Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Perfis Vini ® Line

EPD of multiple products, based on the average results of the product group (indoor and outdoor use) from

ARAFORROS Indústria e Comércio de Perfilados Ltda.

Programme:	The International EPD® System registered through the fully aligned regional programme: Hub EPD Brasil. More information at www.environdec.com
Programme operator:	EPD International AB, Regional hub: EPD Brasil.
EPD registration number:	EPS-IES-15749
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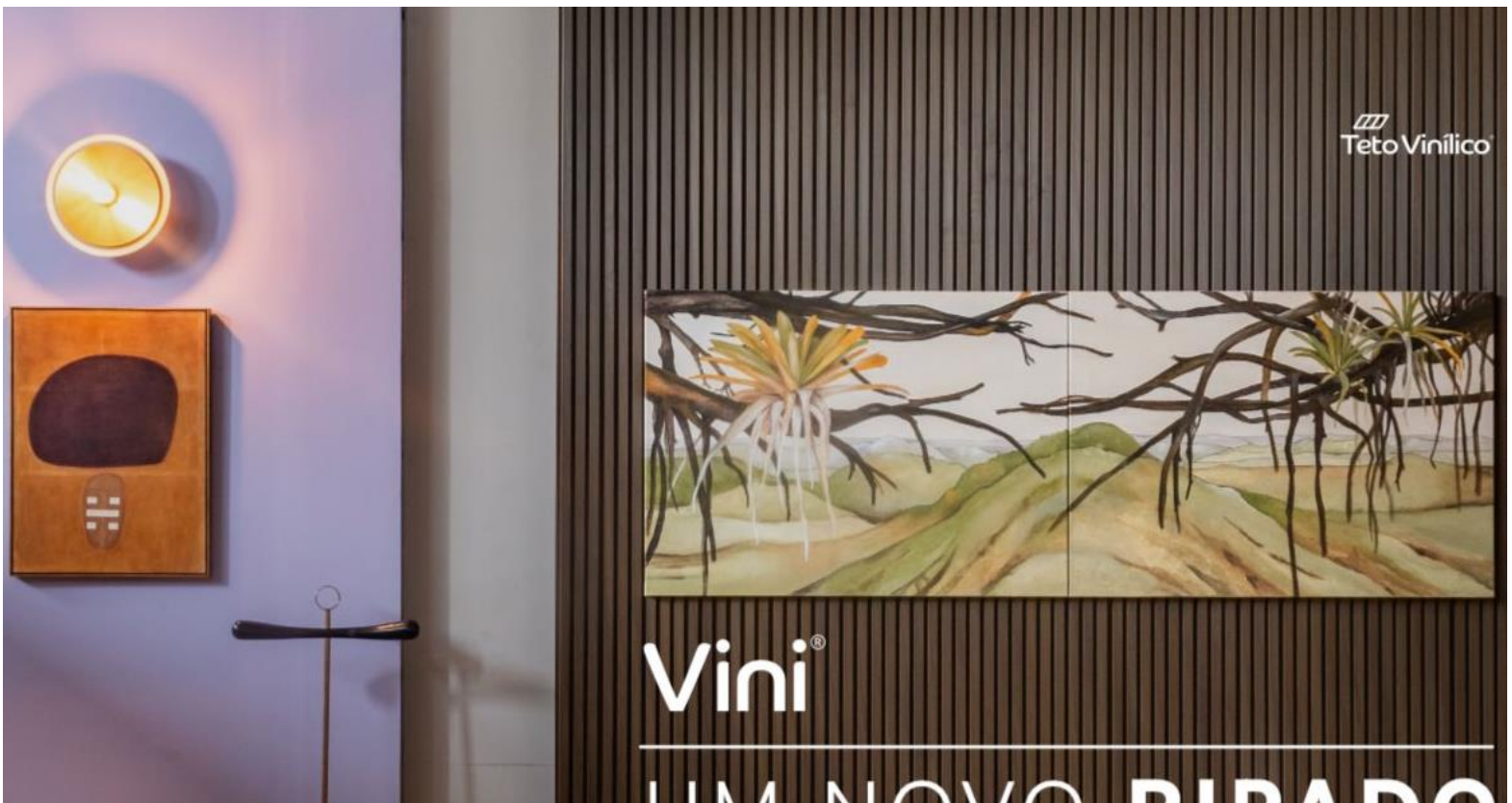
Valid until:	2029-09-20

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction products, 2019:14, version 1.3.2, *C-PCR-004 (to PCR 2019:14) Resilient, textile and laminate floor coverings (EN 16810:2017) version 2024-04-30* *UN CPC Code 363, semi-manufactures of plastic*
PCR review was conducted by: *The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. The review panel may be contacted via info@environdec.com.*
Life Cycle Assessment (LCA)
LCA accountability: *Guilherme Marcelo Zanghelini, EnCiclo Soluções Sustentáveis*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Bárbara M. Civit - Grupo CLIOPE (Centro de Estudios para el Desarrollo Sustentable) UTN FRM - CONICET* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programs, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: ARAFORROS INDÚSTRIA E COMÉRCIO DE PERFILADOS LTDA.

Contact: Luiz Almeida [luiz.almeida@araforros.com.br]

Description of the organization:

One of the leaders of the sector in Brazil, Araforros offers smart solutions for civil construction regarding extruded vinyl resin products. Considered one of the largest manufacturers of PVC ceilings in Latin America, the company combines design with quality and usefulness in the manufacture of products that promote fast, practical, and clean project works. Araforros is an industry located in Alagoas with more than two decades in the market, bringing constant search for innovation and respect for people and the environment, values that have guided its trajectory and motivated the company to bring new perspectives to the civil construction segment. Within the company's portfolio, different extruded vinyl resin profiles are available, such as tiles, ceilings and doors in different colors and finishings. Araforros is committed to sustainability from the beginning of our production processes to management as a whole. That makes a positive impact on the planet. Not only do we develop products with low-waste technologies, but we also make them last much longer. Our products require low maintenance and are 100% recyclable. We have a 100% clean and waste-free production system. We limit the input of resources and provide economic efficiency. Moreover, we work in a WCM - (World Class Manufacturing) production system that guarantees our processes and the quality of the products produced.

Product-related or management system-related certifications:

Renewable Energy Certificate (REC), Comerc - Sinerconsult (2023)

Name and location of production site(s):

INDUSTRIAL PLANT

Rod. Dr. Geraldo Cavalcante Cajueiro, 2714 - Km 66 - Boa Vista, Arapiraca - AL, 57303-225. Alagoas – Brasil.

Product information

Product name: Perfis Vini® Line (indoor and outdoor use)

Product identification: 100% vinyl substrate extruded profile for indoor or outdoor use.

Product description: polyvinyl chloride (PVC) is one of the most versatile materials by presenting advantageous properties, such as good mechanical and chemical resistance and resilience to Ultra-violet (UV) radiation. In addition, PVC is one of the most commonly extruded rigid plastics, being it manufactured in rigid and/or flexible forms depending on its application. Extruded vinyl resin profiles stand out not only for their strength and durability, but also for the rich palette of colors and finishing, rendering them highly desirable products for functional and decorative applications in architectural and design projects. Furthermore, extruded vinyl resin profiles are versatile for creative applications in indoor settings.

Perfis Vini® Line product is applied as wall specific covering, both for internal and/or external use. They come in different colors and finishings, providing limitless design possibilities and by combining durability with aesthetics, it can transform spaces into visual works of art, enhancing their intrinsic value and style.

UN CPC code:

UN CPC Code 363, semi-manufactures of plastic

Characteristics	Perfil Vini® line, indoor use	Perfil Vini® line, outdoor use
Applications	For indoor use	For outdoor use
Fitting type	Tongue and groove	Tongue and groove
Plate measure	20 cm x 2.9 m	20 cm x 2.9 m
Thickness	11 mm	11 mm
Specific weight	8.50 kg/m²	13.50 kg/m²
Accessories	Trim	Trim
Vinyl resin content	59.35%	47.48%
Filler content	35.61%	41.41%
Titanium dioxide content	1.19%	0.68%
Additives/pigments content	1.96%	6.32%
Impact modifier content	n.a.	4.11%
Fire rating	Class IIA DO	Class IIA DO

LCA information

Declared unit: 1 m² of Perfil Vini® line profile (indoor and outdoor use)

Reference flow: 1m² of Perfil Vini® line profile with 12.08kg

Declared indicator results:

The results were calculated based on the volumetry of Perfil Vini® line indoor use and Perfil Vini® line outdoor use production over the baseline year from Arapiraca manufacturing site. For each indicator, the average was weighted according to the production volumes of the included products.

Reference service life:

No declaration by the RSL according to the standard is given. Use stage not declared.

Time representativeness: September 2022 to August 2023.

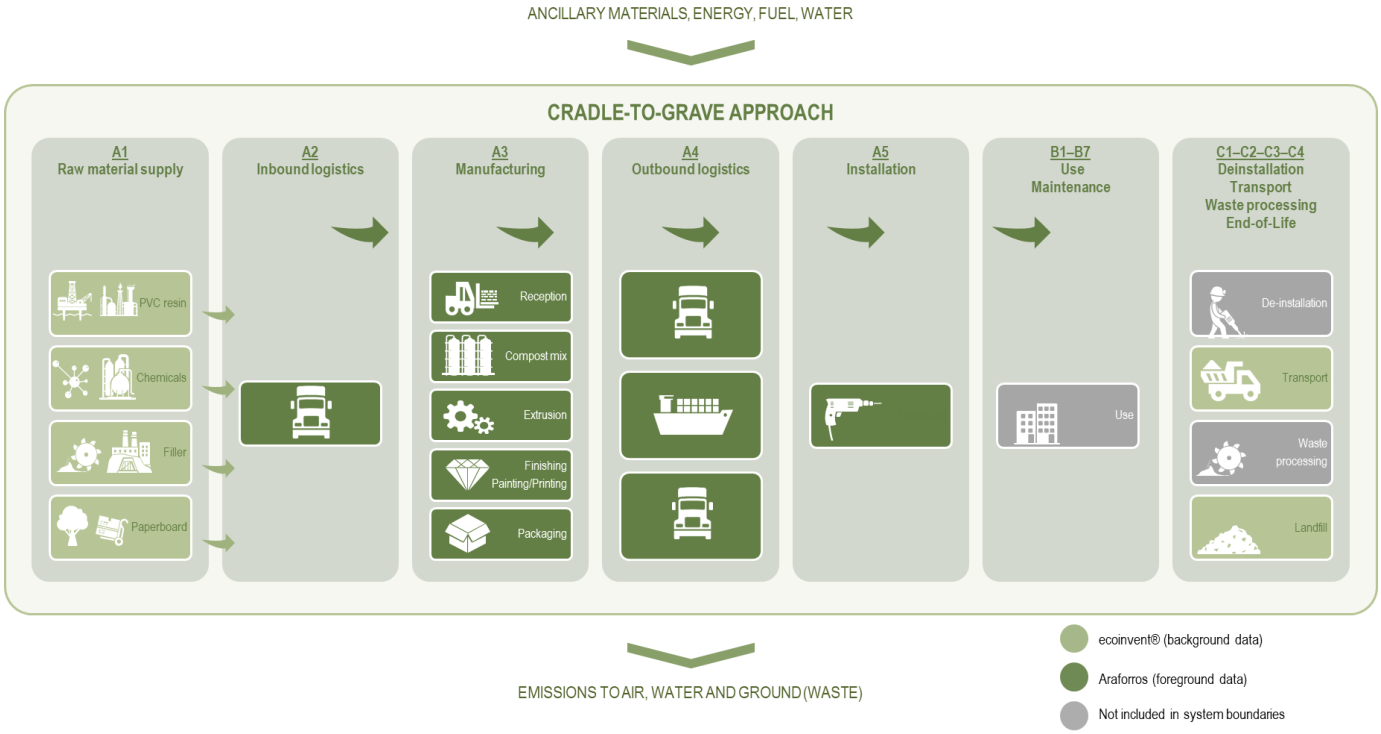
Database(s) and LCA software used:

SimaPro® (9.5.0.1) software developed by PRé Sustainability was used to create product system model and ecoinvent® (3.9.1) database provided the life cycle background data for product system modeling. EN 15804 reference package was based on EF 3.1.

System boundaries:

This is a type "b" - Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules). The selected additional modules on this EPD were A4-A5, while use stage (module B) was not declared. Module D is beyond system boundary.

System diagram:



Description of system stages:

Raw Materials supply:

Araforros profiles are produced from a mix of vinyl resin, filler, additives, and pigments. Polyvinyl chloride (PVC) is manufactured by the polymerization of vinyl chloride monomer (VCM). During the polymerization reaction 85 to 97% of the VCM is converted into PVC. Residual VCM is removed by stripping the polymer suspension. The unreacted monomer is recovered, liquefied, and returned to polymerization. For the polymerization process certain chemicals are required, such as surfactants, emulsifiers and protective colloids. Organic peroxides or peresters are used as initiators for the production of suspension and micro suspension PVC. Suspension PVC is produced batch wise in a stirred vessel. The monomer is dispersed in demineralized water by the combination of mechanical stirring and surfactants.

The usual filler is calcium carbonate ($CaCO_3$), which is a chemical commonly found in rocks as calcite and aragonite minerals. Among the different methods for producing calcium carbonate, mining or quarrying are the most common, where quicklime is mixed with water to form a calcium hydroxide slurry in an exothermal chemical reaction known as slaking. This slurry is then cooled and transported to a mix tank, where CO_2 is added, resulting in a synthetic calcium carbonate product that is chemically purer than natural limestone.

Titanium dioxide (TiO_2) is a naturally occurring mineral that is widely used in various industries due to its unique properties. The major raw materials for manufacturing titanium dioxide include ilmenite, naturally occurring rutile, or titanium slag. Both sulfate and chloride processes produce the titanium dioxide pigment in the rutile crystal form, but the sulfate process can be adjusted to produce the anatase form. The sulfate process consumes sulfuric acid to produce titanium dioxide powder, while chlorine is employed in the chloride process. Additives are substances added to products to improve their properties or performance.

In the production of the extruded PVC profile, a mixture of additives is used, including calcium stearate, zinc stearate, polyethylene wax, stearic acid, antioxidant, and lubricant. Liquid pigments are formulations of pigments or dyes and additives used to internally color polymers. They are mixed into the plastic for coloring or changing the properties. Liquid pigments can be used to color plastic products, provide specific properties to the end products, such as UV resilience, flame retardancy, antistatic or anti-blocking, or contain both colorants and additives. Liquid pigments can be added to a variety of thermoplastic and thermoset processing methods, such as film extrusion/thermoforming sheets, foam extrusion, blown films, profile extrusion, and injection blow moulding. Digital printing ink are usually used to custom and coat plastics, glass, metal, wood, ceramic, thermoform, textiles, and synthetic fabrics. The composition of the ink varies depending on the ink type, the substrate, and the printing system. However, most of them consist of carrier fluid, colorant, and additives such as surfactants and UV stabilizers. This step takes place after applying the primer, to improve paint application.

Inbound logistics:

Auxiliary products are received at the factory after being transported by truck, consuming diesel.

Manufacturing:

The raw materials are received and stored at Araforros manufacturing plant. The composition of Perfil Vini® Line profile is measured accurately in terms of vinyl resin content, filler and additives that are further mixed until reaching a homogeneous texture. The products have slightly different formula and also by means of density per m² due to each specific application, being the Perfil Vini® Line for outdoor use heavier than the version for internal application. The mix is cooled using water for heat exchange and follows to the extrusion stage where it is forced through a heated barrel as it gradually melts (temperature controls prevent overheating and polymer degradation). Molten plastic leaves the screw and passes through the die, which concedes specific shape to the final product that is finally cooled through a set of cooling rolls. The extruded vinyl resin profiles are packed within stretch film of Low-density Polyethylene (LDPE) and stored in cardboard boxes, stacked with an intermediate non-woven protection layer in between the vinyl resin profiles.

Outbound logistics:
After the manufacturing stage, the packaged products are distributed to the Brazilian internal market by diesel-powered trucks. For distribution abroad, the products are transported by trucks to the seaport of Santos/BRA to be shipped to worldwide customers. Upon the arrival at the port of destination, the product is delivered to the installation site.

Installation:
The product is installed following instructions provided by the manufacturer. Ancillary materials such as steel screws, plastic bushes, and installation accessories (additional profile - plastilon) are needed to attach the PVC profiles to the installation surface. A wastage of 10% of installation materials often occurs.

Use/Maintenance:
If necessary, during the use phase of the life cycle, the PVC-covered surfaces may be repaired to maintain the quality of the product. Since repair/maintenance is highly dependent on the consumers use pattern, this stage was not considered on this LCA project.

De-installation:
At the end of the reference service life (RSL), exhausted extruded PVC profile is removed from the surfaces where it is installed. Depending on the attaching method applied during installation, this may involve the disassembly of the pieces or removal using adequate tools.

End-of-life (EoL):
At the end of the reference service life (RSL), exhausted extruded PVC profile is removed from the surfaces where it is installed. Depending on the attaching method applied during installation, this may involve the careful disassembly of the pieces or removal using adequate tools. Since PVC is considered an inert material, the waste can be disposed of at an inert sanitary landfill. Noteworthy, end-of-life practices may vary depending on local regulations and policies adopted in each region. This LCA considers the EoL of the extruded PVC profile as disposed of in sanitary landfill, although recycling might be a reliable alternative.

More information:

Cut-off criteria:
According to the EN 15804:2012+A2:2019 (BSI, 2019) standard, the criteria for excluding inputs and outputs (cut-off criteria) are intended to enable efficient modelling procedures and should not be used to conceal data. The following procedures must be followed for the exclusion of inputs and outputs (BSI, 2019):

- All inputs and outputs of a process (unit) for which data is available must be included in the calculation. Data gaps can be filled with conservative assumptions using average or generic data. Any assumptions for such choices should be documented.
- In case of insufficient input data or data gaps for a process unit, the cut-off criteria should be 1% of the energy use and 1% of the total mass input of that process unit. The total of neglected input flows should not exceed 5% of energy consumption and mass.
- Special care should be taken to include material and energy flows known to have the potential for causing significant emissions to air, water, or soil related to the environmental indicators of the study in question.
- Conservative assumptions combined with considerations of plausibility and expert opinion can be used to demonstrate compliance with these criteria.

Therefore, for the present study, the aim was to consider the entirety of input and output flows of the entire product system. However, in compliance with the criteria defined by BS EN 15804:2012+A2:2019 (BSI, 2019), aspects and impacts associated with the infrastructures of any stage in the PVC profile product system life cycle were not taken into account due to their extended lifespan. This fact is reflected in an infinitesimal fraction (both in terms of mass and energy) when proportionally distributed for the execution of the defined declared unit.

Allocation:

ISO 14044 provides a stepwise procedure (section 4.3.4.2) to recommend the choice of an allocation approach for the foreground processes. For the background datasets (unit process) from ecoinvent® database it was assumed the default allocation based on the economic value for the multi-output processes. More information on the allocation procedures by ecoinvent® database can be found on Weidema et al. (2013).

Regarding the foreground model, mass allocation was applied for the vinyl resin scrap generated as a by-product in the extrusion process, that is further recycled internally into vinyl resin tiles. As for the waste flows leaving the system for recycling purposes which take place outside the boundaries of the product system, only impacts related to the transport of the waste to the treatment site were considered (following the recommendation of PCR 2019:14: "At the system boundary, cut-off allocation shall be applied, i.e., all unit processes before the point of end-of-waste shall be assigned to the product system generating the waste and all unit processes after the point of end-of-waste shall be assigned to the subsequent product system"). The cut-off is an allocation method rule that assumes that all environmental burdens and benefits remain with the user of the recycled materials, i.e., the subsequent systems that use the waste generated from the first system as raw materials. This is a simpler allocation approach and a more conservative one that assumes the waste generated by the first systems has zero value and begins to gather value and function from the collection point for the second system (recycler).

Emission factor for the electricity production:

0.065 kg CO_2 eq./kWh.

Name and contact information of LCA practitioner:

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		Mail:	guilherme@enciclo.com.br
		Web:	www.enciclo.com.br

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	BR	BR	BR	Global	Global	Global	Global	Global	Global	Global	Global	Global	Global	Global	Global	BR	Global
Specific data used	>95%			>95%	>95%	-	-	-	-	-	-	-	-	-	-	-	-
Variation on GWP-GHG results* – products	-23% +8%			-28% +10%	<10%	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	NA			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = module included in EPD

ND = module not declared

NR = module not relevant (does not indicate zero impact result)

NA = not appliable

* Variation range in comparison to the declared result, considering Perfil Vini® Line indoor use and Perfil Vini® Line outdoor use.

Content information

Content declaration of the weight-averaged product group. In parentheses, the range of weight and biogenic material regarding each specific product in relation to the average value.

Product	Perfil Vini® Line, indoor and outdoor use		
Product components	**Weight, kg**	**Post-consumer material, weight-%**	**Biogenic material, weight-% and kg C/kg**
Extruded profile	12.08 kg (8.50 to 13.50)	0 kg – 0%	0 kg – 0%
-	-	-	-
TOTAL	12.08 kg (8.50 to 13.50)	0 kg – 0%	0 kg – 0%
Packaging materials*	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Paperboard	0.61 kg (0.60 to 0.61)	5.0% (7.1% to 4.5%)	0.21 kg (0.21 to 0.21)
Polyethylene film	0.12 kg (0.12 to 0.13)	1.0% (1.5% to 0.9%)	0.00
Non-woven protection layer	$3.00*10^{-2}$ kg ($3.00*10^{-2}$ to $3.00*10^{-2}$)	0.2% (0.4% to 0.2%)	0.00
Polypropylene tape	$2.00*10^{-3}$ kg ($2.00*10^{-3}$ to $2.00*10^{-3}$)	0.02% (0.02% to 0.02%)	0.00
TOTAL	0.76 kg (0.76 to 0.76)	6.3% (8.9% to 5.7%)	0.21 kg (0.21 to 0.21)

* Packaging considering 2.9m extruded profile size;

Substances of very high concern (SVHC)

These products contain no substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency or their amount is negligible.

Results of the environmental performance indicators – Perfil Vini® Line, indoor and outdoor use

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Mandatory impact category indicators according to EN 15804

Perfil Vini ® Line, indoor and outdoor use | Results per declared unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	$1.47*10^{1}$	$2.30*10^{0}$	$1.00*10^{0}$	$0.00*10^{0}$	$2.50*10^{-1}$	$0.00*10^{0}$	$8.58*10^{-1}$	$0.00*10^{0}$
GWP-biogenic	kg CO_2 eq.	$8.24*10^{-1}$	$7.19*10^{-4}$	$1.00*10^{0}$	$0.00*10^{0}$	$7.89*10^{-5}$	$0.00*10^{0}$	$7.53*10^{-4}$	$0.00*10^{0}$
GWP-luluc	kg CO_2 eq.	$6.18*10^{-1}$	$1.22*10^{-1}$	$3.30*10^{-2}$	$0.00*10^{0}$	$1.34*10^{-2}$	$0.00*10^{0}$	$3.29*10^{-5}$	$0.00*10^{0}$
GWP-total	kg CO_2 eq.	$1.61*10^{1}$	$2.43*10^{0}$	$2.04*10^{0}$	$0.00*10^{0}$	$2.63*10^{-1}$	$0.00*10^{0}$	$8.59*10^{-1}$	$0.00*10^{0}$
ODP	kg CFC 11 eq.	$1.41*10^{-5}$	$9.93*10^{-8}$	$7.77*10^{-7}$	$0.00*10^{0}$	$1.09*10^{-8}$	$0.00*10^{0}$	$9.63*10^{-10}$	$0.00*10^{0}$
AP	mol H^+ eq.	$1.07*10^{-1}$	$1.43*10^{-2}$	$6.42*10^{-3}$	$0.00*10^{0}$	$1.46*10^{-3}$	$0.00*10^{0}$	$6.42*10^{-4}$	$0.00*10^{0}$
EP-freshwater	kg P eq.	$2.68*10^{-4}$	$9.18*10^{-6}$	$1.90*10^{-5}$	$0.00*10^{0}$	$1.01*10^{-6}$	$0.00*10^{0}$	$8.85*10^{-7}$	$0.00*10^{0}$
EP-marine	kg N eq.	$3.61*10^{-2}$	$7.15*10^{-3}$	$3.20*10^{-3}$	$0.00*10^{0}$	$7.58*10^{-4}$	$0.00*10^{0}$	$5.26*10^{-4}$	$0.00*10^{0}$
EP-terrestrial	mol N eq.	$3.75*10^{-1}$	$6.65*10^{-2}$	$2.22*10^{-2}$	$0.00*10^{0}$	$7.00*10^{-3}$	$0.00*10^{0}$	$2.88*10^{-3}$	$0.00*10^{0}$
POCP	kg NMVOC eq.	$4.56*10^{-1}$	$1.89*10^{-2}$	$2.61*10^{-2}$	$0.00*10^{0}$	$1.99*10^{-3}$	$0.00*10^{0}$	$1.08*10^{-3}$	$0.00*10^{0}$
ADP-minerals&metals*	kg Sb eq.	$2.51*10^{-5}$	$3.41*10^{-7}$	$1.79*10^{-6}$	$0.00*10^{0}$	$3.75*10^{-8}$	$0.00*10^{0}$	$2.75*10^{-9}$	$0.00*10^{0}$
ADP-fossil*	MJ	$3.39*10^{2}$	$3.00*10^{1}$	$1.89*10^{1}$	$0.00*10^{0}$	$3.26*10^{0}$	$0.00*10^{0}$	$9.40*10^{-1}$	$0.00*10^{0}$
WDP*	m^3	$6.48*10^{0}$	$4.29*10^{-1}$	$3.63*10^{-1}$	$0.00*10^{0}$	$4.71*10^{-2}$	$0.00*10^{0}$	$3.39*10^{-3}$	$0.00*10^{0}$
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Disclaimer: The use of the results of modules A1-A3 without considering the results of module C is discouraged.

Products which the variation of each declared impact indicator result was above 10% (from A to C) compared to the declared results:

- *GWP-fossil, Perfil Vini® line indoor use: $1.47*10^{1}$ kg CO_2 eq.*
- *GWP-biogenic, Perfil Vini® line indoor use: $1.65*10^{0}$ kg CO_2 eq.*
- *GWP-luluc, Perfil Vini® line indoor use: $5.91*10^{-1}$ kg CO_2 eq.*
- *GWP-total, Perfil Vini® line indoor use: $1.69*10^{1}$ kg CO_2 eq.*

- *ODP, Perfil Vini® line indoor use: 1.26*10^{-5} kg CFC11 eq.*
- *AP, Perfil Vini® line indoor use: 1.04*10^{-1} mol H+ eq.*
- *EP-freshwater, Perfil Vini® line indoor use: 2.43*10^{-4} kg P eq.*
- *EP-marine, Perfil Vini® line indoor use: 3.83*10^{-2} kg N eq.*
- *EP-terrestrial, Perfil Vini® line indoor use: 3.78*10^{-1} kg mol N eq.*
- *POCP, Perfil Vini® line indoor use: 4.19*10^{-1} kg NMVOC eq.*
- *ADP-minerals&metals, Perfil Vini® line indoor use: 2.67*10^{-5} kg Sb eq.*
- *ADP-fossil, Perfil Vini® line indoor use: 3.00*10^{2} kg MJ eq.*
- *WDP, Perfil Vini® line indoor use: 5.93*10^{0} m³ depriv.*

Additional mandatory and voluntary impact category indicators

Perfil Vini ® Line, indoor and outdoor use | Results per declared unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	1.57*10^{1}	2.43*10^{0}	2.04*10^{0}	0.00*10^{0}	2.63*10^{-1}	0.00*10^{0}	8.74*10^{-1}	0.00*10^{0}
PM	disease inc.	6.12*10^{-7}	2.53*10^{-7}	4.45*10^{-8}	0.00*10^{0}	2.77*10^{-8}	0.00*10^{0}	1.59*10^{-8}	0.00*10^{0}
IRP**	kBq U-235 eq	1.13*10^{0}	2.29*10^{-3}	6.27*10^{-2}	0.00*10^{0}	2.47*10^{-4}	0.00*10^{0}	8.91*10^{-4}	0.00*10^{0}
ETP-fw*	CTUe	1.57*10^{2}	1.25*10^{2}	1.73*10^{1}	0.00*10^{0}	1.37*10^{1}	0.00*10^{0}	4.70*10^{1}	0.00*10^{0}
HTP-c*	CTUh	4.00*10^{-8}	9.18*10^{-10}	3.14*10^{-9}	0.00*10^{0}	1.01*10^{-10}	0.00*10^{0}	1.78*10^{-11}	0.00*10^{0}
HTP-nc*	CTUh	2.74*10^{-6}	3.73*10^{-8}	1.54*10^{-7}	0.00*10^{0}	4.10*10^{-9}	0.00*10^{0}	1.83*10^{-9}	0.00*10^{0}
SQP*	Pt	6.24*10^{1}	2.50*10^{0}	1.40*10^{0}	0.00*10^{0}	2.75*10^{-1}	0.00*10^{0}	2.23*10^{0}	0.00*10^{0}
Acronyms	GWP-GHG = supplementary indicator for climate impact, with characterization factors (CFs) based on IPCC (2013); PM = Potential incidence of disease due to PM emissions; IRP = Potential Human exposure efficiency relative to U235; ETP-fw = Potential Comparative Toxic Unit for ecosystems; HTP-c = Potential Comparative Toxic Unit for humans; HTP-nc = Potential Comparative Toxic Unit for humans; SQP = Potential soil quality index								

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator. ** This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*
Disclaimer: The use of the results of modules A1-A3 without considering the results of module C is discouraged.

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Products which the declared GWP-GHG result (A1-A3) differed by more than 10% compared to the declared GWP-GHG results:

- *GWP-GHG, Perfil Vini® line indoor use: 1.66*10¹ kg CO_2 eq.*

Products which the variation of each declared impact indicator result was above 10% (from A to C) compared to the declared results:

- *PM, Perfil Vini® line indoor use: 7.23*10⁻⁷ disease inc.*
- *IRP, Perfil Vini® line indoor use: 1.01*10⁰* kBq U-235 eq
- *ETP-fw, Perfil Vini® line indoor use: 2.64*10² CTUe.*
- *HTP-c, Perfil Vini® line indoor use: 3.69*10⁻⁸ CTUh.*
- *HTP-nc, Perfil Vini® line indoor use: 2.47*10⁻⁶ CTUh.*

Resource use indicators

Perfil Vini® Line, indoor and outdoor use | Results per declared unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	8.32*10¹	3.31*10⁻¹	4.49*10⁰	0.00*10⁰	3.63*10⁻²	0.00*10⁰	2.53*10⁻²	0.00*10⁰
PERM	MJ	9.88*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰
PERT	MJ	9.31*10¹	3.31*10⁻¹	4.49*10⁰	0.00*10⁰	3.63*10⁻²	0.00*10⁰	2.53*10⁻²	0.00*10⁰
PENRE	MJ	9.41*10¹	3.09*10¹	6.45*10⁰	0.00*10⁰	3.35*10⁰	0.00*10⁰	9.40*10⁻¹	0.00*10⁰
PENRM	MJ	2.46*10²	0.00*10⁰	1.25*10¹	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰
PENRT	MJ	3.40*10²	3.09*10¹	1.89*10¹	0.00*10⁰	3.35*10⁰	0.00*10⁰	9.40*10⁻¹	0.00*10⁰
SM	kg	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰
RSF	MJ	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰
NRSF	MJ	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰	0.00*10⁰
FW	m^3	6.72*10⁻¹	5.32*10⁻²	3.60*10⁻²	0.00*10⁰	5.85*10⁻³	0.00*10⁰	1.38*10⁻⁴	0.00*10⁰
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Waste indicators

Perfil Vini® Line, indoor and outdoor use | Results per declared unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	$6.41*10^{-4}$	$2.29*10^{-4}$	$4.75*10^{-5}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$3.01*10^{-5}$	$0.00*10^{0}$
Non-hazardous waste disposed	kg	$1.05*10^{0}$	$2.52*10^{-2}$	$2.22*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$1.27*10^{1}$	$0.00*10^{0}$
Radioactive waste disposed	kg	$1.75*10^{-3}$	$6.28*10^{-7}$	$9.64*10^{-5}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$6.19*10^{-7}$	$0.00*10^{0}$

Output flow indicators

Perfil Vini® Line, indoor and outdoor use | Results per declared unit									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$
Material for recycling	kg	$5.37*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$
Materials for energy recovery	kg	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$
Exported energy, electricity	MJ	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$
Exported energy, thermal	MJ	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$	$0.00*10^{0}$

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