexible way.
- With the passion of the whole human team.

The company has been certified by AENOR according to the international standards ISO 9001 (since 1998) and ISO 14001 (since 2001).

## 1.2. Scope of the Declaration

The ADAPTA VIVENDI SDS product is a powder coating made up of saturated polyester resins, hardeners free of TGIC, and pigments and additives that do not need to be declared, which are used for the surface protection of the various products (automotive and agricultural items, extruded profiles for doors and windows, metal facades, ventilated facades, and parts for solar protection, street furniture, infrastructure components, etc.).

ADAPTA POWDER COATINGS has a single centre of production located in Peñíscola (Castellón) SPAIN. The manufacturing details used in this EPD originate from the aforementioned centre.

ADAPTA VIVENDI SDS is a single product that comes in different colours, levels of gloss, and finishes. The data used for this EPD correspond to manufacturing in 2015.



Figure 1. Aerial view of the factory

### 1.3. Lyfe cycle and conformity

This EPD has been drawn up and verified according to UNE-EN ISO 14025:2010 and the PCR established in the European Standard EN 15804+A1.

This EPD includes the life cycle stages indicated in table 1. Thus, this EPD is cradle to gate with options.

Figure 2 shows a diagram with the life cycle stages considered

This Declaration cannot be subject to comparison with others as drawn up in other Programmes or in accordance with different reference documents. This EPD is not comparable with other EPD not developed according to the standard EN 15804.

In the same way, environmental Declarations cannot be subject to comparison if the origin of the data is different (the data sets, for example), if not all the relevant information modules are included, or if they are not based on the same scenarios.

Comparison of construction products shall be based on the same function, using the same functional unit at building level (or architectural or civil engineering works), i.e. including the performance of the product during the life cycle and the requirements stated in EN ISO 14025, 6.7.2.

Product stage	A1	Raw material supply	X
	A2	Transport to the manufacturer	X
	A3	Manufacturing	X
Construction	A4	Transport to the building site	X
	A5	Installation / construction	MNA
Use stage	B1	Use	MNA
	B2	Maintenance	MNA
	B3	Repair	MNA
	B4	Replacement	MNA
	B5	Refurbishment	MNA
	B6	Operational energy use	MNA
	B7	Operational water use	MNA
End of life	C1	De-construction / demolition	MNA
	C2	Transport	MNA
	C3	Waste processing	MNA
	C4	Disposal	MNA
	D	Reuse, recovery and/or recycling potentials	MNA
			X = Module included in the LCA; NR = Not Relevant; MNA = Module Not Assessed

Table 1. System boundary. Information modules included

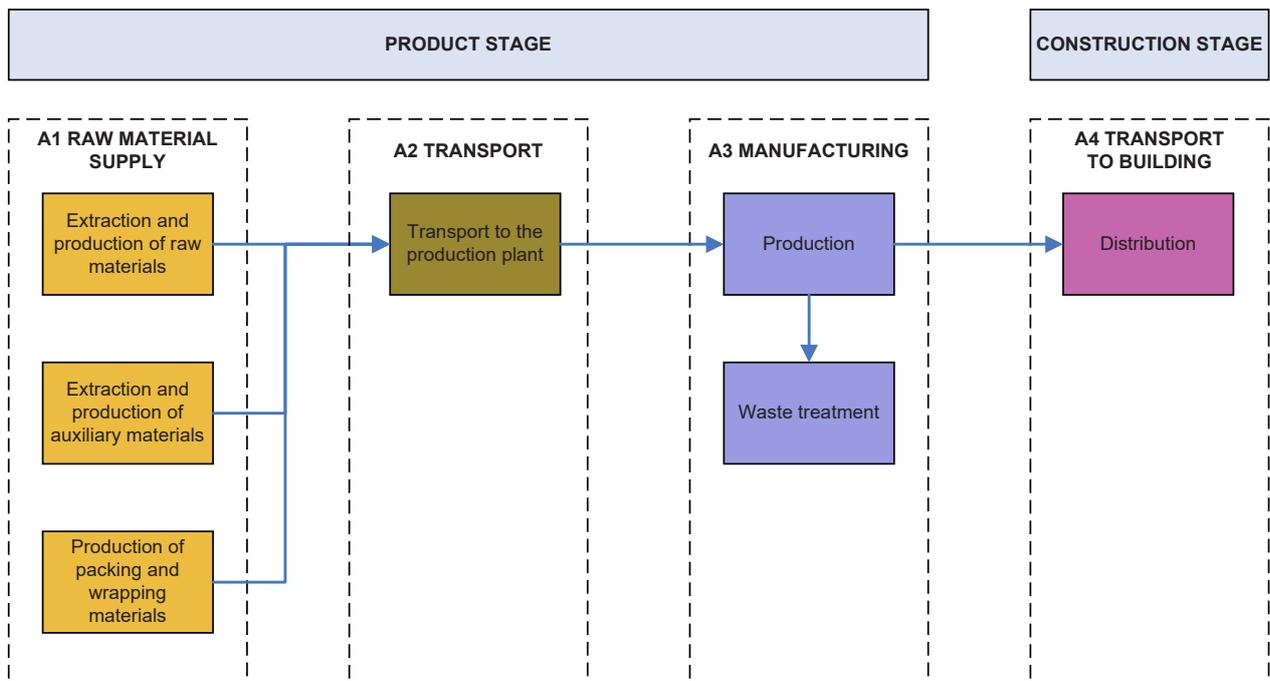


Figure 2. Lyfe cycle stages considered

## 2 The product

### 2.1. Identification of the Product

The ADAPTA VIVENDI SDS product is a powder coating (UN CPC 3511 - Paints and varnishes and related products) made up of saturated polyester resins, hardeners free of TGIC, and pigments and additives that do not need to be declared, which are used for the surface protection of the various products (automotive and agricultural items, extruded profiles for doors and windows, metal facades, ventilated facades, and parts for solar protection, street furniture, infrastructure components, etc.), and whose general properties are shown in table 2 below.

ADAPTA VIVENDI SDS coatings offer excellent exterior durability for more than 20 years, passing the natural aging test (Florida test) after 36 months with excellent gloss retention and colour stability.

This type of product more than comply with international quality specifications, such as Qualicoat CLASS 2, GSB MASTER, and AAMA 2604, among others, and can be used on metal architectural items.

Property	Description
Chemical product	Polyester
Granulometry	< 125 microns, suitable for electrostatic spray finishing
Solids	> 99%
Specific density	Between 1,2 and 1,7 g/cm <sup>3</sup> , depending on the colour
Stability in storage	24 months at a maximum of 35 °C
Best before	24 months
Packaging	15, 20 or 25 kg (cardboard boxes)

**Table 2.** Properties of the coating

ADAPTA VIVENDI SDS is available in varying levels of gloss and finishes, please refer to table 3 below.

In the same way, ADAPTA VIVENDI SDS is available in a wide range of RAL and NCS colours. It is possible to produce particular colours based on requests made by clients.

Finish		Gloss range	QUALICOAT	GSB
DB	Glossy	80 - 95	P-1319	260c
DS	Satin	30 - 80	P-1194	
DM	Matt	3 - 30		260a
DT	Textured	3 - 30	P-1087	260b
DX	Smooth metal or pearly mica effect	3 - 95	P-1319 P-1194	260c
DF	Textured metal or pearly mica	6 - 20	P-1087	

**Table 3.** Product range



**Figure 3.** Packaged product

## 2.2. Performance of the product

The main performance characteristics of the product are declared in table 4.

Characteristic	Test method	Value	Units
Thickness of the Film	ISO 2360	70-80	Microns
Gloss	ISO 2813	According to product definition	
Adherence	ISO 2409	GT 0	
Impact	ISO 6272	> 2,5	Nm
Flexibility	ISO 1519	< 5	mm
Embossing	ISO 1520	> 5	mm
Persoz hardness	ISO 1522	> 220	seconds
Bucholz hardness	ISO 2815	> 80	
Salt Spray Chamber	ISO 9227	1000 (PASS corrosion progress < 1 mm)	hours
Humidity Chamber	ISO 6270	1000 (PASS no blistering < 1 mm)	hours
Kesternich SO2	ISO 3231	30 (PASS no blistering)	cycles
Resistance to Mortar	EN 12201	PASS	
Florida Natural aging	ISO 2810	PASS 3 year (> 50% retention of gloss and colour)	years
SUNTEST aging	ISO 16474-2	PASS 1000 hours (> 90% retention of gloss)	hours
QUV 313B aging	ISO 16474-3	PASS 300 hours (> 50% retention of gloss)	hours

**Table 4.** Performance characteristics of the product

## 2.3. Composition of the product

Components that are hazardous substances according to EC Regulation No. 1272/2008 are shown in table 5. Indications of danger (H statements) for the two hazardous materials are shown in table 6.

These substances does not contribute to the classification of the final product as a hazardous substance.

Property	Content	Units
Aluminium pigment in flakes	0,34	%

**Table 5.** Hazardous components of the product

Property	H statement	Category
Aluminium pigment in flakes	H228	Flam. Sol. 1

**Table 6.** Indications of hazardous components of the product

## 3 Information regarding the LCA

### 3.1. Life cycle analysis

The information detailed in this EPD derives from the study 'Life Cycle Analysis of the ADAPTA VIVENDI SDS powder coating (modules A1 to A4 according to UNE-EN 15804)' version 0 of 13/11/2017, carried out by MD Ingeniería, Control y Asesoramiento Energético S.L.

### 3.2. Functional unit

The functional unit referred to in the calculations demonstrated in this EPD is the amount of product required to cover 1 m<sup>2</sup> of surface area of the substrate.

Therefore, and for the present EPD, the functional unit can be seen in table 7 below.

Property	Value
Density of the product	1,515 g/cm <sup>3</sup>
Application thickness (1 coat)	75 micras
Performance	8,801 m <sup>2</sup> /kg
Functional unit	0,114 kg/m <sup>2</sup>

**Table 7.** Functional unit

### 3.3. Allocation and cut-off criteria

The allocation of loads for the ADAPTA VIVENDI SDS product is made by taking into account the percentage of mass that the production of the product in question requires with respect to total production.

In order to calculate the allocation of loads for the use of recycled materials and waste recycling, the methodology known as the 'cut-off' method has been chosen from among all the methods that currently exist in the bibliography. By applying this method, the recycling of the waste of a process that is then reused in other is assigned to the cycle of the second product [Bauman, H. et al, 2004]. This method is designed to allow the use of recycled raw materials and the recycling of waste produced in the system studied to render improved environmental performance when compared to the use of virgin raw materials and the non-recycling of waste.

No significant inflows or outflows of mass or energy have been excluded. In accordance with the provisions of the PCR, the calculations have included more than 99% of the total mass of the raw materials employed and more than 99% of the total mass of the auxiliary materials.

### 3.4. Representativeness, quality and selection of the data

In order to ensure that the results of the study are reliable, the data supplied by the company has been mainly used (primary or specific data) in combination with external environmental data (secondary or general data).

With regard to the primary data, the company is in possession of an Integrated Management System that has been certified in compliance with Regulation ISO 9001 and Regulation ISO 14001. The aforementioned system allows for the systematic gathering and recording of data regarding quality and environment that has been sourced for this report.

In terms of the secondary data, the LCA database ECOINVENT version 3.2 from 2015 was used (System Model: Allocation, cut-off by classification).

Production data from 2015 was used. Similarly, the same version of EVOINVENT that gathered data from 2015 was used for the secondary data.

Whenever possible, data referring to the country in which the process in question was performed has been used. When this has not been possible, data has been used of a European scope.

The data used reflects the technological reality of the system being analysed.

### 3.5. Other calculations rules and hypotheses

ADAPTA VIVENDI SDS is a single product that comes in different colours, levels of gloss, and finishes. The data used for this EPD corresponds to the manufacturing data from 2015, which, understandably, encompasses the entire range of colours, levels of gloss, and finishes in the proportions in which they were supplied to the market.

## 4 System boundaries, scenarios and additional technical information

The present study is based on a cradle to gate (A1+A2+A3) with options (A4 transport to the site) LCA.

The processes included in each one of these modules are described in the following clauses.

### 4.1. Upstream processes (A1 and A2)

#### Raw materials extraction and processing

These are delivered by several suppliers to the company in a range of different formats (paper or plastic sacks, carboard or metal boxes, big bags, and in bulk in tanker trucks).

#### Ancillary materials extraction and processing

These are delivered by several suppliers to the company in a range of different formats (paper or plastic sacks, plastic tanks and containers, metal barrels, and in bulk in tanker trucks).

#### Production of the packaging material of the product

The packaging material of the product is fulfilled by several suppliers.

#### Transportation of Raw and Auxiliary Materials and Packaging Materials

The real distances and real means of transportation (lorry and ship) have been taken into account.

### 4.2. Manufacturing (A3)

#### Production in the factory

This consists of several stages:

- The loading and blending of raw materials
- The extrusion of the mixture at 120 °C
- Cooling to 20-25 °C and breaking into flakes of the extruded material
- Milling to obtain the end granulometry
- Heating and Cooling Mixing (only metal finishes)
- Packaging (polyethylene bags for 15, 20, and 25 kg in cardboard boxes) and storage.

The real distances and real means of transportation (lorry) were taken into account when managing the waste produced during production.

### 4.3. Transport to site (A4)

The transport of the product was mainly effected on lorries and on very limited occasions by sea. The real distances and real means of transportation have been taken into account.

Parameter	Value (per functional unit)	Units
Fuel type and consumption of vehicle or vehicle type used for transport	3,2E-03 l diesel (truck 16-32 t euro3) 4,9E-05 l fuel oil (ocean freighter/ship)	Litre of fuel type per distance or vehicle type
Distance	972 km truck (94,4 %) 4.749 km ship (5,6 %)	km
Capacity utilisation (including empty returns)	100	%
Bulk density of transported products	528,4	kg/m <sup>3</sup> y kg/m <sup>2</sup>
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	1	

**Table 8.** A4 Transport to site

## 5 Declaration of the environmental parameters of the LCA and LCI

The following tables include the parameters describing the environmental impacts, resource use waste categories and output flows defined in EN 15804.

	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
 <b>GWP</b>	7,72E-01	1,58E-02													
 <b>ODP</b>	3,19E-06	2,56E-09													
 <b>AP</b>	2,65E-03	1,01E-04													
 <b>EP</b>	9,77E-04	1,92E-05	MNE												
 <b>POCP</b>	2,01E-04	3,07E-06													
 <b>ADPE</b>	1,55E-06	4,54E-08													
 <b>ADPF</b>	1,07E+01	2,40E-01													
<b>GWP</b> [kg CO <sub>2</sub> eq]	Global warming potential														
<b>ODP</b> [kg CFC-11 eq]	Depletion potential of the stratospheric ozone layer														
<b>AP</b> [kg SO <sub>2</sub> eq]	Acidification potential of soil and water														
<b>EP</b> [kg (PO <sub>4</sub> ) <sup>3-</sup> eq]	Eutrophication potential														
<b>POCP</b> [kg etileno eq]	Formation potential of tropospheric ozone														
<b>ADPE</b> [kg Sb eq]	Abiotic depletion potential for non fossil resources														
<b>ADPF</b> [MJ]	Abiotic depletion potential for fossil resources														

**Table 9.** Parameters describing environmental impacts defined in EN 15804

	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
 PERE	6,72E-01	3,10E-03													
	0	0													
	6,72E-01	3,10E-03													
 PENRE	1,08E+01	2,41E-01													
	1,33E+00	0	MNE												
	1,21E+01	2,41E-01													
 SM	6,11E-05	0													
	0	0													
 RSF	0	0													
	0	0													
 NRSF	0	0													
	0	0													
 FW	3,36E-03	3,85E-05													

<b>PERE</b> [M]	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
<b>PERM</b> [M]	Use of renewable primary energy resources used as raw materials
<b>PERT</b> [M]	Total use of renewable primary energy resources
<b>PENRE</b> [M]	Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials
<b>PENRM</b> [M]	Use of non renewable primary energy resources used as raw materials
<b>PERNRT</b> [M]	Total use of non renewable primary energy resources
<b>SM</b> [kg]	Use of secondary material
<b>RSF</b> [M]	Use of renewable secondary fuels
<b>NRSF</b> [M]	Use of non renewable secondary fuels
<b>FW</b> [m³]	Net use of fresh water

Table 10. Parameters describing resource use

	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
 <b>HWD</b>	7,45E-04	1,37E-07													
 <b>NHWD</b>	7,85E-02	9,68E-03													
 <b>RWD</b>	2,25E-05	1,54E-06													
<b>CRU</b>	0	0													
 <b>MFR</b>	4,04E-03	0	MNE												
<b>MER</b>	7,53E-03	0													
 <b>EEE</b>	0	0													
 <b>EET</b>	0	0													
<b>HWD</b> [kg]	Hazardous waste disposed														
<b>NHWD</b> [kg]	Non hazardous waste disposed														
<b>RWD</b> [kg]	Radioactive waste disposed														
<b>CRU</b> [kg]	Components for re-use														
<b>MFR</b> [kg]	Materials for recycling														
<b>MER</b> [kg]	Materials for energy recovery														
<b>EEE</b> [Mj]	Exported electric energy														
<b>EET</b> [Mj]	Exported thermal energy														

**Table 11.** Parameters describing output flows and waste categories

## 6 Additional environmental information

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To generate renewable energies, the roof of the company has a photovoltaic installation of 1800 solar panels with a total power of 300 kVA.

The ADAPTA VIVENDI SDS product has another GlobalEPD Environmental Product Declaration, cradle to grave type, according to EN ISO 14025:2010 and the PCR "Paints and varnishes and related products" issued by EPD International AB (EIAB), verified by AENOR on 04/19/2017.

More environmental information is available in the website of the organization, in the following link:  
<https://www.adaptacolor.com/es/medioambiente>

## References

- [1] General Instructions of the GlobalEPD Programme, 2<sup>nd</sup> revision. AENOR. February 2016
- [2] UNE-EN ISO 14020:2002. Environmental labels and declarations - General principles
- [3] UNE-EN ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures (ISO 14025:2006)
- [4] UNE-EN ISO 14040:2006. Environmental management - Life cycle assessment - Principles and framework
- [5] UNE-EN ISO 14044:2006. Environmental management -- Life cycle assessment -- Requirements and guidelines
- [6] EN 15804:2012+A1:2013 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- [7] Life Cycle Analysis of the 'ADAPTA VIVENDI SDS' powder coating (modules A1 to A4 according to EN 15804), version 0 of 13/11/2017. MD Ingeniería, Control y Asesoramiento Energético S.L. 2017

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A verified environmental declaration

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