EPD

Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for

Porcelain Tile

Water Absorption E≤0.5%

Programme:
The International EPD® System
www.environdec.com

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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

YURTBAY SERAMİK

EPD® THE INTERNATIONAL EPD® SYSTEM

TURKEY EPD® ENVIRONMENTAL PRODUCT DECLARATIONS

ECO PLATFORM EPD VERIFIED

Programme Information

Programme

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Product Category Rules (PCR): 2019:14 Version 1.11, 2021-02-05, Construction Products and CPC 54 Construction Services, EN 15804:2012 + A2:2019 Sustainability of Construction Works

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification EPD verification X

Third party verifier: Prof. Vladimír Kocí
Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes No X

Difference from previous version
The EPD has been revised basen on the latest technical specification.

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.

About the Company

Mission

Apply state-of-the-art technology and innovative designs to create superior, dependable and exquisite surface solutions that are reflected “from nature to art.”

Add value to our brand, commercial and social stakeholders, and country with high added value products and services.

Vision

As an industry pioneer with roots in Turkey, ascend to the status a world-renowned, coveted and popular brand.

The founder of Yurtbay Group of Companies, Mr. Zeki Yurtbay, acquired his first experiences in trading at the dry goods shop owned by his father.

As the first steps in his long-term experience in brick production started, he took over the brick production initiative merely at the age of 14 and successfully continued to manage the task he inherited in 1951 from his father. Although he lost the brick factory several times which was founded in 1955 and in Zonguldak, he did not give up.

In 1970, he set up new and modern facilities. The investments by Mr. Zeki Yurtbay were not limited to Çaycuma, and he first became the partner and then the owner of Delta Brick Factory.

The following process started with the recognition of Yurtbay Family in the global economy with its well-established industrial history, and its initial step into the ceramics industry. In 1995, Yurtbay Seramik Eskişehir Plant was established with 700 thousand square meters outdoors and 100 thousand square meters indoors production capacity.

With the “Quality First” strategy and understanding, the production increased at a steady pace over the years has reached 25 million square meters production/year. As a result, export operations to 56 countries are ongoing. Yurtbay has started to work with the biggest global and foreign sales chains and have reached higher growth rates across the sector. The key to this international success has been “No compromise on quality, the right product and production at global standards”.

With its reliability, Yurtbay Seramik is the pioneer and founder of many years of cooperation at home.

Making domestic sales via 5 regional directorates located in Istanbul, Ankara, Adana, Antalya and Izmir, Yurtbay Seramik continued its operations to increase the number of its stores and further expand its network.

Reflecting its dynamic structure through its projects, Yurtbay Seramik continues to bring added value to the industry and carry its brand image one step further by coming up with aesthetic and eco-friendly solutions.


FINE WINES
ANTIQUAIRS
CHANEL

About the Product

Product Description

Yurtbay Porcelain Tile is mainly produced from clay, kaolin and other raw materials as is shown in the product composition table. The porcelain tiles are served to the customer as packed which are recycleable cardboards and plastics.

UN CPC code for Yurtbay Ceramic Porcelain Tiles is 37310.

Product Area of Application

Porcelain tiles are used in many areas of life. It can be used in all type of buildings. They generally used for interior decoration, with its production in various colors and patterns and in different sizes.

Raw Material	Composition, %
Kaolin	10-20
Clay	40-50
Feldspar	40-50
Magnezite	0-5
Others	0-5

Packaging Material	Weight, %/m²
Cardboard	32.1
Wood	33.7
Plastic	18.4
Glue	0.2
Label	15.7

Technical Specifications

Technical Specifications	EN 14411:2016 - Group BIa Annex G	YURTBAY CERAMIC	Test Standards
Length and Width	7cm≤N<15cm ±0.9mm N≥15cm ±%0.6 ±2.0mm	±0.80mm ±%0.4	EN ISO 10545-2
Thickness	7cm≤N<15cm ±0.5mm N≥15cm ±%5 ±0.5mm	±0.40mm ±%0.4	EN ISO 10545-2
Straightness of Sides	7cm≤N<15cm ±0.75mm N≥15cm ±%0.5 ±1.5mm	±0.65mm ±%0.4	EN ISO 10545-2
Rectangularity	7cm≤N<15cm ±0.75mm N≥15cm ±%0.5 ±2.0mm	±0.65mm ±%0.4	EN ISO 10545-2
Centre Curvature	7cm≤N<15cm +0.75mm N≥15cm +%0.5 +2.0mm	+0.65mm +%0.4	EN ISO 10545-2
Edge Curvature	7cm≤N<15cm +0.75mm N≥15cm +%0.5 +2.0mm	+0.65mm +%0.4	EN ISO 10545-2
Warpage	7cm≤N<15cm +0.75mm N≥15cm +%0.5 +2.0mm	±0.65mm ±%0.4	EN ISO 10545-2
Water Absorption (%)	E ≤ %0.5	E ≤ 0.5	EN ISO 10545-3
Breaking Strength (N)	Thickness ≥ 7.5 mm Min. 1300 N Thickness < 7.5 mm Min. 700 N	Thickness ≥ 7.5 mm Min. 1400 Thickness < 7.5 mm Min. 700	EN ISO 10545-4
Modulus of Rupture (N/mm²)	Average Min. 35 N/mm² Individual Min. 32 N/mm²	Min. 37	EN ISO 10545-4
Crazing Resistance	Required (5 Atm. for 2 hours)	Resistant	EN ISO 10545-11
Thermal Shock Resistance	Required (At 150 °C for 10 Cycles)	Resistant to 200 °C	EN ISO 10545-9
Resistance to Surface Abrasion of Glazed Tiles	As indicated by the Manufacturer	As specified for each product.	EN ISO 10545-7
Impact Resistance	Required	Resistant	EN ISO 10545-5
Frost Resistance	Required	Resistant	EN ISO 10545-12
Resistance to Household Chemicals and swimming pool salts	Minimum Class GB	Minimum Class GB	EN ISO 10545-13
Resistance to Acids and Alcalis	As indicated by the Manufacturer	Changes According to the products	EN ISO 10545-13
Resistance to Staining	Minimum Class 3	Minimum Class 3	EN ISO 10545-14
Ramp Slip Resistance	Where Required	Where Required	EN 16165

LCA Information

Goal and Scope

Evaluation of environmental impacts for 1 m^2 average tiles from cradle to grave.

System Boundary

The system boundary covers A1 - A3 product stages referred as 'Raw material supply', 'Transport' and 'Manufacturing' , A4 - A5 'Construction', B1 - B7 'Use', C1 – C4 'End of life' and benefits and load (D) stages.

Database and LCA Software

Ecoinvent database (Ver.3.8) (www.ecoinvent.org) and SimPro 9.3 is used for the calculation.

Data Quality

Raw materials. energy and water consumption, waste, material and product transport data is primary data collected from Yurtbay.

Period Under Review

All primary data collected from Yurtbay is for the period year of 2021.

Declared Unit

1 m^2 average tile with an average weight of 19.71 kg.

Geographical Scope

The geographical scope of this EPD is global.

REACH Regulation

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in this product either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

Cut-Off Criteria

1% cut-off applied. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

Allocations

No allocation was performed for this EPD. There are no coproducts in the production of tiles. Hence. there is no need for co-product allocation. Transport is allocated according to tonnages for raw materials bought by Yurtbay. Similarly, water consumption and energy consumption are also allocated according to the production figures.

Information on biogenic carbon content according to EN 15804+A2		
Biogeniz Carbon Content	**Unit**	**Quantity**
Biogenic carbon content in product	kg C	0.010
Biogenic carbon content in packaging	kg C	0.085

This EPD's system boundary is cradle to grave. The results of the LCA with the indicators as per EPD requirement are given in the following tables for product manufacture (A1, A2, A3), construction process stage (A4, A5), use stage (B2,B3,B4,B5), end of life stage (C1, C2, C3, C4) and benefits and load stage (D).

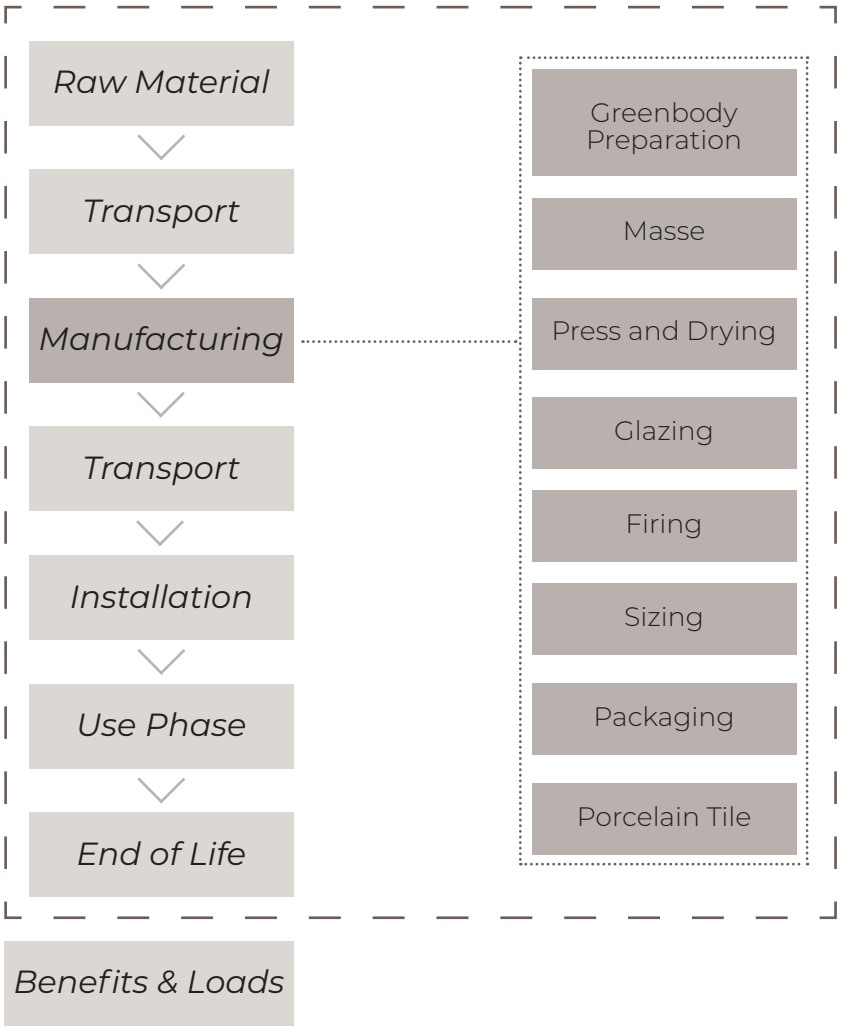
The system boundaries in tabular form for all modules are shown in the table below.

	Product Stage			Constrcution Process Stage		Use Stage							End of Life Stage				Benefits and Loads
	Raw Material Supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction & Demolition	Transport	Waste Processing	Disposal	Future reuse, recycling or energy recovery potentials
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	X	X	X	X	X	X	X	X	X	X	X	X
Geography	TR	TR	TR	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO
Specific Data Used	>90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	NR					-	-	-	-	-	-	-	-	-	-	-	-
Variation - Sites	NR					-	-	-	-	-	-	-	-	-	-	-	-

Description of the system boundary (X = Included in LCA, NR: Not Relevant)

Note: The LCA was modelled for specific product at plant so there is no variation.
Note: All primary data is taken from Yurtbay Seramik Eskişehir and Ecoinvent was used for secondary data.

System Boundary



Product Stage

A1: Raw Material Supply includes raw material extraction and pre-treatment processes before the production. Production starts with the raw materials.

A2: Upstream Transport is relevant for delivery of raw materials to the plant and forklift usage within the factory.

A3: Manufacturing stages include production of tiles and detailed production scheme is given in Manufacturing Scheme. Transport is only relevant for delivery of raw materials to the plant and forklift usage within the factory.

Construction Stage

A4: Downstream Transport is relevant for delivery of porcelain tiles to the construction site.

A5: Installation Stage includes the adhesive mortar and water usage in the construction site. Yurbay advices 5 kg mortar and 1.2 L water usage for 1 m^2 porcelain tile installation.

Use Stage

B1: Use Stage concerns emissions into environment. Tiles do not cause any emissions in the use stage because of their inert feature.

B2: Maintenance includes cleaning of tiles. Yurtbay advices to use 0.2 mL detergent which contains stain remover or neutral low-sulphate and rinse with 0.1 L tap water after cleaning.

B3: Repair is not required during the use phase and therefore no impacts should be declared.

B4: Replacement is not required during the use phase and therefore no impacts ocurred in this module.

B5: Refurbishment is not required during the use phase and therefore no impacts has occurred in this module.

B6: Operational Energy Use is not required in the use stage therefore no impacts has occurred in this module.

B7: Operational Water Use is not required in the use stage therefore no impacts has occurred in this module.

End of Life Stage

C1: Deconstruction and Demolition at the end of RSL is usually conducted with a selective deconstruction/ demolition. The environmental impacts generated during this phase are very low and therefore can be neglected.

C2: Transport includes the transportation of the discarded tiles and adhesive mortar to final disposal. Average distance from demolition site to inert landfill site for final disposal is assumed to be 50 km.

C3: Waste Processing concerns crushing of discarded porcelain tiles before recycle or reuse. The environmental impacts generated during the C3 phase are very low and therefore can be neglected.

C4: Disposal is the final stage of product life. Porcelain tiles end up at construction and demolition waste landfills as their final fate and modelled as such in this LCA.

B&L Stage

D : Benefits and Loads stage includes calculation of inert filler benefits and recycling of packaging materials specified in the disposal stage.

LCA RESULTS												
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- Fossil	kg CO_2 eq	15.2	1.66	6.60	0	482E-6	0	0	0.208	0	0.309	-0.706
GWP- Biogenic	kg CO_2 eq	-0.272	0.004	0.126	0	256E-6	0	0	502E-6	0	0.003	-0.002
GWP- Luluc	kg CO_2 eq	0.012	0.001	0.007	0	627E-6	0	0	102E-6	0	313E-6	-0.002
GWP- Total	kg CO_2 eq	14.9	1.66	6.73	0	1.37E-03	0	0	0.209	0	0.312	-0.711
ODP	kg CFC11 eq	2.37E-6	367E-9	641E-9	0	79.5E-12	0	0	44.2E-9	0	93.9E-9	-137E-9
AP	mol H^+ eq	0.031	0.015	0.044	0	5.36E-6	0	0	846E-6	0	0.003	-0.007
*EP - Freshwater	kg P eq	1.58E-3	141E-6	2.15E-3	0	3.73E-6	0	0	17.6E-6	0	89.6E-6	-79.5E-6
EP - Freshwater	kg PO_4 eq	4.85E-3	431E-6	6.57E-3	0	11.4E-6	0	0	54.0E-6	0	274E-6	-243E-6
EP - Marine	kg N eq	0.008	0.003	0.007	0	5.24E-6	0	0	241E-6	0	898E-6	-0.002
EP - Terrestrial	mol N eq	0.078	0.034	0.074	0	18.1E-6	0	0	2.6E-3	0	0.010	-0.022
POCP	kg NMVOC eq	0.020	0.008	0.022	0	2.75E-6	0	0	653E-6	0	0.002	-0.005
ADPE	kg Sb eq	69E-6	4.32E-6	118E-6	0	8.93E-9	0	0	918E-9	0	1E-6	-4.14E-6
ADPF	MJ	252	24.7	95.2	0	0.005	0	0	3.01	0	7.26	-10.06
WDP	m^3 depriv.	3.16	96.5E-3	4.06	0	0.007	0	0	0.011	0	0.315	-0.868
PM	disease inc.	276E-9	89.7E-9	381E-9	0	74.7E-12	0	0	12.6E-9	0	50.6E-9	-66.6E-9
IR	kBq U-235 eq	0.492	0.135	0.398	0	44.0E-6	0	0	13.7E-3	0	0.034	-0.051
ETP-FW	CTUe	103	18.7	222	0	0.064	0	0	2.77	0	5.17	-9.6
HTTP-C	CTUh	3.45E-9	605E-12	8.73E-9	0	1.40E-12	0	0	90.5E-12	0	222E-12	-545E-12
HTTP-NC	CTUh	90.9E-9	17.7E-9	213E-9	0	27.4E-12	0	0	2.55E-9	0	3.47E-9	-9.85E-9
SQP	Pt	70.5	14.20	55.1	0	39.7E-3	0	0	1.83	0	18.0	-22.5
Acronyms	GWP-total: Climate change. GWP-fossil: Climate change- fossil. GWP- biogenic: Climate change - biogenic. GWP-luluc: Climate change - land use and transformation. ODP: Ozone layer depletion. AP: Acidification terrestrial and freshwater. EP-freshwater: Eutrophication freshwater. EP-marine: Eutrophication marine. EP-terrestrial: Eutrophication terrestrial. POCP: Photochemical oxidation. ADPE: Abiotic depletion - elements. ADPF: Abiotic depletion - fossil resources. WDP: Water scarcity. PM: Respiratory inorgawnics - particulate matter. IR: Ionising radiation. ETP-FW: Ecotoxicity freshwater. HTP-c: Cancer human health effects. HTP-nc: Non-cancer human health effects. SQP: Land use related impacts. soil quality.											
Legend	A1: Raw Material Supply. A2: Transport. A3: Manufacturing. A1-A3: Sum of A1. A2. and A3. A4: Transport to Site. A5: Installation. B1: Use. B2: Maintenance. B3: Repair. B4: Replacement. B5: Refurbishment. B6:Operational Energy Use. B7: Operational Water Use C1: De-Construction. C2: Waste Transport. C3: Waste Processing. C4: Disposal. D: Benefits and Loads Beyond the System Boundary.											
Disclaimer 1	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 2	The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											
Disclaimer 3*	EP-freshwater: This indicator has been calculated as “kg P eq”as required in the characterization model. (EUTREND model. Struijs et al. 2009b. as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml)											

RESOURCE USE												
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	13.7	0.411	6.07	0	0.019	0	0	0.040	0	0.124	-0.220
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	13.7	0.411	6.07	0	0.019	0	0	0.040	0	0.124	-0.220
PENRE	MJ	252	24.7	95.2	0	0.006	0	0	3.01	0	7.26	-10.1
PENRM	MJ	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	252	24.7	95.2	0	0.006	0	0	3.01	0	7.26	-10.1
SM	kg	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	0.096	0.004	0.092	0	300E-6	0	0	522E-6	0	0.008	-0.066
Acronyms	PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding 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, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water.											

WASTE OUTPUT FLOWS												
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	0.002	0	0	0	0	0	0	0	0	0	0
NHWD	kg	0.191	0	0	0	0	0	0	0	0	0	0
RWD	kg	0	0	0	0	0	0	0	0	0	0	0
CRU	kg	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0
EE (Electrical)	MJ	0	0	0	0	0	0	0	0	0	0	0
EE (Thermal)	MJ	0	0	0	0	0	0	0	0	0	0	0
Acronyms	PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding 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, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water.											

CLIMATE IMPACT												
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- GHG	kg CO_2 eq	14.9	1.64	6.45	0	0.001	0	0	0.206	0	0.304	-0.701
Acronyms	GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology which excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator											

References

/GPI/ General Programme Instructions of the International EPD® System. Version 4.0.

/EN ISO 9001/ Quality Management Systems - Requirements

/EN ISO 14001/ Environmental Management Systems - Requirements

/Ecoinvent / Ecoinvent Centre. www.ecoinvent.org

/ISO 14020:2000/ Environmental Labels and Declarations — General principles

/EN 15804:2012+A2:2019/ Sustainability of construction works - Environmental Product Declarations — Core rules for the product category of construction products

/ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

/ISO 14040/44/ DIN EN ISO 14040:2006-10. Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)

/PCR for Construction Products and CPC 54 Construction Services/ Prepared by IVL Swedish Environmental Research Institute. Swedish Environmental Protection Agency. SP Trä. Swedish Wood Preservation Institute. Swedisol. SCDA. Svenskt Limträ AB. SSAB. The International EPD System. 2019:14 Version 1.11 DATE 2019-12-20

/The International EPD® System/ The International EPD® System is a programme for type III environmental declarations. maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com

/SimaPro/ SimaPro LCA Software. Pré Consultants. the Netherlands. www.pre-sustainability.com

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