ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ČSN ISO 14025:2010
and EN 15804:2021+A2:2019+AC:2021

Organization	**CIDEMAT Hranice, s.r.o.**
Industry Program Operator	CENIA, Czech Environmental Information Agency, Executive Body of NPEZ Agency
Author	Technický a zkušební ústav stavební Praha, s.p.
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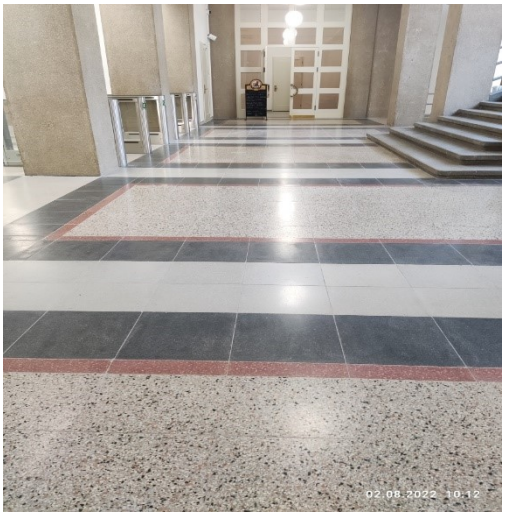


Terrazzo products and tiles CIDEMAT

1. General Information Declaration

CIDEMAT Hranice, s.r.o.	Terrazzo products and tiles CIDEMAT
Programme: „National programme of environmental labelling “- CR **Industry operator:** CENIA, Czech Environmental Information Agency, Executive body of the NPEZ Agency, Moskevská 1523/63, Praha 10, 101 00, www.cenia.cz ,	**Name and address of the manufacturer:** **CIDEMAT Hranice, s.r.o.** Skalní 1088 753 01 Hranice - Hranice I-Město, CZ
EPD registration number: **3015-EPD-030063981**	**Declared unit:** **1 t of average product** – „ Terrazzo products and tiles CIDEMAT “
Product category rules: EN 15804+A2:2019 as core PCR EN 16757:2017 **Publication Date:** 2022-11-30 **Valid until:** 2027-11-30 in accordance with EN 15804**+**A2:2019	**Product:** **Terrazzo products and tiles CIDEMAT**

The company CIDEMAT Hranice, s.r.o. has been engaged in the production of terrazzo and concrete paving since 1995, when it was established by selling part of the company from the joint-stock company Cement Hranice. However, terrazzo and concrete paving has been produced at the plant in Hranice since 1992. Since then, we have produced and delivered to the market more than five million square meters of terrazzo and concrete paving.

Over the years, CIDEMAT's product range has expanded to include other terrazzo products such as window sills, stairs or stair cladding. We are also able to offer everything as custom production, according to customer wishes (including small series).

With regard to the possibility of comparing products **in the life cycle assessment of buildings** on the basis of their EPD, which is carried out by determining their contribution to the environmental properties of the building, it is necessary that the EPD of the construction products in question be prepared in accordance with the requirements of the standard **EN 15804+A2:2019** *Sustainability of construction works – Environmental product declaration – Core rules for the product category of construction products* and using PCR **EN 16757:2017** *Sustainability of construction works - Environmental product declarations - Product Category Rules for concrete and concrete elements*.

1. Product data

1.1.1. Product

The use of modern vibro-pressing methods and easier machine grinding have opened up new possibilities for the use of terrazzo tiles. Their main advantages compared to cast terrazzo floors are in particular: a wider spectrum in the use of different grits, high surface strength, better surface quality and faster floor installation.

In addition to floors, terrazzo material can also be used for the production of other interior accessories, such as terrazzo cladding for stairs, window sills, terrazzo finishing elements both in interiors and exteriors. These are produced either in the pattern of the paving used for the floor area or according to the architect's design. The advantage is also the possibility of various surface finishes of these products - grinding, blasting, mottling, etc.

Terrazzo is a mixture of cement, noble stone chips (marble, etc.) and dyes. The pattern of terrazzo tiles, its color, is made up of marble, terrazzo or limestone rubble of various colors and fractions. The strength of the paving is determined by the cement core, for the production of which mixed Portland gray and white cements are used. The paving can be colored with cement pigments. The manufacturer supplies these main product groups according to the field of application:

Terrazzo products are manufactured and supplied according to **EN 13748-1:2005** *Terrazzo tiles - Part 1: Terrazzo tiles for internal use* and **EN 13748-2:2005** *Terrazzo tiles - Part 2: Terrazzo tiles for external use*. Concrete products are supplied according to **EN 1339:2005** *Concrete paving flags - Requirements and test methods*. The slip resistance of the products is assessed according to the above standards and according to ČSN 74 4507:2007 *Slip resistance of floor surface - Determination of friction coefficient* and DIN 51130:2013 *Slip resistance*.

1.1.2. Product data sheet

The main product range of Cidemat Hranice s.r.o.:

- MARGITA terrazzo paving, size 300x300x24mm
- TEREZA terrazzo paving, size 300x300x30mm
- RADKA terrazzo paving, size 400x400x27mm
- XENA terrazzo paving size 600x600x38mm
- Terrazzo paving with relief ORNELA size 300x300x33mm
- Terrazzo paving of various sizes and shapes, which is produced from the stated basic dimensions by processing - cutting and milling
- Terrazzo tiles for stairs, window sills, facing boards - single-layer, in sizes and shapes, tailor made.
- Wall strips in dimensions 300x(60-100)x12mm, 400x(60-100)x12mm, 600x(60-100)x15mm, in color and pattern according to customer requirements

Terrazzo paving and terrazzo products are sanded or blasted based on customer requirements.

The use of modern production methods results in a floor element with excellent useful properties, among which in particular:

- High bearing capacity and resistance to point loads. Due to its construction, terrazzo tiles spread the high point load caused by traffic, especially by means of transport, over a larger floor area.
- High operating toughness and surface resistance, which the tile takes from its base material, which is stone.
- The possibility of great variability in drawing, patterns, color and dimensions, which is due to the possibility of a large assortment of different stone chips, the possibility of dyeing into the mass and the use of modern production methods and subsequent surface treatment options - grinding, blasting, sprinkling, etc.
- Frost resistance and resistance to de-icing salts
- Easy and cheap operational maintenance of the floor or stair covering
- Environmental friendliness resulting from the use of aggregates as the basic component of the element

The products are subject to EU Regulation No. 305/2011 (CPR) and a Declaration of Performance (DoP) is issued for the product.

Detailed characteristics of individual product types are available on the manufacturer's website https://www.cidemat.cz/, where the Product Catalog can also be downloaded.

Product packaging:

The majority of products are stored on pallets with spacers for transport. If necessary, the edges are protected by PVC corners and the whole pallet is covered with foil.

1.1.3. Rules for use

Terrazzo paving can be laid both indoors and outdoors of

- shopping centers, station halls, schools, hospitals, entrance halls, etc. (paving mainly with white cement)
- industrial halls, warehouses, laundries, outbuildings, garages, service stations, cellars, etc. (paving mainly with gray cement)

BEATRIX concrete paving are used for the construction of sidewalks, pedestrian zones, park areas, around houses, etc.

ORNELA terrazzo paving are used on terraces, building entrances, around swimming pools, open atriums, etc.

The fields of application of the products are listed in Art. 1.1.1.

Products are manufactured and declared in accordance with the standards specified in 1.1.2. Products are subject to mandatory certification and the manufacturer issues the appropriate declaration of conformity.

Environment and health during use

Under normal conditions of use, the products do not produce any adverse health effects or release volatile organic compounds into the indoor air.

Due to the fields of application of the product, no environmental impacts and emissions to water, air or soil are expected.

Reference lifetime

The reference service life (RSL) for terrazzo and concrete pavements is not declared. For this type of terrazzo products and pavers, the service life (RSL) is normally estimated to be 50 years.

1.1.4. Delivery method

The products are delivered in accordance with the standards mentioned in point 1.1.2. The majority of products are stored on pallets with spacers for transport. If necessary, the edges are protected by PVC corners and the whole pallet is covered with foil.

Product quality is ensured by an effective quality management system according to EN ISO 9001 and in accordance with technical regulations regarding the type of product.

1.1.5. Basic raw materials and auxiliary materials

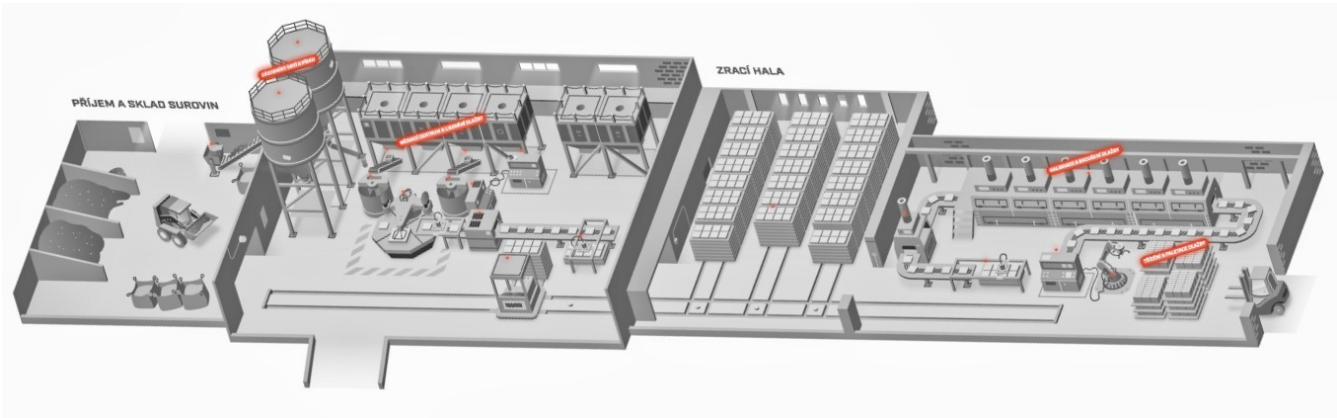
The main raw materials for the production of terrazzo products and paving stones are various crushed aggregates in the required colors and fractions (approx. 30-40% by weight), gravel (approx. 40-50%), cement (approx. 20-25%), coloring pigments (approx. 0 .05%), plasticizers and auxiliary substances (approx. 0.3-0.5%).

Substances on the List of Substances of Very High Concern subject to authorisation by the European Chemicals Agency are not present in terrazzo products and paving stones in declarable quantities.

1.1.6. Production

The terrazzo and concrete paving products are produced on a technology device using specific concrete production technology from a mixture of cement, dyes and special stone chips. Terrazzo products are modified by grinding. The production process is shown schematically in Fig. 1:

Fig.1: Scheme of the manufacturing process



1.1.7. Waste management

Waste generated during the production process is collected according to the type and reported in accordance with the regulations.

Possibility to recycle used products (at the end of their service life)

After the end of the building's useful life, the given material can be sorted together with the other concrete parts of the building (in the amount corresponding to DJ) as part of the controlled demolition of the building. Furthermore, the material can be handled in the following way:

- • Crush and use as aggregate for various purposes
- • Dump unused material, waste type O (waste code 101103)

1.2. LCA: Calculation rules

1.2.1. Declared unit

The declared unit shall be 1 t of the average product — Terrazzo products and tiles CIDEMAT.

All inputs and outputs of this report were considered as consumption or production related to the production of 1 t of the mentioned product.

Table 1 Declared unit and conversion factors

Identification	Unit	Value
Declared unit	t	1
Conversion factor from kg	kg	1000

2. System boundary according to the modular approach

The boundary of the product life cycle system consists of **the information module A1 – A3 "Production phase", "End of life cycle phase" C1-C4 and D** in accordance with EN 15804+A2:2019. The project report includes all relevant processes for the EPD type "***From cradle to gate with modules C1-C4 and module D*** "(cradle to gate with modules C1–C4 and module D).

Information on product system boundaries is shown in Table 2.

Table 2: Information about product system boundaries – information modules

Information about product system boundaries – information modules (**X** = Included, **ND** = module not declared)																
Production stage			**Construction stage**		**Usage stage**							**End-of-life stage**				**Additional information beyond the life cycle**
Supply of mineral resources	Transport	Production	Transport to the construction site	Construction/installation process	Usage	Maintenance	Repair	Replacement	Reconstruction	Operational energy consumption	Operating water consumption	Demolition/deconstruction	Transport	Waste treatment	Removal	Benefits and costs beyond the system. Potential for reuse, recovery, and recycling
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	**X**	**X**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**X**	**X**	**X**	**X**	**X**

The system boundary is set to include both those processes that provide material and energy inputs to the system and subsequent production and transport processes up to the factory gate, and the treatment of all waste resulting from these processes.

The production stage includes the following modules:

- **A1** – extraction and processing of raw materials and production of packaging from input raw materials
- **A2** - transport of input raw materials from supplier to manufacturer, waste collection
- **A3 -** production of products, production of auxiliary materials and semi-finished products, energy consumption, including treatment of waste, up to reaching end-of-waste or after the last material residues have been removed during the production phase.

Data for the period 2021 provided by CIDEMAT Hranice, s.r.o. is used.

The end-of-life stage includes modules:

- **C1,** deconstruction, demolition; of the product from the building, including its dismantling or demolition, including the initial classification of materials at the site of construction
- **C2,** transport to the waste treatment site; transport of the discarded product as part of the waste treatment, e.g., to the recycling site, and transport of the waste, e.g., to the final disposal site.
- **C3,** treatment of waste for re-use, recovery and/or recycling, e.g., collection of waste fractions from deconstruction, treatment of waste from material flows intended for re-use, recycling, and energy recovery.
- **C4,** disposal of waste, including its pre-treatment and management of the disposal site

The benefits and costs beyond the product system are set out in Module D.

Module D includes:

- **D,** potential for reuse, recovery and/or recycling, expressed in net impacts or benefits.

The boundaries of the product system are considered in such a way that they **include only production processes, not administrative activities**.

As **end-of-life scenarios for** products (C1-C4, D), data resulting from an expert estimate of the possibility of reprocessing part of this glass insulation after the deconstruction of the building (as part of the take-back as a replacement for part of the inputs to production, reprocessing into another product – e.g., blown-in insulation, etc.) were used. These schemes are:

Module C1

Decomposition and/or dismantling of paving and cladding are part of the demolition of the entire building. In this case, it is assumed that the impact on the environment is very small and can be neglected.

Module C2

Transport from the dismantled building is executed by a truck with a load capacity of 7.5-16 t (EURO 6) to the landfill of inert material as demolition of a mixed building, the estimated transport distance according to calculations: 60 km to the recycling centre or to the landfill.

Module C3

A scenario where 5% of the product is disposed of in an inert landfill is assumed. The use of products (together with other concrete products) as recyclable material is considered to be 95% (treatment by crushing into aggregate for various purposes). The use of concrete reinforcement is similarly assumed.

Module C4

5% of the dismantled product is disposed of as mixed construction debris in an inert material landfill, without taking into account the energy use of landfill gas from (minor) organic components.

Potential for reuse, recovery, and recycling (D)

In the module D scenario, the saving of primary raw material inputs (without considering transport and energy) in another product system (crushed aggregate) is taken into account. Impacts from the crushing and sorting process are included..

2.1. Preconditions and measures taken

Information modules **A4 to A5**, which are intended to provide additional information beyond the production stage, have not been included in the LCA due to the difficult availability of input data and are therefore not declared.

Information modules from the **usage stage B1 to B7** are also not declared because according to EN 16757 these types of products do not require maintenance, repair, or replacement during the normal life in the usage stage, provided that they are used correctly. Also, during the usage stage, they do not require consumption of energy or water.

The reference lifetime of the products is also not declared because of unavailability of representative data on the operating conditions in the usage stage of the product.

As part of the studied product system, a co-product is also produced - calcareous pressings from grinding sludge. However, their production is very small compared to the total production of other products, and therefore the influence of this co-product is neglected.

For the study, all operational data related to the consumption of main and auxiliary materials for the production of the product, energy data, diesel consumption and the distribution of annual waste and emissions according to the plant records were taken. For all inputs and outputs considered, transport costs were considered or differences in transport distances were recognised.

From the point of view of the waste produced, only the waste clearly related to production activities was included in the analysis – see Chapter. 3.3.2

For some input data, due to their complexity in obtaining them, alternative methods have been chosen in the form of a qualified calculation based on the available information. Some input data was converted into units that were needed for the selected generic process data in the environmental impact assessment calculation program.

These are:

- Energy data relating to **diesel** expressed in CU – were determined by calculation based on data on diesel consumption in litres and a coefficient of 0,845 kg/l for diesel and an energy value of 42,6 MJ/kg.
- Data on **natural gas** consumption in Kwh – were determined by conversion from the consumed quantity to MJ (1 kWh = 3,6 MJ)
- Data on the production of **waste** were taken from the continuous register of waste for the reference period.

2.2. Cut-off criteria

The processes required for the installation of production equipment and the construction of infrastructure were not included in the analysis. Administrative processes are not included either – inputs and outputs are balanced on the production stage.

Data on coating materials were not included in the inventory data.

2.3. Sources of environmental data

All inputs and outputs were entered in SI units, namely:

- Material and auxiliary inputs and product outputs in kg, pcs, m^3
- Sources used as energy input (primary energy), in MWh or MJ and GJ, including renewable energy sources (hydropower, wind energy)
- Water consumption in kg or m^3
- Inputs related to transport in km (distance), tkm (material transfer) and in kg (diesel consumption)
- Time was stated in practical units depending on the scale of the assessment: minutes, hours, days, years.

The time range of the required specific data provided by CIDEMAT Hranice, s.r.o., for the purpose of this report was set as a representative period **2021**. For this period, all available data were provided by the organization for their further processing.

The basic source of the necessary data from the area of production, purchasing, maintenance, etc. was the information system, or operational records from maintenance activities. To determine waste production, the annual report on waste production from the ISPOP system and operational records for the given production plant were used. Only those types of waste related to the production phase were included in this report, as waste destined for landfill.

Measured values from monitoring and measuring emissions leakage to air and water were used to determine the amount of emissions from the production process.

For the following inputs it was proceeded this way (direct data not available):

- Distances on the transport of inputs and outputs (waste) – data from Google maps were used

For the complete analysis of environmental parameters were used:

- computing software SimaPro, version 9.3 SimaPro Analyst (database Ecoinvent version 3.8)

2.4. Data quality

The data used to calculate the EPD meet the following principles:

Time period: For specific data, manufacturer's data from 2021 have been used. This is due to significant technological changes in the production process. For generic data, the data of the Ecoinvent version database 3.8 have been used. Based on the evaluation in accordance with EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - very good.

Technological aspect: Data corresponding to the current production of individual types of sub-products and corresponding to the current state of new technologies in the plant used have been used.

Based on the evaluation in accordance with EN 15804+A2, Annex E, tab. E.1 the generic data used meet the level of quality - very good.

Completeness and complexness aspect: Most of the input data is based on consumption balances, which are precisely recorded in the information system. As part of the completeness check, the company CIDEMAT Hranice, s.r.o. was visited, and it was checked whether all used inputs/outputs are entered in the records. The reliability of the source of specific data is determined by the uniformity of the methodology of the information system collection method.

Geographical aspect: The generic data used from the Ecoinvent database are used with validity for the Czech Republic (e.g., energy inputs) and if data are not available for the Czech Republic, data valid for the EU or according to the supplier's location are used. Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 used generic data meet the level of quality - medium.

Consistency aspect: Uniform aspects are used throughout the scope of the report (allocation rules, age of data, technological scope of validity, time scope of validity, geographical scope of validity).

Credibility aspect: All important data were checked to ensure cross-comparison of weight balances.

2.5. Period considered

As the period of the required specific data, provided by CIDEMAT Hranice, s.r.o.,, for the purpose of this report, a calendar period **2021** was determined as a representative period.

2.6. Allocation

Within the product system studied, there are also co-products – fiberglass granulate and glass fibre for the production of filters, which are for sale. The quantity is indicated in the input data and the input data has been reduced by this amount, except for the consumption of packaging material for finished products.

2.7. Comparability

Environmental product declarations from different programmes may not be comparable. Comparison or assessment of EPD data is only possible if all compared data reported in accordance with EN 15804+A2:2019 have been determined according to the same rules.

2.8. Product variability

The resulting data are given for **1 t of average product - Terrazzo products and tiles CIDEMAT**.

2.9. LCA: Results

Information on environmental impacts is indicated in the following tables. The individual results for the impact categories are presented in Tables 3 and 4. Tables 5 to 7 provide additional environmental information. They are related to the declared unit (DJ) – **1 t of the average product - Terrazzo products and tiles CIDEMAT**.

The impact assessment was carried out using the characterisation factors used in the European Life Cycle Reference Database (ELCD) provided by the European Commission – Directorate-General of the Joint Research Centre – Institute for Environment and Sustainability.

Table 3: Parameters describing **the basic environmental impacts**

Ultimately LCA – Parameters describing basic environmental impacts (DJ = 1 t of the product)							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (**GWP-total**)	kg CO_2 Eq.	2,96E+02	0	1,28E+01	2,85E-01	2,64E-01	-3,10E+00
Global warming potential (**GWP-fossil**)	kg CO_2 eq.	2,92E+02	0	1,28E+01	2,76E-01	2,63E-01	-2,97E+00
Global warming potential (**GWP-biogenic)**)	kg CO_2 eq.	3,26E+00	0	1,17E-02	8,58E-03	2,61E-04	-1,22E-01
Global warming potential from land use and land-use change (**GWP-luluc**)	kg CO_2 eq.	1,13E-01	0	6,05E-03	6,31E-04	2,49E-04	-1,99E-03
Stratospheric ozone depletion potential (**ODP**)	kg CFC 11 eq.	1,45E-05	0	2,89E-06	1,40E-08	1,07E-07	-4,17E-07
Acidification potential, Cumulative exceedance (**AP**)	mol H+ eq.	8,64E-01	0	3,62E-02	1,48E-03	2,48E-03	-2,71E-02
Eutrophication potential, proportion of nutrients entering fresh water (**freshwater EP**)	kg P eq.	1,48E-01	0	9,66E-04	2,68E-04	2,41E-05	-4,77E-04
Eutrophication potential, proportion of nutrients entering seawater (**seawater EP**)	kg N eq.	2,19E-01	0	7,08E-03	2,58E-04	8,61E-04	-7,93E-03
Eutrophication potential, Cumulative overshoot (**soil EP**)	mol N eq.	2,15E+00	0	7,71E-02	2,27E-03	9,42E-03	-1,07E-01
Ground-level ozone formation potential (**POCP**)	kg NMVOC eq.	5,87E-01	0	2,96E-02	6,54E-04	2,74E-03	-2,50E-02
Raw material depletion potential for **non-fossil sources (ADP-minerals and metals)**)	kg Sb eq.	5,23E-04	0	5,86E-05	7,52E-07	6,01E-07	-6,80E-05
Raw material depletion potential for fossil resources (**ADP-fossil fuels**)	MJ, calorific value	2,68E+03	0	1,92E+02	5,78E+00	7,35E+00	-4,37E+01
Water scarcity potential (for users), water scarcity weighted by water scarcity (**WDP**)	m3 eq. scarcity	3,07E+01	0	6,36E-01	6,45E-02	3,31E-01	-9,25E-01

Table 4 Parameters describing **additional environmental impacts**

LCA result – Parameters indicating additional environmental impacts (DJ = 1 t of the product)							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Potential occurrence of disease due to particulate matter emissions (**PM**)	Occurrence of the disease	5,27E-06	0	8,74E-07	5,46E-09	4,99E-08	-6,01E-07
Potential effect of human exposure to the isotope U235 (**IRP**)	kBq U235 eq.	3,42E+01	0	1,02E+00	1,55E-01	3,27E-02	-7,92E-01
Potential comparative toxic unit for ecosystems (**ETP-fw**)	CTUe	2,01E+03	0	1,56E+02	3,30E+00	4,64E+00	-6,83E+01
Potential comparative toxic unit for humans (**HTP-c**)	CTUh	1,98E-06	0	1,51E-07	4,71E-09	3,05E-09	-6,72E-08
Potential comparative toxic unit for humans (**HTP-nc**)	CTUh	3,01E-07	0	5,65E-09	2,47E-10	1,18E-10	-6,36E-09
Potential Soil Quality Index (**SQP**)	dimensionless	5,28E+02	0	1,13E+02	8,60E-01	1,54E+01	-9,93E+01

Table 5: Parameters describing **resource consumption**

LCA result – Parameters describing resource consumption (DJ = 1 t of the product)							
Parameter	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Consumption of renewable primary energy, excluding energy sources used as raw materials **(PERE)**	MJ	1,00E+02	0	3,24E+00	1,01E+00	6,27E-02	-1,48E+01
Consumption of renewable primary energy sources used as raw materials (**PERM**)	MJ	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total consumption of renewable primary energy sources (primary energy and primary energy sources used as raw materials) (**PERT**)	MJ	1,00E+02	0	3,24E+00	1,01E+00	6,27E-02	-1,48E+01
Consumption of non-renewable primary energy, excluding energy sources used as raw materials (**PENRE**)	MJ	2,87E+03	0	2,03E+02	6,07E+00	7,81E+00	-4,59E+01
Consumption of non-renewable primary energy sources used as raw materials (**PENRM**)	MJ	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total consumption of non-renewable primary energy sources (primary energy and primary energy sources used as raw materials) (**PENRT**)	MJ	2,87E+03	0	2,03E+02	6,07E+00	7,81E+00	-4,59E+01
Consumption of secondary raw materials (**SM**)	kg	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Consumption of renewable secondary fuels (**RSF**)	MJ	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Consumption of non-renewable secondary fuels (**NRSF**)	MJ	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net potable water consumption (**FW**)	m^3	1,17E-04	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Table 6 Other environmental information **- waste category description**

LCA result — Other environmental information — waste category description (DJ = 1 t of the product)							
Parameter	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed of (**HWD**)	kg	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Other waste disposed of (**NHWD**)	kg	1,33E+00	0	0,00E+00	0,00E+00	5,00E+01	0,00E+00
Radioactive waste disposed of (**RWD**)	kg	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Table 7 Other environmental information **- description of output flows**

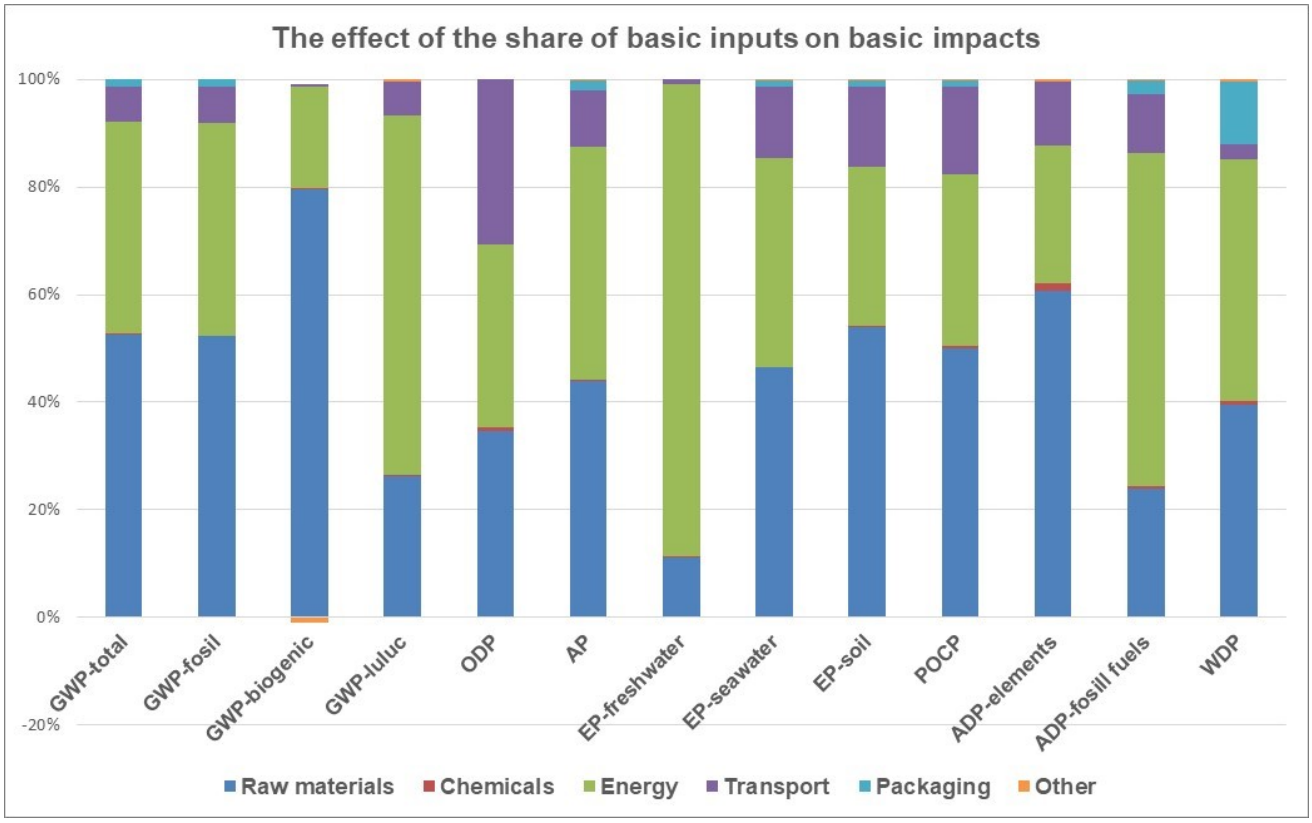
LCA result - Other environmental information - description of output flows (DJ = 1 t of the product)							
Parameter	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Construction units for reuse (**MFR**)	kg	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling (**MER**)	kg	1,33E+00	0	0,00E+00	9,50E+02	0,00E+00	0,00E+00
Materials for energy recovery (**EEE**)	kg	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy (**EET**)	MJ per energy carrier	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Table 8 Information describing the **biogenic carbon content** of the plant gate

LCA result – Information describing the biogenic carbon content at the plant gate (DJ = 1 t of the product)		
Parameter	**Unit**	**At the plant gate**
Biogenic carbon content of the product	kg C	0
Biogenic carbon content in the appropriate packaging	kg C	4,18E+01

2.9.1. LCA: Interpretation

The impact of basic groups of inputs on basic environmental impacts is shown in Figure 3:
Figure. 3 Impact of the share of basic inputs on the basic impacts



It can be seen from the figure that the **consumption of raw materials (mainly cement)** and **electricity** and its energy mix (CZ) have a very significant influence on environmental impacts. To a lesser extent, the effect of **transport** is also applied.

3. LCA: scenarios and other technical information

Information modules A4, A5 and B1-B7 were not included in the LCA analysis.

4. LCA: Additional information

EPD does not include additional documentation related to the declaration of supplementary information.

5. References

ČSN ISO 14025:2010 Environmentální značky a prohlášení - Environmentální prohlášení typu III - Zásady a postupy (Environmental labels and declarations - Type III environmental declarations - Principles and procedures)

ČSN EN 15804+A2:2020 Udržitelnost staveb - Environmentální prohlášení o produktu - Zásadní pravidla pro produktovou kategorii stavebních výrobků (Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products)

ČSN EN ISO 14040:2006 Environmentální management - Posuzování životního cyklu - Zásady a osnova (Environmental management - Life Cycle Assessment - Principles and Framework)

ČSN EN ISO 14044:2006 Environmentální management - Posuzování životního cyklu – Požadavky a směrnice (Environmental management - Life Cycle Assessment – Requirements and guidelines)

ČSN ISO 14063:2007 Environmentální management - Environmentální komunikace - Směrnice a příklady (Environmental management - Environmental communication - Guidelines and examples)

ČSN EN 15643-1:2011 Udržitelnost staveb - Posuzování udržitelnosti budov - Část 1: Obecný rámec (Sustainability of construction works - Sustainability assessment of buildings - Part 1: General framework)

ČSN EN 15643-2:2011 Udržitelnost staveb - Posuzování udržitelnosti budov - Část 2: Rámec pro posuzování environmentálních vlastností (Sustainability of construction works - Assessment of buildings - Part 2: Framework for the assessment of environmental performance)

ČSN EN 15942:2013 Udržitelnost staveb - Environmentální prohlášení o produktu - Formát komunikace mezi podniky (Sustainability of construction works - Environmental product declarations - Communication format business-to-business)

TNI CEN/TR 15941:2012 Udržitelnost staveb - Environmentální prohlášení o produktu - Metodologie výběru a použití generických dat (Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data)

ILCD handbook - JRC EU, 2011

Zákon č. 541/2020 Sb. v platném znění (Zákon o odpadech) / Act. No. 541/2020 Coll., as amended (Waste Act)

Vyhláška č. 8/2021 Sb. Katalog odpadů – Katalog odpadů / Decree No. 8/2021 Coll. Waste catalogue – Waste catalogue

Nařízení Evropského parlamentu č. 1907/2006 o registraci, hodnocení, povolování a omezování chemických látek a o zřízení Evropské agentury pro chemické látky - REACH (registrace, evaluace a autorizace chemických látek) / Regulation (EC) No 1907/2006 of the European Parliament concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency - REACH (Registration, Evaluation and Authorisation of Chemicals

Nařízení Evropského parlamentu a Rady (ES) č. 1272/2008 o klasifikaci, označování a balení látek a směsí, o změně a zrušení směrnic 67/548/EHS a 1999/45/ES a o změně nařízení (ES) č. 1907/2006 (nařízení CLP) / Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No 1907/2006 (CLP Regulation)

SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com

Ecoinvent Centre, www.Ecoinvent.org

Explanatory documents are available from the Head of Quality Management Department of CIDEMAT Hranice, s.r.o.

6. EPD verification

CEN standard EN 15804+A2 serves as the core PCR	
Independent verification of the declaration and data, according to EN ISO 14025:2010: ☐ Internal ☒ External	
Third party verifier: Technický a zkušební ústav stavební Praha, s.p. Prosecká 811/76a, Praha 9, 190 00 Czech Republic Certification Body for EPD, accredited by CAI - Czech Accreditation Institute, under No. 275/2022	

cidemat	Organizace CIDEMAT Hranice, s.r.o. Bělotínská č. 288 753 01 Hranice	Tel: +420 602 569 187 Fax: -- Email: cidemat@cidemat.cz, Web: http://www.cidemat.cz/
	Oborový provozovatel programu: CENIA, Česká informační agentura životního prostředí, výkonná funkce Agentury NPEZ Moskevská 1523/63 100 10 Praha 10	Tel: +420 267 225 226 Fax: - Email: info@cenia.cz Web: www.cenia.cz
	TZÚS Praha pobočka Ostrava U Studia 14 700 30 Ostrava	Tel. : +420 734 432 137 +420 602 185 785 moler@tzus.cz trinner@tzus.cz