Environmental Product Declaration

In accordance with ISO 14025 and EN 15804+A1 for:

Protective wallcovering Acrovyn PVC-Free

from

CS

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-02037
Publication date:	2020-04-28
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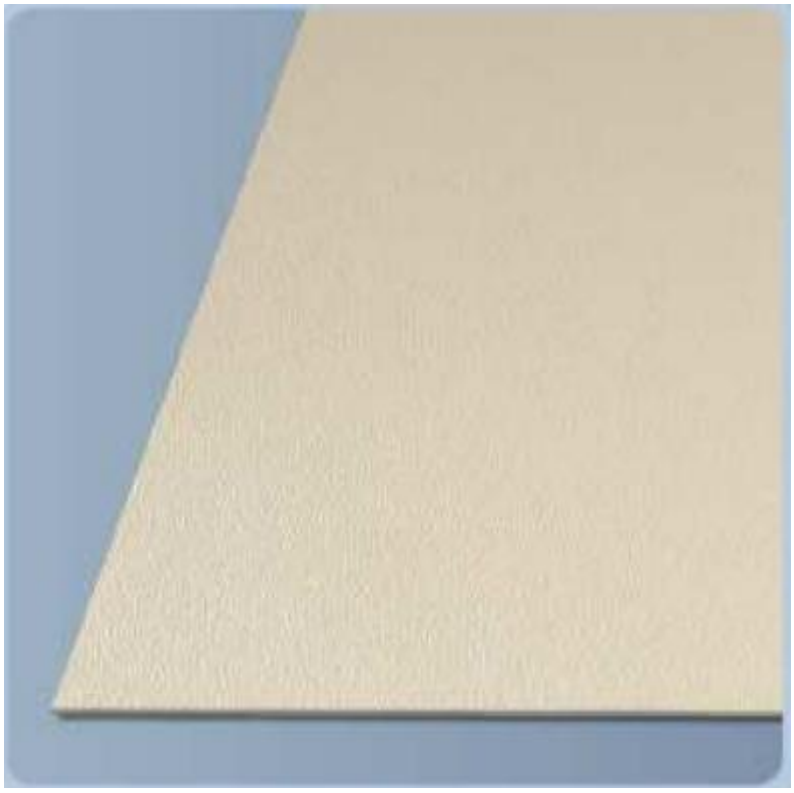


1. Programme information

Programme:	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 2012:01 Construction products and construction services (EN 15804:A1)
Independent third-party verification of the declaration and data, according to ISO 14025:2010: ☐ Internal EPD verification ☒ External EPD verification
Third party verifier: Dr Hüdai Kara (Metsims Sustainability Consulting), www.metsims.com

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

2. Company information

Owner of the EPD: CS
Manufacturer: CS FRANCE - 135, rue Edouard Isambard 27120 PACY-SUR-EURE FRANCE

Description of the organisation:
Founded in the United States, CS has been a global manufacturer and supplier of a range of specialist building products for over 70 years. Operating through 25 offices worldwide, with key manufacturing locations or sales offices in most European countries, we employ over 2,000 people.
With 40+ registered product patents, our product ranges include wall protection systems, entrance matting systems, specialist coatings for walls and floors, expansion joint covers, solar shading, louvres, cubicle curtain track and pressure relief systems. These have been successfully installed in many of the world's most prestigious buildings, across a spectrum of business sectors including healthcare, transport, retail, education, leisure and commercial offices.

Management system and related certifications: ISO 9001

Name and location of production site: 135, rue Edouard Isambard 27120 PACY-SUR-EURE FRANCE

3. Product information

Product name: Acrovyn PVC-Free 1.5mm, Acrovyn PVC-Free 1mm

Product identification: Polyethylene Terephthalate (PET) rigid protective wallcovering panels for internal use in buildings (prEN 17104).

Product description/Range application: products are intended to protect wall and to be easily washable.
- Acrovyn PVC-Free 1.5 mm (fire safety: B – s1, d0); 1.88 kg/m²
- Acrovyn PVC-Free 1 mm; 1.25 kg/m²

UN CPC code: 36330 Plates, sheets, film, foil and strip, of plastics, not self-adhesive, non-cellular and not reinforced, laminated, supported or similarly combined with other materials.

Geographical scope: Europe

4. LCA information

Functional unit: "1 m² of wall protection made of PET or PETG in accordance with prEN 17104 implemented according to the manufacturers' specifications to provide impact protection and visual comfort."

The impacts are declared for the maximum thickness of the products (1.5mm), corresponding to a mass of 1.88 kg/m².

Reference service life: 25 years
Time representativeness: specific data from CS France are representative for the last 5 years.
Database and LCA software used:
- ecoinvent 3.5 allocation cut-off by classification
- SimaPro 9.0

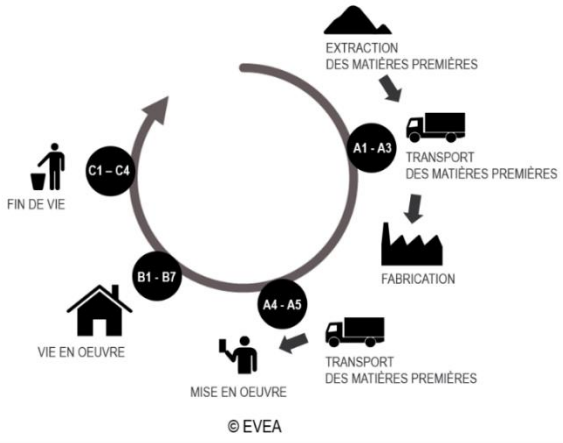
EPD Type: Cradle-to-grave

Description of system boundaries:
The system boundary is based on the EN 15804 description.
Production stage : A1 – A3: includes the provision of all raw materials, transport to the production site and energy consumption during the manufacturing of the product, packaging of final product, the different air emissions, as well as processing of waste generated by the factory.

Construction stage: A4 – A5: includes the transport from the factory to the final customer, the installation of the product, as well as all consumables and energy required and processing of waste generated during the installation.

Use stage B1 – B7: includes provision and transport of all materials, products and services related to the use phase of the product, as well as their related energy and water consumption, and the processing of any resulting waste.

End of life stage C1 – C4: includes provision and transport of all materials, products and services related to the end of life phase of the product, including energy and water consumption, as well as the end of life processing of the product.



Included/Excluded lifecycle stages:

	Production Stage			Construction Process Stage		Use Stage							End-of-Life Stage			
	Raw material supply (extraction, processing, recycled material)	Transport to manufacturer	Manufacturing	Transport to building site	Installation into building	Use / application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to EoL	Waste processing for reuse, recovery or recycling	Disposal
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4

Accounted for:	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X Module included in the study
MND : Module not declared

Data quality:

The time factor, the life cycle inventory data used come from:

- Data collected specifically for this study on CS France sites. Data sets are based on 1 year averaged data (2015) and is considered still up-to-date.
- In the absence of collected data, generic data from the ecoinvent V3.5 cut-off by classification database. This is regularly updated and is representative of current processes.

Technological Coverage

- CS France technologies used for the manufacture methods of the product.
- European technology in the case of use of generic data.

Geographical Coverage

- Data come from production sites of CS France.
- The generic data come from the ecoinvent database, representative of the European processes.

Cut-off criteria:

The cut-off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that unit process. The total neglected input flows per module shall be a maximum of 5% of energy usage and mass.
For this study, all input and output flows have been considered at 100%, including raw materials as per the product composition provided by the manufacturer and packaging of raw materials as well as the final product.

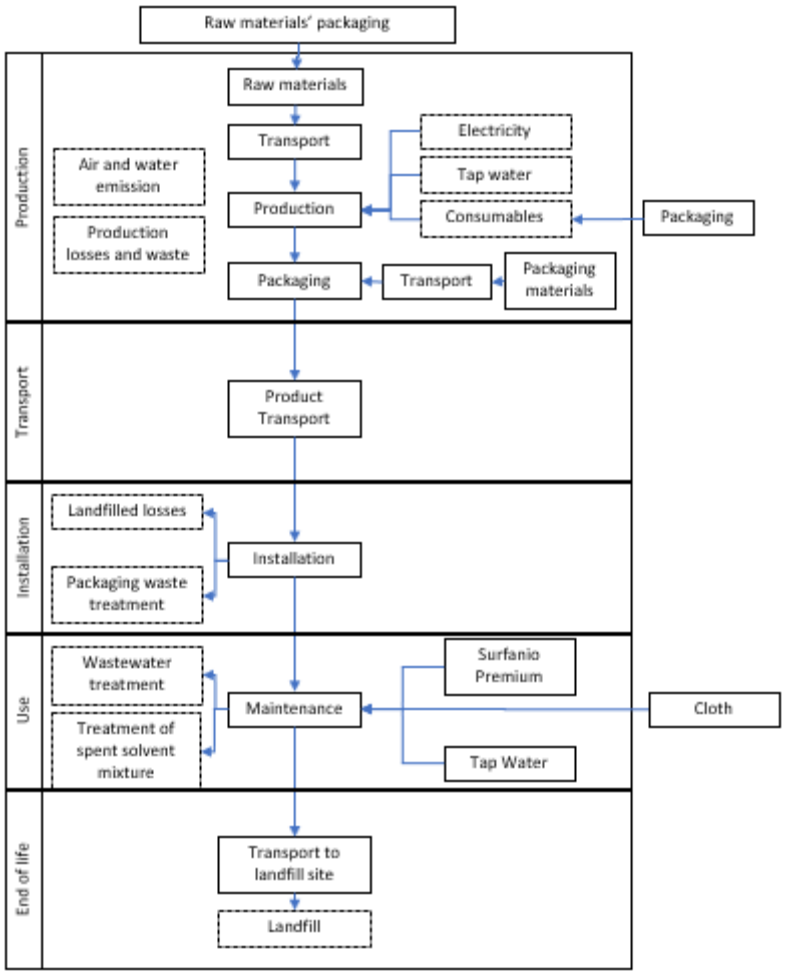
Allocation:

The overall values for the factory's material and energy consumptions during a period of one year have been divided by the annual production of each product to supply a value per square meter of flooring produced. All factory data are measured in square meters, and it is assumed that the process consumptions are governed by area of flooring processed rather than mass.

Comparability:

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building context, respectively the product-specific characteristics of performance, are taken into account.

5. Content declaration



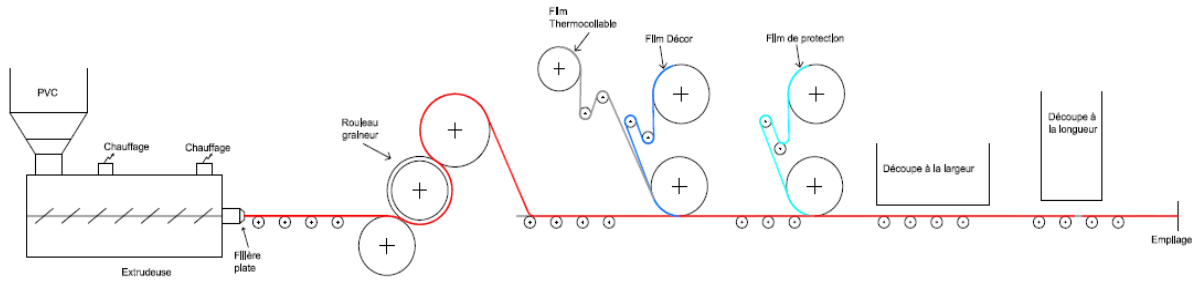
Product content

Materials / chemical substances	%	Environmental / hazardous properties
PET or PETG resin	Confidential	-
Additives	Confidential	-

Products do not contain substances that are listed in the “Candidate List of Substances of Very High Concern for Authorisation” of the the European Chemicals Agency.

Product manufacturing

Manufacturing process:
The following diagram shows the manufacturing process of the wall protections studied in this project:



Distribution packaging: the packaging consists of a polyethylene film (4.00E-04 kg/m²) and wood pallet (1.77E-01 kg/m²).

Delivery installation

The distribution distance between the factory and the installation site is assumed to be 1 000 km. The distribution is made by truck (16-32t EURO4).

Installation

The products are glued to the wall support with acrylic glue:

Description	Amount	Unit
Acrylic binder	3.50E-01	kg/m²

During the installation approximately 5% of the products is lost. All flooring losses are sent to landfill. 50 % of the packaging materials goes to incineration and 50 % goes to landfill. A transport of 30km is considered for landfilling and incineration.

Use Stage

Cleaning:
The products are cleaned twice a year. It is carried out using a cleaning product diluted in water and a cloth.
For each cleaning, a consumption of 0.05 litres of water is considered, in which the cleaning product is added: 1.25E-04 kg (diluted at 0.25%), for one square meter.

For a RSL of 25 years the quantity of cleaning product consumed is 2.51E+00 kg.

End of Life

The products are considered to be landfilled at their end of life. The transport between construction site and waste treatment facility is by truck, with an estimated distance of 30 km to landfilling (according to the FDP01-015).

6. Environmental performance

Potential environmental impact

PARAMETER	UNIT	Product stage			Construction stage		Use stage							End of life stage			
		Raw material	Raw material transport	Manufacturing	Transport	installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Global Warming	kg CO2 eq	5.55E+00	5.02E-01	8.77E-02	3.34E-01	5.54E-01	0.00E+00	3.79E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-02	0.00E+00	2.52E-01
Ozone Depletion	kg CFC-11 eq	2.99E-07	9.35E-08	4.88E-08	6.23E-08	5.37E-08	0.00E+00	2.38E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-09	0.00E+00	7.80E-09
Acidification of soil and water	kg SO2 eq.	2.21E-02	1.96E-03	4.46E-04	1.31E-03	2.62E-03	0.00E+00	1.88E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.26E-05	0.00E+00	1.69E-04
Eutrophication	kg PO4--- eq	2.68E-03	3.54E-04	7.40E-05	2.36E-04	3.49E-04	0.00E+00	6.26E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.67E-06	0.00E+00	6.36E-05
Photochemical ozone creation	kg ethylene	3.78E-03	2.81E-04	1.34E-04	1.87E-04	4.64E-04	0.00E+00	2.80E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.10E-06	0.00E+00	6.85E-05
Depletion of abiotic resources -elements	kg antimony	2.25E-05	1.55E-06	2.98E-07	1.03E-06	3.23E-06	0.00E+00	2.22E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-08	0.00E+00	6.21E-08
Depletion of abiotic resources -fossil	MJ. net CV	1.26E+02	7.67E+00	1.35E+00	5.11E+00	1.20E+01	0.00E+00	5.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-01	0.00E+00	6.59E-01

Use of resources

PARAMETER	UNIT	Product stage			Construction stage		Use stage							End of life stage			
		Raw material	Raw material transport	Manufactu-ring	Transport	Installation	Use	Maintenan-ce	Repair	Replace-ment	Refurbish-ment	Operational energy use	Operational water use	Decons-truction	Transport	Waste processing	Disposal
		A1	A2	A3	A4	A5	B1	B2.	B3	B4	B5	B6	B7	C1	C2.	C3	C4
Renewable primary energy excl. RM	MJ. net CV	4.13E+00	8.21E-02	2.41E+00	5.47E-02	4.74E-01	0.00E+00	2.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-03	0.00E+00	1.83E-02
Renewable primary energy used as RM	MJ. net CV	0.00E+00	0.00E+00	2.65E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total renewable primary energy	MJ. net CV	4.13E+00	8.21E-02	5.06E+00	5.47E-02	4.74E-01	0.00E+00	2.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-03	0.00E+00	1.83E-02
Non renewable primary energy excl. RM	MJ. net CV	9.30E+01	7.80E+00	6.80E+00	5.19E+00	8.74E+00	0.00E+00	3.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-01	0.00E+00	6.97E-01
Non renewable primary energy used as RM	MJ. net CV	4.16E+01	0.00E+00	3.40E-02	0.00E+00	4.06E+00	0.00E+00	1.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total non renewable primary energy	MJ. net CV	1.35E+02	7.80E+00	6.83E+00	5.19E+00	1.28E+01	0.00E+00	5.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-01	0.00E+00	6.97E-01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ. net CV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non renewable secondary fuels	MJ. net CV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	m3	7.02E-02	1.41E-03	2.15E-03	9.41E-04	1.14E-02	0.00E+00	2.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-05	0.00E+00	6.60E-04

Waste production and output flows

PARAMETER	UNIT	Product stage			Construction stage		Use stage							End of life stage			
		Raw material	Raw material transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Hazardous waste disposed	kg	1.64E-01	4.83E-03	3.08E-03	3.21E-03	1.97E-02	0.00E+00	2.05E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-04	0.00E+00	5.72E-04
Non hazardous waste disposed	kg	1.78E+00	4.05E-01	5.51E-02	2.70E-01	3.51E-01	0.00E+00	1.29E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.78E-03	0.00E+00	2.24E+00
Radioactive waste disposed	kg	1.68E-04	5.27E-05	8.10E-05	3.51E-05	2.97E-05	0.00E+00	1.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-06	0.00E+00	4.67E-06
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy (electricity)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy (steam)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

7. References

General Programme Instructions of the International EPD® System. Version 3.01, The International EPD® System.
PCR 2012:01 Construction Products and Construction Services. Version 2.3., The International EPD® System.
EN 15804: 2012+A1:2013 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
CEN - prEN 17104 Thermoplastics rigid protective wallcovering panels for internal use in buildings - Performance characteristics

ISO 9001:2015 Quality management systems — Requirements

ISO 14040: 2006 Environmental management - Life cycle assessment – Principles and Framework
ISO 14044: 2006 Environmental management - Life cycle assessment - Requirements and guidelines
ISO 14025: 2005 Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures

Database used: ecoinvent 3.5 allocation cut-off by classification
LCA software used: SimaPro 9.0

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