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TERRATICO™

Environmental Product Declaration

Average EPD

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

Terratico™ cement-plastic mixture based on terrazzo

Terratico, j.s.a.

Programme
EPD Square | www.epdsquare.com

Programme operator
EPD Square, s.r.o.

EPD Registration number
SQ 00-043

Publication date
28.10.2025

Valid until
27.10.2030

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TERRATICO™

General information

Product
Terratico™ cement-plastic mixture based on terrazzo

Program operator
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Registration number
SQ 00-043

Publication date
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Valid until date
27.10.2030

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Email: info@terratico.com

Place of production
Pinkove Kračany, Slovakia

Product Category Rules (PCR)
EPD Square PCR v1.0, 2024

Declared unit
1 m^3

Mass per DU
2000 kg

UN CPC code
375 - Articles of concrete, cement and plaster

Geographical scope
Europe

Year of study
2024

Comparability
EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in the context of the building.

EPD author
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Verification type
Independent verification of the declaration and data, according to ISO14025:2006
Internal: ☐
External: ☒

Verified by
Sigita Židonienė, UAB Vesta Consulting

The owner of the declaration shall be liable for the underlying information and evidence.
EPD Square shall not be liable with respect to manufacturer, life cycle assessment data and evidence.

System boundaries

This EPD is based on system boundary cradle to gate with options, module A5, modules C1 - C4, and module D.

Modules declared and geographical scope

	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	MND	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geography	SK	SK	SK	-	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	EU

Modules not declared = MND

Description of Organization

Terratico is an innovative company focused on sustainability, using hard-to-recycle plastic waste to create high-performance alternatives to concrete. We have built upon traditional Italian terrazzo manufacturing technology, innovating with recycled materials to create a certified, cutting-edge blend with optimal properties for modern architecture and construction. Terratico's eco-friendly materials are lighter, more flexible, and designed to reduce environmental impact while maintaining high durability and cost-effectiveness.

Made from the certified Terratico™ mixture, our products meet the requirements of contemporary construction, while preserving their visual appeal, excellent properties, and positive impact on the environment and society. Terratico aims to demonstrate the possibility of combining tradition with modern concepts of social responsibility.

The resulting product, a cement-plastic mixture, combines utility, sustainability, and beauty. Terratico's mission is to promote sustainable urbanization by creating safer, more durable building materials.

Product information

Product name

Products made from Terratico™ cement-plastic mixture based on terrazzo - urban and garden furniture, facade elements, cast prefabricated elements, screed, plastic terrazzo floor tiles (interior and exterior), and atypical personalized production.

Product description

Elements of urban and garden furniture, facade elements, cast prefabricated elements, tiles, and screeds are manufactured from the Terratico™ matrix. The Plasticterrazzo mixture consists of a basic cement-plastic mixture based on terrazzo containing as dominant components of the mixture of plastic shreds and cement, and other components: water, sand, limestone, and plasticizer.

The environmental impacts presented in this EPD are based on a reference configuration of Terratico™ cement-plastic mixture based on terrazzo. Actual products may vary according to customer requirements in terms of shape, dimensions, and colour. Material types and production processes remain unchanged.

Technical data

Characteristic	Parameter / Performance
Water absorption	max. 6%
Flexural strength	min. 5.00 MPa (average)
Weather resistance	Class 3 Label D
Slip resistance	min. 35 USRV
Reaction to fire	$A2_{fl}$ - s1
Safety for contact with food and drinking water	Safe
Abrasion resistance (Böhme test)	max. 30 cm^3/50 cm^2
Thickness options	Various sizes per model

Product application

Terratico mixture products are used in the construction industry and for architectural design. Their applications are extensive, thanks to the properties of the certified mixture. These products can be used in both public and private spaces, including gardens, parks, pedestrian walkways, and squares, to enhance public areas, as well as in private residences. Floor tiles, offering a wide range of decorative options, are suitable for both interior and exterior use, including high-traffic areas such as shopping centers, common areas in residential buildings, exclusive representative spaces and special applications like swimming pool surroundings. Additionally, the product is used to create attractive furniture and flowerpots.

Geographical scope

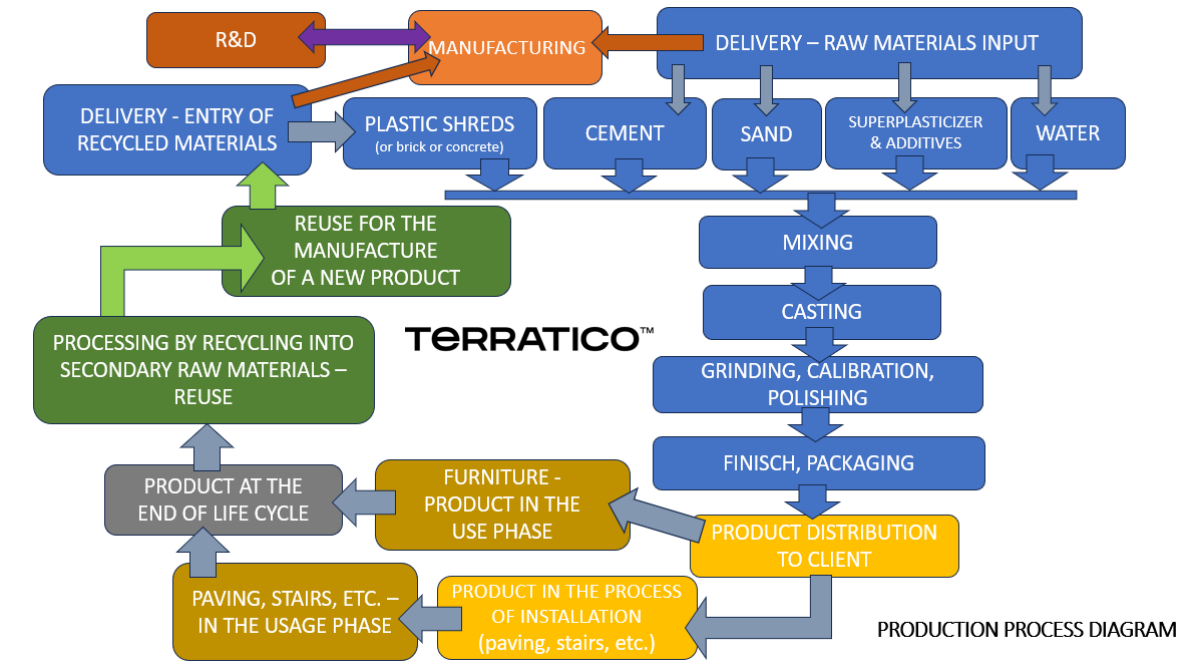
Slovakia, Europe

Product contents information

Product components	Weight, %	Post-consumer material, weight-%	Renewable material, weight-%
Cement	22,1	0	0
Plastic shred	10,4	10,4	0
Limestone	8,8	0	0
Sand	52,4	0	0
Water	4,9	0	0
Auxiliary materials	1,4	0	0
TOTAL	100	10,4	0

Packaging materials	Weight, kg	Weight-% (versus the product)
LDPE foil	0,5	0,03
Cardboard/Paper	6,1	0,31
Wooden pallet	29,9	1,50
TOTAL	36,5	1,84

Manufacturing process



PRODUCTION PROCESS DIAGRAM

Life cycle assessment

Cut-off criteria

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

Allocation, estimations, and assumptions

Allocation is based on the annual production rate and made with high accuracy and precision. The values for 1 m^3 of the product which are used within this study are calculated by considering the total product weight per annual production. In the production plant, several kinds of products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the produced products' output is fixed to 1 m^3 and the corresponding amount of product is used in the calculations.

Database(s) and LCA software

This EPD has been created using One Click LCA Pre-Verified EPD Generator. Ecoinvent 3.10.1 (2024) and One Click LCA databases (2023) were used as sources of environmental data. Characterization factors are based on Environmental Footprint 3.1. (EF 3.1).

Data quality

The data quality information has been provided according to the requirements of EN 15941. The data assessment was done using the Product Environmental Footprint Category Rules. The data has been collected internally, considering the latest available average production amounts and measurements during the time period of 2024. The quality level in this study is qualified as Good. Data quality rating procedure has been performed using a rating system where “1” means Very good quality, and “5” means Very poor quality. No fair, poor or very poor data was found during the assessment of relevant data.

Geographical rating	Technology rating	Time-related rating	Average rating
1,8	1,9	1,2	1,5

LCA Scenarios and additional technical information

A1 Raw material extraction

This stage considers the extraction and processing of all raw materials. Within the product stage accurate data has been used.

A2 Transport

The considered transportation impacts include exhaust emissions resulting from transportation of all raw materials from suppliers to production plant as well as the environmental impacts of production of the used fuel. The transportation distances and methods were provided by manufacturer. Module includes road transport (truck EURO6, 16-32 t, consumption 35 l / 100 km).

A3 Manufacturing

The environmental impacts considered for the production stage cover the manufacturing of the production materials and fuels used by machines. The environmental impacts of this stage have been calculated using the most recent data in regard to what applied in the factory.

Manufacturing energy scenario

Electricity data source and quality	Electricity, Slovakia, residual mix	LCA study for country specific residual electricity mixes based on AIB 2023 and calculated by One Click LCA, OneClickLCA 2023
Electricity CO2e / kWh	0,45	
Energy data source and quality	Market for propane, burned in building machine	Ecoinvent 3.10.1
Propane CO2e / MJ	0,0944	
Energy data source and quality	Diesel, burned in building machine	Ecoinvent 3.10.1
Diesel CO2e / MJ	0,1	

A5 Assembly

Product is installed manually on the construction site, therefore energy consumption is negligible. It is assumed that 40% of plastic waste, 83% of paper and 32% of wooden pallets are recycled. 37% of plastic waste, 8% of paper and 30% of wooden pallets are incinirated. 23% of plastic waste, 9% of paper and 38% of wooden pallets are landfilled. The distance is assumed to be 50 km and the transportation method assumed to be lorry.

C1 Disassembly

Decomposition and/or dismantling of insulation are part of the demolition of the entire building. In this case, the environmental impact is expected to be very small and can be neglected.

C2 Transport

Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry which is the most common.

C3 Waste processing

A 90% waste recycling rate is assumed.

C4 Disposal

10% of waste is recycled.

End of Life (C1, C3, C4)

	Value	Unit
Collected separately	2000	Kg
Collected as mixed construction waste	-	Kg
Reuse	-	Kg
Recycling	1800	Kg
Energy recovery	-	Kg
To landfill	200	Kg

D module

Module D considers the benefits and loads of recycling.

Additional environmental information

Results refer to the declared unit of 1 m^3 of Terratico™ cement-plastic mixture based on terrazzo. The LCIA results for products within this group show a certain range of environmental impacts, influenced by materials used and geographical location. While the average values provide a general overview, individual products may experience fluctuations in their impact profiles. This variability is inherent in the product group and should be considered when evaluating the environmental performance, as some products may have higher (+2%) or lower (-0,8%) impacts compared to the average.

LCA results

Core environmental impact indicators – EN 15804+A2, PEF 3.1

Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4,11E+02	6,28E+01	0,00E+00	1,93E+01	7,88E+00	1,25E+00	-2,46E+01
GWP-fossil	kg CO2 eq.	4,72E+02	1,92E+00	0,00E+00	1,93E+01	7,88E+00	1,25E+00	-1,87E+01
GWP-biogenic	kg CO2 eq.	-6,09E+01	6,09E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,90E+00
GWP-LULUC	kg CO2 eq.	1,66E-01	1,70E-03	0,00E+00	6,83E-03	8,07E-04	7,14E-04	1,50E-02
ODP	kg CFC11 eq.	7,22E-06	1,94E-08	0,00E+00	3,85E-07	1,21E-07	3,62E-08	-1,35E-07
AP	mol H^+ eq.	1,26E+00	6,72E-03	0,00E+00	6,05E-02	7,11E-02	8,85E-03	-1,18E-01
EP-freshwater	kg P eq.	6,13E-02	3,26E-04	0,00E+00	1,28E-03	2,27E-04	1,03E-04	-9,31E-03
EP-marine	kg N eq.	3,54E-01	7,61E-03	0,00E+00	2,04E-02	3,30E-02	3,37E-03	-3,05E-02
EP-terrestrial	mol N eq.	3,78E+00	2,66E-02	0,00E+00	2,22E-01	3,61E-01	3,68E-02	-3,58E-01
POCP	kg NMVOC eq.	1,15E+00	8,85E-03	0,00E+00	9,48E-02	1,08E-01	1,32E-02	-9,97E-02
ADP-M&M	kg Sb eq.	1,71E-03	4,35E-06	0,00E+00	6,33E-05	2,82E-06	1,98E-06	-9,28E-05
ADP-fossil	MJ	3,29E+03	1,69E+01	0,00E+00	2,72E+02	1,03E+02	3,06E+01	-2,17E+02
WDP	m^3	4,68E+02	4,66E-01	0,00E+00	1,33E+00	2,57E-01	8,84E-02	-2,38E+01

GWP-total: Global Warming Potential; 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; See "additional requirements" for indicator given as PO4 eq. EP-marine: Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-terrestrial: Eutrophication potential, Accumulated Exceedance; POCP: Formation potential of tropospheric ozone; ADP-M&M: Abiotic depletion potential for non-fossil resources (minerals and metals); ADP-fossil: Abiotic depletion potential for fossil resources; WDP: Water deprivation potential, deprivation weighted water consumption

Additional (optional) environmental impact indicators – EN 15804+A2, PEF 3.1

Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
PM	Disease incidence	9,89E-06	1,15E-07	0,00E+00	1,52E-06	1,54E-05	2,01E-07	-1,75E-06
IRP	kBq U235 eq.	7,83E+01	5,22E-02	0,00E+00	3,46E-01	4,56E-02	1,93E-02	-1,12E+00
ETP-fw	CTUe	3,64E+02	1,23E+01	0,00E+00	3,57E+01	5,67E+00	2,57E+00	-5,51E+01
HTP-c	CTUh	9,76E-08	6,94E-10	0,00E+00	3,30E-09	8,10E-10	2,30E-10	-4,66E-09
HTP-nc	CTUh	2,74E-06	3,72E-08	0,00E+00	1,71E-07	1,28E-08	5,29E-09	-1,29E-07
SQP	Dimensionless	4,68E+03	1,54E+01	0,00E+00	1,62E+02	7,22E+00	6,03E+01	-7,31E+02

PM: Particulate matter emissions; IRP: Ionising radiation, human health; ETP-fw: Ecotoxicity (freshwater); ETP-c: Human toxicity, cancer effects; HTP-nc: Human toxicity, non-cancer effects; SQP: Land use related impacts / soil quality

Use of Natural Resources

Parameter	Unit	A1-A3	A5	C1	C2	C3	C4	D
RPEE	MJ	4,31E+02	-5,28E+02	0,00E+00	4,70E+00	6,53E-01	2,96E-01	-8,35E+01
RPEM	MJ	4,54E+02	-4,54E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,59E+01
TPE	MJ	8,86E+02	-9,82E+02	0,00E+00	4,70E+00	6,53E-01	2,96E-01	-1,76E+01
NRPE	MJ	3,52E+03	-5,01E+00	0,00E+00	2,72E+02	1,03E+02	3,06E+01	-2,18E+02
NRPM	MJ	6,05E+01	-5,93E+01	0,00E+00	0,00E+00	-1,03E+00	-1,14E-01	7,72E+00
TRPE	MJ	3,58E+03	-6,43E+01	0,00E+00	2,72E+02	1,02E+02	3,05E+01	-2,11E+02
SM	kg	2,33E+02	1,39E-02	0,00E+00	1,24E-01	4,28E-02	7,70E-03	2,98E+00
RSF	MJ	1,53E+01	1,24E-04	0,00E+00	1,57E-03	1,12E-04	1,59E-04	-1,70E-03
NRSF	MJ	1,15E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	3,27E+00	-3,93E-02	0,00E+00	3,66E-02	6,81E-03	3,19E-02	-5,63E-01

RPEE: Renewable primary energy resources used as energy carrier; RPEM: Renewable primary energy resources used as raw materials; TPE: Total use of renewable primary energy resources; NRPE: Non-renewable primary energy resources used as energy carrier; NRPM: Non-renewable primary energy resources used as materials; TRPE: Total use of non-renewable primary energy resources; SM: Use of secondary materials; RSF: Use of renewable secondary fuels; NRSF: Use of non-renewable secondary fuels; W: Use of net fresh water

End of life – Waste

Parameter	Unit	A1-A3	A5	C1	C2	C3	C4	D
HW	KG	8,01E+00	1,34E-01	0,00E+00	3,90E-01	1,15E-01	3,38E-02	-1,62E+00
NHW	KG	2,57E+02	7,13E+01	0,00E+00	8,22E+00	1,56E+00	7,73E-01	-3,61E+01
RW	KG	2,00E-02	1,31E-05	0,00E+00	8,61E-05	1,12E-05	4,70E-06	-2,63E-04

HW: Hazardous waste disposed; NHW: Non-hazardous waste disposed; RW: Radioactive waste disposed

End of life – Output flows

Parameter	Unit	A1-A3	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	1,10E+01	1,49E+01	0,00E+00	0,00E+00	1,80E+03	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	2,26E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	3,09E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

CR: Components for reuse; MR: Materials for recycling; MER: Materials for energy recovery; EEE: Exported electric energy; ETE: Exported thermal energy

Information describing biogenic carbon content at factory gate

Biogenic carbon content	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in the accompanying packaging	15,85	kg C

*Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2

Specific data (GWP-GHG) and data variation for A1-A3

Specific data and data variation	Value-%
Specific data	15,1
Variation - product	-0,8; +2%
Variation - site	Not relevant

Hazardous substances

☒ The product does not contain any REACH SVHC substances in amounts greater than 0.1 %.

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EPD Square PCR v.1.0, 2024

EPD Square, General Programme Instructions v.1, 2024

Ecoinvent database v3.10.1 (2024) and One Click LCA database

LCA background report

Annex

Environmental impacts – GWP-GHG

Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP - GHG	kg CO2e	4,72E+02	1,92E+00	0,00E+00	1,93E+01	7,88E+00	1,25E+00	-1,87E+01

GWP- GHG: Global Warming Potential, greenhouse gases