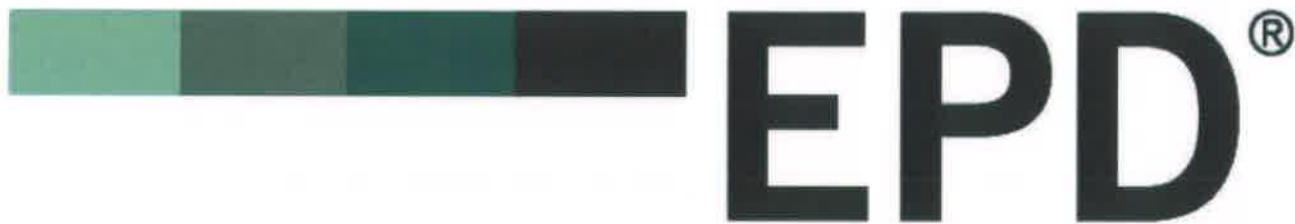


ENVIRONMENTAL
PRODUCT DECLARATION

HELUZ

 **HELUZ**





ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and EN 15804 2012+A2:2019 for:
Hollow bricks and brick products
HELUZ cihlářský průmysl, v. o. s.

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

Programme operator: The International EPD® System

EPD registration number: S-P-00750

Approval date: 01. 05. 2021

Valid until: 30. 04. 2026

Revision date:

Geographical scope: Europe



Verified EPD by Independent Third Party Accredited Certification Body
Building Research Institute - Certification Company Ltd.
Czech Republic, Prazska 810/16, 102 21 Praha 10 info@vups.cz www.vups.cz





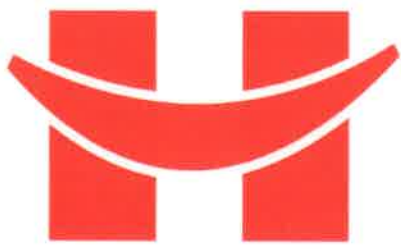
Dolní Bukovsko



Libochovice



Hevlín



HELUZ



COMPANY

The hollow bricks **HELUZ** is produced in HELUZ cihlářský průmysl v. o. s., 373 65 Dolní Bukovsko 295, Czech Republic. Registration No. / VAT No.: 466 80 004/ CZ46680004. The company is recorded in the Company Register kept by the Regional Court in České Budějovice, Section České Budějovice, File 1867. The record in the Company Register (22. 5. 1992) was ordered by the District Court in České Budějovice. Tel.: +420 389 018 111, fax: +420 386 354 309, <http://www.heluz.cz/>

The company of HELUZ cihlářský průmysl v. o. s. produces a complex range of brick products which can be further used for rough constructions. At current times, the company has its manufacturing facilities in three locations. There is a brick production plant in Dolní Bukovsko where the company's headquarter can be also find. This plant includes facilities for brick production, production of horizontal structures and production of roller blind lintels and chimney systems. In Hevlín, there are two production plants for complete range of brick products. Brick-kiln of Hevlín II is one of the most advanced manufacturing plants in Europe which is furnished with advanced technology; there are brick blocks which have the best thermal and insulation characteristics produced right here. In the brick-kiln of Libochovice, there is a production facility for brick blocks, accessories and also ceramic ceiling panels of HELUZ. The company of HELUZ cihlářský průmysl v. o. s. sell its goods to foreign markets too - Slovakia, Austria, Germany, Poland and Hungary and offer following categories of brick:

HELUZ FAMILY and **HELUZ FAMILY 2in1**: Unique news on Czech market used for passive and low-energy building without necessary thermal insulation. Passive and low-energy house.

HELUZ STI: Brick blocks of STI quality which comply with parameters of energy saving and low-energy buildings.

HELUZ AKU: Acoustic bricks for housing development.

HELUZ PLUS, **HELUZ P15** and **HELUZ** are brick blocks for internal and external masonry that will be additionally insulated.





PRODUCT

Declared unit 1 000 kg of burnt bricks

UN CPC 3731: Bricks, blocks, tiles and other ceramic goods of siliceous earths

Product description:

The hollow brick HELUZ is a brick for general masonry use it can be used for load bearing, non load bearing and acoustic masonry. Especially it can be used for one layer thermal insulated masonry, that reach U - value 0,15 W/m²K. This EPD covers all HELUZ brick production with the same composition. Differences are only in shape and volume of bricks. Material and energy consumption of production is only product weight depended. As this EPD is based on declaration unit which is 1000 kg of product, environmental data shown below are valid for all bricks.

This EPD is valid for in tables below summarized HELUZ bricks:



Plants Hevín

Trademark	Type Type	Width	Weight/ pcs	Weight/ m ²	U - Value	Recommended use
		cm	kg	kg	W/m ² K	
HELUZ Family 2in1	calibrated	50	20,0	320	0,11	A, B, C
		44	17,9	286	0,13	A, B, C
		38	15,2	243	0,15	A, B, C
		30	12,5	200	0,23	A, B, C
		25	10,3	165	0,26	B, C
HELUZ Family	calibrated	50	19,7	315	0,14	A, B, C
		44	17,6	282	0,17	A, B, C
		38	15,0	240	0,20	A, B, C
		30	12,4	198	0,26	B, C
		25	10,1	162	0,30	B, C
HELUZ STI	calibrated	49	18,1	289	0,18	A, B, C
		44	15,7	251	0,198	A, B, C
		40	14,3	229	0,21	A, B, C
HELUZ STI		38	13,8	221	0,22	A, B, C
HELUZ STI		44	15,0	240	0,20	A, B, C

Expected service life time is 100 years.

U - Value - design value without plaster except of category of use A, there is a design value with thermal plaster

A - One layer thermal insulating masonry

B - Load bearing masonry

C - Non load bearing masonry

D - Acoustic masonry





Trademark	Type	Width	Weight/ pcs	Weight/ m ²	U - Value	Recommended use
		cm	kg	kg	W/m ² K	
HELUZ Plus	calibrated	44	16,2	259	0,20	A, B, C
		40	14,8	237	0,23	A, B, C
		38	13,9	222	0,23	A, B, C
		36,5	13,5	216	0,29	B, C
		30	13,1	210	0,51	B, C
		25	16	171	0,42	B, C
		44	15,6	250	0,21	A, B, C
HELUZ Plus		40	14,9	238	0,24	A, B, C
		38	13,3	213	0,24	B, C
		36,5	13,5	216	0,30	B, C
		30	12,5	200	0,57	B, C
		25	15,7	16822	0,48	B, C
HELUZ UNI	calibrated	30	13,1	210	0,49	B, C
		25	16,6	178	0,66	B, C
HELUZ UNI		30	12,5	200	0,56	B, C
		25	15,8	169	0,74	B, C
HELUZ P15	calibrated	30	12,9	206	0,48	B, C
		25	18,9	202	0,80	B, C
		20	17,9	143	1,11	B, C
HELUZ P15		30	12,3	197	0,55	B, C
		25	18,1	194	0,86	B, C
		20	17,1	137	1,17	B, C

Expected service life time is 100 years. -

U - Value - design value without plaster except of category of use A, there is a design value with thermal plaster

A - One layer thermal insulating masonry

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D - Acoustic masonry





Trademark	Type Type	Width	Weight/ pcs	Weight/ m ²	U - Value	Recommended use
		cm	kg	kg	W/m ² K	
HELUZ	calibrated	24	14,7	157	0,85	B, C
		20	16,3	130	0,90	B, C
		17,5	14,7	118	0,96	B, C
		14	12,8	102	1,19	C
		11,5	10,3	82	1,30	C
		10	10,0	80	1,55	C
		8	5,3	57	1,53	C
		24	14,8	158	0,91	B, C
HELUZ		20	15,6	125	0,96	B, C
		17,5	14,5	116	1,03	B, C
		14	12,3	98	1,25	C
		11,5	9,9	79	1,38	C
		10	9,5	76	1,45	C
		8	5,1	55	1,63	C

Expected service life time is 100 years.

U - Value - design value without plaster except of category of use A, there is a design value with thermal plaster

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Trademark	Type	Width	Weight/ pcs	Weight/ m ²	SRI - R _w	Recommended use
		cm	kg	kg	dB	
HELUZ AKU	30/333 MK	30	21,4	257	58	B, C, D
	30/333	30	23,3	280	56	B, C, D
	25 MK	25	20,4	218	56	B, C, D
	25	25	21,7	232	55	B, C, D
	20	20	18,2	195	53	B, C, D
	Z 17,5	17,5	16,5	177	51	B, C, D
	11,5	11,5	11,0	118	47	C, D

Plants Libochovice

Trademark	Type	Width	Weight/ pcs	Weight/ m ²	U - Value	Recommended use
		cm	kg	kg	W/m ² K	
HELUZ Family	calibrated	44	18,2	291	0,16	A, B, C
		38	17,3	277	0,21	A, B, C
		30	13,3	213	0,25	B, C
		25	11,5	184	0,29	B, C
		49	19,4	310	0,17	A, B, C
HELUZ STI	calibrated	44	17,4	278	0,18	A, B, C
		40	16,4	262	0,20	A, B, C
HELUZ STI		44	17,6	282	0,20	A, B, C
		44	20	320	0,19	A, B, C
HELUZ Plus	calibrated	40	16,7	267	0,22	A, B, C
		38	15,9	254	0,3	B, C
		36,5	14,6	234	0,28	B, C
		30	13,2	211	0,58	B, C
		25	16,2	173	0,49	B, C
HELUZ Plus		44	19,1	306	0,20	A, B, C
		40	16	256	0,23	A, B, C
		38	15,2	243	0,3	B, C
		36,5	14,1	226	0,29	B, C
		30	12,8	192	0,66	
		25	15,7	168	0,50	

Expected service life time is 100 years.

U - Value - design value without plaster except of category of use A, there is a design value with thermal plaster

A - One layer thermal insulating masonry

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D - Acoustic masonry





Trademark	Type	Width	Weight/ pcs	Weight/ m ²	U - Value	Recommended use
		cm	kg	kg	W/m ² K	
HELUZ UNI	calibrated	30	13,7	219	0,53	B, C
		25	17,5	187	0,75	B, C
HELUZ UNI		30	13,1	210	0,51	B, C
		25	16,7	179	0,83	B, C
HELUZ P15	calibrated	30	15,1	242	0,48	B, C
		25	19,1	204	0,80	B, C
HELUZ P15		30	14,5	232	0,55	B, C
		25	18,3	196	0,86	B, C
		24	16,7	179	0,82	B, C
		20	17,1	137	0,92	B, C
HELUZ	calibrated	17,5	15,8	126	1,04	B, C
		14	11,4	91	1,20	C
		11,5	10,5	84	1,33	C
		8	5,5	59	1,56	C
		24	16,1	172	0,89	B, C
HELUZ		20	16,3	130	0,98	B, C
		17,5	15,3	122	1,12	B, C
		14	10,9	87	1,27	C
		11,5	10,1	81	1,41	C
		8	5,3	57	1,65	C
Trademark	Type	Width	Weight/ pcs	Weight/ m ²	SRI - R _w	Recommended use
		cm	kg	kg	dB	
HELUZ AKU	36,5 MK	36,5	19,1	306	58	B, C, D
	30/33,3 MK	30	21,5	258	58	B, C, D
	30/33,3	30	23,3	280	56	B, C, D
	25 MK	25	20,3	217	56	B, C, D
	20	20	18,2	195	53	B, C, D
	Z 17,5	17,5	17,3	185	51	B, C, D
	11,5	11,5	11,0	118	47	B, C, D

Expected service life time is 100 years.

U - Value - design value without plaster except of category of use A, there is a design value with thermal plaster

A - One layer thermal insulating masonry

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C - Non load bearing masonry

D - Acoustic masonry





Plants Dolní Bukovsko

Trademark	Type	Width	Weight/ pcs	Weight/ m ²	U - Value	Recommended use
		cm	kg	kg	W/m ² K	
HELUZ Plus	calibrated	44	19,5	312	0,30	A, B, C
		40	16,6	266	0,34	A, B, C
		30	14,4	230	0,59	B, C
		25	16,2	173	0,67	B, C
HELUZ Plus		44	18,6	298	0,31	A, B, C
		40	15,8	253	0,33	A, B, C
		30	14,3	229	0,65	B, C
HELUZ UNI	calibrated	25	15,7	168	0,75	B, C
		30	14,9	238	0,57	B, C
		25	19,1	204	0,80	B, C
HELUZ UNI		30	14,3	229	0,64	B, C
		25	18,3	196	0,87	B, C
HELUZ P15	calibrated	30	16,1	258	0,58	B, C
		25	22,6	242	0,92	B, C
HELUZ P15		30	15,3	245	0,64	B, C
		25	21,6	231	0,96	B, C
		24	17,6	188	0,88	B, C
HELUZ	calibrated	20	18,6	149	0,97	B, C
		17,5	17,3	138	1,12	B, C
		14	13,0	104	1,26	C
		11,5	11,4	91	1,40	C
		8	6,0	64	1,63	C
HELUZ		24	16,9	181	0,94	B, C
		20	17,7	142	1,03	B, C
		17,5	15,8	126	1,18	B, C
		14	12,4	99	1,32	C
		11,5	10,9	87	1,47	C
		8	6,3	67	1,71	C

Expected service life time is 100 years.

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D - Acoustic masonry





SYSTEM BOUNDARY and PRODUCTION PROCESS

The system boundary is "Cradle to gate" with modules C1–C4 and module D (A1–A3 + C + D). The system boundary covers the production of raw materials, all relevant transport down to factory gate and manufacturing by HELUZ cihlářský průmysl v. o. s. Production stages start with yielding of clay raw material in own surface mines. Pretreated clay raw material is mixed with additional mixture of pulp sludges, straw and wooden sawdust. After alteration of mixture material with appropriate amount of water the pressing of bricks to final shape and burning in kiln takes a place. In the case of 2in1 type of bricks filling of hollows with expandable polystyrene is realized. Final product is packed using polyethylene. The review framework comprises the following details:

- Raw materials acquisition and transport
- Further processing of raw materials
- Production operations
- Energy and water consumption
- Waste management
- Packaging of the final product for delivery
- Typical deconstruction using heavy equipment
- Transport and landfilling

Reference service life:

The reference service life is the same as the building.

Time representativeness:

Specific data about the manufacturer were based on the 1-year average (the reference year 2019). Time scope less than 10-years were applied for background data.

Cut off rules:

The cut-off criterion was chosen based on the used PCR. According to the used PCR, more than 95 % of flows were included.

Database(s) and LCA software used:

GaBi software, GaBi database and Ecolnvent database

Allocations:

As a general allocation rule, allocation on 1000 kg of the product was chosen. No secondary material and/or fuels used in production.

Geographical scope:

Europe, Global





System Boundary of the LCA study conducted on Heluz burnt bricks

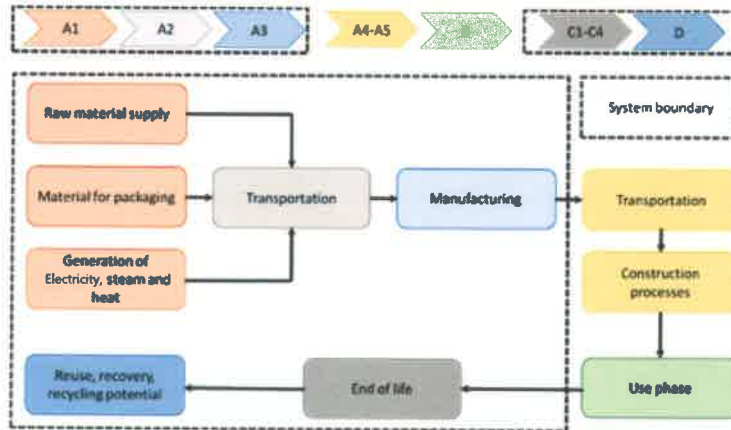


Table 1 Description of the system boundary (D = Declared, Included in LCA, MND = Module Not Declared)

System Boundary Stage	Description	Module	Declared (D) / Not Declared (MND)
A1 - A3 Product stage	Raw material supply	A1	D
	Transport	A2	D
	Manufacturing	A3	D
A4 - A5 Construction process	Transport from the gate to the site	A4	MND
	Assembly	A5	MND
B1 - B7 Use stage	Use	B1	MND
	Maintenance	B2	MND
	Repair	B3	MND
	Replacement	B4	MND
	Refurbishment	B5	MND
	Operational water use	B6	MND
	Operational energy use	B7	MND
C1 - C4 End of life stage	De-construction	C1	D
	Transport	C2	D
	Waste processing	C3	D
	Disposal	C4	D
D Benefits and loads beyond the system boundaries	Reuse- Recycling - Recovery Potential	D	D





CONTENT DECLARATION

The Heluz burnt brick have siliceous heart and are made from clay minerals. All of the constituents of cement-bonded particleboard are not classified as harmful, nor are listed on the list of Substances of Very High Concern (SVHC).

Table 2 Product content declaration

All materials/ components	Substances	Weight %	AS number	Environmental class	Health class
Clay minerals	-	99,6%	-	No	No
Ash from wooden sawdust and straw	-	0,4%	-	No	No





ENVIROMENTAL PERFORMANCE

Results per declared unit – 1000 kg of burn bricks.

USE OF RESOURCES

Indicators for the Life Cycle Analysis as per ISO 14025:2006 and EN 15804:2012+A2:2019.

The results of the LCA with the indicators as per EPD requirement are given in the following tables (A1-A3, C1-C4, D). The system boundaries in tabular form for all modules are shown in the table above. Life Cycle Inventory Analysis indicators describing the use of resources are shown below.

Table 3 Resource consumption (kg)

Resource consumption (kg)	Dolní Bukovsko	Hevlín I	Hevlín II	Libochovice	Family 2in1	Average of Heluz production
Crude oil	9,56	8,62	8,37	11,03	22,70	13,38
Hard coal	6,20	4,49	4,10	5,34	6,11	5,14
Lignite	35,8	26,0	20,9	27,6	20,8	23,8
Natural gas	41,4	39,9	28,8	41,7	39,9	36,8
Inert rock	571	443	345	458	344	394
Limestone (calcium carbonate)	2,97	2,47	2,31	2,69	2,31	2,44
Natural Aggregate	48,8	4,94	4,97	4,56	49,5	48,9
Sodium chloride (rock salt)	0,33	0,31	0,31	0,42	0,35	0,34

POTENTIAL ENVIRONMENTAL IMPACTS

Environmental impacts per declared unit for each module are reported in the following tables.

In the tables, following abbreviations are used:

- 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 nonrenewable primary energy resources used as raw materials,
- PENRT: Total use of non-renewable primary energy.



Table 4 Parameters describing environmental impact for bricks from Dolní Bukovsko

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
Climate change - total	kg CO ₂ eq.	9.84E+01	6.98	8.92E+01	6.16E-01	7.68	0.00	1.40E+01	0.00
Climate change - fossil	kg CO ₂ eq.	8.57E+01	6.94	8.89E+01	6.40E-01	7.63	0.00	1.52E+01	0.00
Climate change - biogenic	kg CO ₂ eq.	1.26E+01	-1.21E-02	3.29E-01	-2.83E-02	-1.32E-02	0.00	-1.20	0.00
Climate change - land use and land use change	kg CO ₂ eq.	8.77E-02	5.69E-02	6.51E-04	4.99E-03	6.25E-02	0.00	4.37E-02	0.00
Ozone Depletion	kg CFC 11 eq.	5.90E-07	8.45E-16	1.39E-15	7.41E-17	9.27E-16	0.00	5.68E-14	0.00
Acidification	mol H ⁺ eq.	2.28E-01	3.75E-02	2.53E-01	3.09E-03	4.38E-02	0.00	1.09E-01	0.00
Eutrophication aquatic freshwater	kg P eq.	2.90E-03	2.14E-05	1.04E-04	1.87E-06	2.35E-05	0.00	2.61E-05	0.00
Eutrophication aquatic marine	kg N eq.	5.27E-02	1.80E-02	9.69E-02	1.44E-03	2.12E-02	0.00	2.80E-02	0.00
Eutrophication terrestrial	mol N eq.	5.25E-01	1.99E-01	1.06	1.59E-02	2.35E-01	0.00	3.08E-01	0.00
Photochemical ozone formation	kg NMVOC eq.	1.51E-01	3.92E-02	2.68E-01	4.03E-03	4.09E-02	0.00	8.48E-02	0.00
Depletion of abiotic resources - minerals and metals	kg Sb eq.	2.59E-05	5.04E-07	2.29E-08	4.42E-08	5.53E-07	0.00	1.37E-06	0.00
Depletion of abiotic resources - fossil fuels	MJ, net calorific value	2.71E+03	9.36E+01	1.82	8.20	1.03E+02	0.00	1.99E+02	0.00
Water use	m ³ world eq. deprived	1.63E+03	6.28E-02	7.69	5.51E-03	6.90E-02	0.00	1.58	0.00
Particulate matter emissions	Disease incidence	2.69E-06	1.49E-07	8.28E-07	3.47E-08	1.57E-07	0.00	1.35E-06	0.00
Ionizing radiation, human health	kBq U235 eq.	8.91	1.68E-02	5.33E-03	1.47E-03	1.84E-02	0.00	2.25E-01	0.00
Ecotoxicity (freshwater)	CTUe	3.87E+03	6.61E+01	1.50E+01	5.80	7.26E+01	0.00	1.14E+02	0.00
Human toxicity, cancer effects	CTUh	1.75E-08	1.39E-09	6.62E-09	1.21E-10	1.52E-09	0.00	1.69E-08	0.00
Human toxicity, noncancer effects	CTUh	1.26E-06	7.68E-08	2.19E-07	7.25E-09	8.32E-08	0.00	1.86E-06	0.00
Land use related impacts / soil quality	Pt	4.81E+03	3.28E+01	8.85E-01	2.88	3.60E+01	0.00	4.34E+01	0.00





Table 5 Parameters describing resource use, waste and outputs flows for bricks from Dolní Bukovsko

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	2.64E+03	5.26	3.84E-01	4.61E-01	5.77	0.00	2.61E+01	0.00
PERM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	2.64E+03	5.26	3.84E-01	4.61E-01	5.77	0.00	2.61E+01	0.00
PENRE	MJ	2.71E+03	9.37E+01	1.82	8.21	1.03E+02	0.00	1.99E+02	0.00
PENRM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	MJ	2.71E+03	9.37E+01	1.82	8.21	1.03E+02	0.00	1.99E+02	0.00
Use of secondary material	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	m ³	3.82E+01	6.09E-03	2.29E-02	5.34E-04	6.69E-03	0.00	5.01E-02	0.00
Hazardous waste disposed	kg	9.06E-07	4.36E-06	4.18E-08	3.82E-07	4.78E-06	0.00	3.03E-06	0.00
Non hazardous waste disposed	kg	5.56E-01	1.43E-02	2.79E-01	1.26E-03	1.57E-02	0.00	1.00E+03	0.00
Radioactive waste disposed	kg	9.65E-02	1.16E-04	5.30E-05	1.02E-05	1.27E-04	0.00	2.23E-03	0.00
Components for reuse	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material for recycling	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy electrical	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy thermal	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00





Table 6 Parameters describing environmental impact for bricks from Hevlín I

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
Climate change - total	kg CO ₂ eq.	7.27E+01	4.89	9.33E+01	6.16E-01	7.68	0.00	1.40E+01	0.00
Climate change - fossil	kg CO ₂ eq.	6.10E+01	4.86	9.32E+01	6.40E-01	7.63	0.00	1.52E+01	0.00
Climate change - biogenic	kg CO ₂ eq.	1.16E+01	-8.43E-03	1.07E-01	-2.83E-02	-1.32E-02	0.00	-1.20	0.00
Climate change - land use and land use change	kg CO ₂ eq.	8.07E-02	3.98E-02	2.15E-03	4.99E-03	6.25E-02	0.00	4.37E-02	0.00
Ozone Depletion	kg CFC 11 eq.	5.61E-07	5.91E-16	2.46E-14	7.41E-17	9.27E-16	0.00	5.68E-14	0.00
Acidification	mol H ⁺ eq.	1.73E-01	2.75E-02	3.45E-01	3.09E-03	4.38E-02	0.00	1.09E-01	0.00
Eutrophication aquatic freshwater	kg P eq.	2.71E-03	1.50E-05	6.80E-06	1.87E-06	2.35E-05	0.00	2.61E-05	0.00
Eutrophication aquatic marine	kg N eq.	4.32E-02	1.33E-02	5.01E-02	1.44E-03	2.12E-02	0.00	2.80E-02	0.00
Eutrophication terrestrial	mol N eq.	4.19E-01	1.47E-01	5.49E-01	1.59E-02	2.35E-01	0.00	3.08E-01	0.00
Photochemical ozone formation	kg NMVOC eq.	1.19E-01	2.65E-02	1.49E-01	4.03E-03	4.09E-02	0.00	8.48E-02	0.00
Depletion of abiotic resources - minerals and metals	kg Sb eq.	2.14E-05	3.53E-07	4.87E-07	4.42E-08	5.53E-07	0.00	1.37E-06	0.00
Depletion of abiotic resources - fossil fuels	MJ, net calorific value	2.30E+03	6.55E+01	7.41E+01	8.20	1.03E+02	0.00	1.99E+02	0.00
Water use	m ³ world eq. deprived	1.54E+03	4.40E-02	2.25	5.51E-03	6.90E-02	0.00	1.58	0.00
Particulate matter emissions	Disease incidence	2.25E-06	1.01E-07	1.74E-06	3.47E-08	1.57E-07	0.00	1.35E-06	0.00
Ionizing radiation, human health	kBq U235 eq.	6.41	1.17E-02	7.68E-02	1.47E-03	1.84E-02	0.00	2.25E-01	0.00
Ecotoxicity (freshwater)	CTUe	3.50E+03	4.63E+01	3.67E+01	5.80	7.26E+01	0.00	1.14E+02	0.00
Human toxicity, cancer effects	CTUh	1.36E-08	9.71E-10	8.98E-10	1.21E-10	1.52E-09	0.00	1.69E-08	0.00
Human toxicity, noncancer effects	CTUh	1.05E-06	5.33E-08	1.63E-07	7.25E-09	8.32E-08	0.00	1.86E-06	0.00
Land use related impacts / soil quality	Pt	5.16E+03	2.30E+01	5.18	2.88	3.60E+01	0.00	4.34E+01	0.00





Table 7 Parameters describing resource use, waste and outputs flows for bricks from Hevlín I

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	3.06E+03	3.68	5.82	4.61E-01	5.77	0.00	2.61E+01	0.00
PERM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	3.06E+03	3.68	5.82	4.61E-01	5.77	0.00	2.61E+01	0.00
PENRE	MJ	2.30E+03	6.56E+01	7.41E+01	8.21	1.03E+02	0.00	1.99E+02	0.00
PENRM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	MJ	2.30E+03	6.56E+01	7.41E+01	8.21	1.03E+02	0.00	1.99E+02	0.00
Use of secondary material	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	m ³	3.60E+01	4.26E-03	6.16E-02	5.34E-04	6.69E-03	0.00	5.01E-02	0.00
Hazardous waste disposed	kg	1.61E-06	3.05E-06	2.37E-08	3.82E-07	4.78E-06	0.00	3.03E-06	0.00
Non hazardous waste disposed	kg	4.26E-01	1.00E-02	9.60E-02	1.26E-03	1.57E-02	0.00	1.00E+03	0.00
Radioactive waste disposed	kg	6.14E-02	8.12E-05	8.52E-04	1.02E-05	1.27E-04	0.00	2.23E-03	0.00
Components for reuse	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material for recycling	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy electrical	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy thermal	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00





Table 8 Parameters describing environmental impact for bricks from Hevlín II

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
Climate change - total	kg CO ₂ eq.	6.38E+01	4.58	6.27E+01	6.16E-01	7.68	0.00	1.40E+01	0.00
Climate change - fossil	kg CO ₂ eq.	5.18E+01	4.55	6.27E+01	6.40E-01	7.63	0.00	1.52E+01	0.00
Climate change - biogenic	kg CO ₂ eq.	1.20E+01	-7.87E-03	7.13E-02	-2.83E-02	-1.32E-02	0.00	-1.20	0.00
Climate change - land use and land use change	kg CO ₂ eq.	7.54E-02	3.73E-02	1.87E-03	4.99E-03	6.25E-02	0.00	4.37E-02	0.00
Ozone Depletion	kg CFC 11 eq.	5.80E-07	5.53E-16	2.14E-14	7.41E-17	9.27E-16	0.00	5.68E-14	0.00
Acidification	mol H ⁺ eq.	1.53E-01	2.61E-02	3.57E-01	3.09E-03	4.38E-02	0.00	1.09E-01	0.00
Eutrophication aquatic freshwater	kg P eq.	2.79E-03	1.40E-05	5.48E-06	1.87E-06	2.35E-05	0.00	2.61E-05	0.00
Eutrophication aquatic marine	kg N eq.	3.89E-02	1.26E-02	7.21E-02	1.44E-03	2.12E-02	0.00	2.80E-02	0.00
Eutrophication terrestrial	mol N eq.	3.71E-01	1.40E-01	7.89E-01	1.59E-02	2.35E-01	0.00	3.08E-01	0.00
Photochemical ozone formation	kg NMVOC eq.	1.04E-01	2.45E-02	2.14E-01	4.03E-03	4.09E-02	0.00	8.48E-02	0.00
Depletion of abiotic resources - minerals and metals	kg Sb eq.	1.97E-05	3.30E-07	4.23E-07	4.42E-08	5.53E-07	0.00	1.37E-06	0.00
Depletion of abiotic resources - fossil fuels	MJ, net calorific value	1.73E+03	6.13E+01	6.44E+01	8.20	1.03E+02	0.00	1.99E+02	0.00
Water use	m ³ world eq. deprived	1.59E+03	4.12E-02	2.23	5.51E-03	6.90E-02	0.00	1.58	0.00
Particulate matter emissions	Disease incidence	2.10E-06	9.37E-08	1.65E-06	3.47E-08	1.57E-07	0.00	1.35E-06	0.00
Ionizing radiation, human health	kBq U235 eq.	6.01	1.10E-02	6.65E-02	1.47E-03	1.84E-02	0.00	2.25E-01	0.00
Ecotoxicity (freshwater)	CTUe	3.58E+03	4.33E+01	3.21E+01	5.80	7.26E+01	0.00	1.14E+02	0.00
Human toxicity, cancer effects	CTUh	1.22E-08	9.08E-10	7.31E-09	1.21E-10	1.52E-09	0.00	1.69E-08	0.00
Human toxicity, noncancer effects	CTUh	9.14E-07	4.97E-08	3.67E-07	7.25E-09	8.32E-08	0.00	1.86E-06	0.00
Land use related impacts / soil quality	Pt	5.31E+03	2.15E+01	4.49	2.88	3.60E+01	0.00	4.34E+01	0.00





Table 9 Parameters describing resource use, waste and outputs flows for bricks from Hevlín II

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	3.14E+03	3.45	5.05	4.61E-01	5.77	0.00	2.61E+01	0.00
PERM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	3.14E+03	3.45	5.05	4.61E-01	5.77	0.00	2.61E+01	0.00
PENRE	MJ	1.73E+03	6.14E+01	6.44E+01	8.21	1.03E+02	0.00	1.99E+02	0.00
PENRM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	MJ	1.73E+03	6.14E+01	6.44E+01	8.21	1.03E+02	0.00	1.99E+02	0.00
Use of secondary material	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	m ³	3.72E+01	3.99E-03	5.99E-02	5.34E-04	6.69E-03	0.00	5.01E-02	0.00
Hazardous waste disposed	kg	1.44E-06	2.86E-06	2.05E-08	3.82E-07	4.78E-06	0.00	3.03E-06	0.00
Non hazardous waste disposed	kg	3.51E-01	9.39E-03	6.47E-02	1.26E-03	1.57E-02	0.00	1.00E+03	0.00
Radioactive waste disposed	kg	5.44E-02	7.59E-05	7.39E-04	1.02E-05	1.27E-04	0.00	2.23E-03	0.00
Components for reuse	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material for recycling	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy electrical	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy thermal	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00





Table 10 Parameters describing environmental impact for bricks from Libochovice

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
Climate change - total	kg CO2 eq.	8,92E+01	1,20E+01	1,54E+02	6,16E-01	7,68E+00	0,00E+00	1,40E+01	0,00E+00
Climate change - fossil	kg CO2 eq.	7,09E+01	1,19E+01	1,53E+02	6,40E-01	7,63E+00	0,00E+00	1,52E+01	0,00E+00
Climate change - biogenic	kg CO2 eq.	1,83E+01	-2,07E-02	1,59E-01	-2,83E-02	-1,32E-02	0,00E+00	-1,20E+00	0,00E+00
Climate change - land use and land use change	kg CO2 eq.	7,72E-02	9,74E-02	2,00E-03	4,99E-03	6,25E-02	0,00E+00	4,37E-02	0,00E+00
Ozone Depletion	kg CFC 11 eq.	9,01E-07	1,45E-15	2,28E-14	7,41E-17	9,27E-16	0,00E+00	5,68E-14	0,00E+00
Acidification	mol H+ eq.	2,11E-01	6,55E-02	2,91E-01	3,09E-03	4,38E-02	0,00E+00	1,09E-01	0,00E+00
Eutrophication aquatic freshwater	kg P eq.	4,36E-03	3,66E-05	5,12E-05	1,87E-06	2,35E-05	0,00E+00	2,61E-05	0,00E+00
Eutrophication aquatic marine	kg N eq.	5,07E-02	3,15E-02	8,30E-02	1,44E-03	2,12E-02	0,00E+00	2,80E-02	0,00E+00
Eutrophication terrestrial	mol N eq.	4,93E-01	3,49E-01	9,07E-01	1,59E-02	2,35E-01	0,00E+00	3,08E-01	0,00E+00
Photochemical ozone formation	kg NMVOC eq.	1,43E-01	6,62E-02	2,36E-01	4,03E-03	4,09E-02	0,00E+00	8,48E-02	0,00E+00
Depletion of abiotic resources - minerals and metals	kg Sb eq.	4,57E-05	8,63E-07	4,47E-07	4,42E-08	5,53E-07	0,00E+00	1,37E-06	0,00E+00
Depletion of abiotic resources - fossil fuels	MJ, net calorific value	2,48E+03	1,60E+02	6,71E+01	8,20E+00	1,03E+02	0,00E+00	1,99E+02	0,00E+00
Water use	m3 world eq. deprived	2,26E+03	1,08E-01	5,30E+00	5,51E-03	6,90E-02	0,00E+00	1,58E+00	0,00E+00
Particulate matter emissions	Disease incidence	2,87E-06	2,52E-07	1,17E-06	3,47E-08	1,57E-07	0,00E+00	1,35E-06	0,00E+00
Ionizing radiation, human health	kBq U235 eq.	8,33E+00	2,87E-02	7,11E-02	1,47E-03	1,84E-02	0,00E+00	2,25E-01	0,00E+00
Ecotoxicity (freshwater)	CTUe	5,24E+03	1,13E+02	3,94E+01	5,80E+00	7,26E+01	0,00E+00	1,14E+02	0,00E+00
Human toxicity, cancer effects	CTUh	1,77E-08	2,38E-09	5,36E-09	1,21E-10	1,52E-09	0,00E+00	1,69E-08	0,00E+00
Human toxicity, noncancer effects	CTUh	1,21E-06	1,31E-07	2,52E-07	7,25E-09	8,32E-08	0,00E+00	1,86E-06	0,00E+00
Land use related impacts / soil quality	Pt	3,15E+03	5,62E+01	4,92E+00	2,88E+00	3,60E+01	0,00E+00	4,34E+01	0,00E+00





Table 11 Parameters describing resource use, waste and outputs flows for bricks from Libochovice

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	5.18E+02	9.01	5.38	4.61E-01	5.77	0.00	2.61E+01	0.00
PERM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	5.18E+02	9.01	5.38	4.61E-01	5.77	0.00	2.61E+01	0.00
PENRE	MJ	2.49E+03	1.60E+02	6.71E+01	8.21	1.03E+02	0.00	1.99E+02	0.00
PENRM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	MJ	2.49E+03	1.60E+02	6.71E+01	8.21	1.03E+02	0.00	1.99E+02	0.00
Use of secondary material	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	m ³	5.27E+01	1.04E-02	6.22E-02	5.34E-04	6.69E-03	0.00	5.01E-02	0.00
Hazardous waste disposed	kg	8.33E-07	7.46E-06	2.28E-08	3.82E-07	4.78E-06	0.00	3.03E-06	0.00
Non hazardous waste disposed	kg	4.39E-01	2.45E-02	1.55E-01	1.26E-03	1.57E-02	0.00	1.00E+03	0.00
Radioactive waste disposed	kg	7.18E-02	1.98E-04	7.88E-04	1.02E-05	1.27E-04	0.00	2.23E-03	0.00
Components for reuse	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material for recycling	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy electrical	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy thermal	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00





Table 12 Parameters describing environmental impact for bricks Family 2in1

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
Climate change - total	kg CO ₂ eq.	6.29E+01	4.51	1.14E+02	6.16E-01	7.68	0.00	1.40E+01	0.00
Climate change - fossil	kg CO ₂ eq.	5.11E+01	4.48	1.14E+02	6.40E-01	7.63	0.00	1.52E+01	0.00
Climate change - biogenic	kg CO ₂ eq.	1.18E+01	-7.76E-03	8.25E-02	-2.83E-02	-1.32E-02	0.00	-1.20	0.00
Climate change - land use and land use change	kg CO ₂ eq.	7.44E-02	3.68E-02	2.14E-03	4.99E-03	6.25E-02	0.00	4.37E-02	0.00
Ozone Depletion	kg CFC 11 eq.	5.72E-07	5.46E-16	2.34E-14	7.41E-17	9.27E-16	0.00	5.68E-14	0.00
Acidification	mol H ⁺ eq.	1.51E-01	2.58E-02	5.36E-01	3.09E-03	4.38E-02	0.00	1.09E-01	0.00
Eutrophication aquatic freshwater	kg P eq.	2.75E-03	1.38E-05	9.91E-04	1.87E-06	2.35E-05	0.00	2.61E-05	0.00
Eutrophication aquatic marine	kg N eq.	3.83E-02	1.24E-02	9.92E-02	1.44E-03	2.12E-02	0.00	2.80E-02	0.00
Eutrophication terrestrial	mol N eq.	3.66E-01	1.38E-01	1.08	1.59E-02	2.35E-01	0.00	3.08E-01	0.00
Photochemical ozone formation	kg NMVOC eq.	1.02E-01	2.42E-02	3.05E-01	4.03E-03	4.09E-02	0.00	8.48E-02	0.00
Depletion of abiotic resources - minerals and metals	kg Sb eq.	1.94E-05	3.26E-07	4.91E-06	4.42E-08	5.53E-07	0.00	1.37E-06	0.00
Depletion of abiotic resources - fossil fuels	MJ, net calorific value	1.71E+03	6.05E+01	1.27E+03	8.20	1.03E+02	0.00	1.99E+02	0.00
Water use	m ³ world eq. deprived	1.57E+03	4.06E-02	9.89E+01	5.51E-03	6.90E-02	0.00	1.58	0.00
Particulate matter emissions	Disease incidence	2.07E-06	9.24E-08	3.24E-06	3.47E-08	1.57E-07	0.00	1.35E-06	0.00
Ionizing radiation, human health	kBq U235 eq.	5.93	1.08E-02	8.57E-02	1.47E-03	1.84E-02	0.00	2.25E-01	0.00
Ecotoxicity (freshwater)	CTUe	3.53E+03	4.27E+01	4.60E+01	5.80	7.26E+01	0.00	1.14E+02	0.00
Human toxicity, cancer effects	CTUh	1.20E-08	8.96E-10	1.23E-08	1.21E-10	1.52E-09	0.00	1.69E-08	0.00
Human toxicity, noncancer effects	CTUh	9.01E-07	4.90E-08	4.44E-07	7.25E-09	8.32E-08	0.00	1.86E-06	0.00
Land use related impacts / soil quality	Pt	5.24E+03	2.12E+01	5.32	2.88	3.60E+01	0.00	4.34E+01	0.00





Table 13 Parameters describing resource use, waste and outputs flows for bricks Family 2in1

Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	3.10E+03	3.40	9.52	4.61E-01	5.77	0.00	2.61E+01	0.00
PERM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	3.10E+03	3.40	9.52	4.61E-01	5.77	0.00	2.61E+01	0.00
PENRE	MJ	1.71E+03	6.05E+01	1.27E+03	8.21	1.03E+02	0.00	1.99E+02	0.00
PENRM	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	MJ	1.71E+03	6.05E+01	1.27E+03	8.21	1.03E+02	0.00	1.99E+02	0.00
Use of secondary material	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Use of non-renewable secondary fuels	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	m ³	3.67E+01	3.94E-03	2.31	5.34E-04	6.69E-03	0.00	5.01E-02	0.00
Hazardous waste disposed	kg	1.42E-06	2.82E-06	3.42E-08	3.82E-07	4.78E-06	0.00	3.03E-06	0.00
Non hazardous waste disposed	kg	3.46E-01	9.26E-03	6.86E-02	1.26E-03	1.57E-02	0.00	1.00E+03	0.00
Radioactive waste disposed	kg	5.36E-02	7.49E-05	1.02E-03	1.02E-05	1.27E-04	0.00	2.23E-03	0.00
Components for reuse	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material for recycling	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Materials for energy recovery	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy electrical	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported energy thermal	MJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

RELEASE OF DANGEROUS SUBSTANCES DURING THE USE STAGE

No health and environmental impacts during use is observed.





ADDITIONAL INFORMATION

The Company of HELUZ cihlářský průmysl v. o. s. operates brick-kiln Hevlín II, which is one of the most advanced manufacturing plants in Europe and is furnished with advanced technology; there are produced brick blocks with the best thermal and insulation characteristics in the central Europe.

This technology allows the most ecological production of brick and the some product obtained an ecological certificate Nature Plus. This certificate is valid for HELUZ Family 50 cal., HELUZ Family 44 cal., HELUZ Family 38 cal., HELUZ Family 30 cal., HELUZ Family 25 cal., HELUZ 20 cal., HELUZ 20, HELUZ PLUS 38 cal., HELUZ PLUS 38, HELUZ UNI 25 cal., HELUZ UNI 25, HELUZ P15 cal. and HELUZ P15. HELUZ has established and applied a combined management system for development, production, sales and services of its products. An audit was performed, Report No. QMS/2534/2021/RC. Proof has been furnished that the requirements according to DIN EN ISO 9001:2015 are fulfilled.

Obtained certificates EN ISO 9001:2015, (valid to 2024-01-26), and the commitment of whole company's staff to quality give the customers a guarantee of a standard quality of products.



For recommended use of HELUZ product follow <http://www.heluz.cz>.

After the end of life it is possible to deposit separated clay on a dump for inert waste.





PROGRAMME-RELATED INFORMATION AND VERIFICATION

See PCR for detailed requirements.

Published: 2021-05-01

Valid until: 2026-04-30

Revision date:

Product Category Rules: EN 15804 2012+ A2:2019 Sustainability of Construction Works: Environmental Product Declarations core rules for the product category of construction products
Product Category Rules (PCR) document for Construction Products (PCR 2019:14 Version 1.1, 2020-09-14)

Product group classification: UN CPC 3731: Bricks, blocks, tiles and other ceramic goods of siliceous earths

Reference year for data: 2019

Geographical scope: Europe





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

EPD Process Certification (internal)

EPD Verification (external)

Third party verifier:

Výzkumný ústav pozemních staveb - Certifikační společnost, s.r.o., Pražská 810/16, Hostivař,
102 00 Praha 10, Czech Republic
Building Research Institute – Certification Company Ltd.
www.vups.cz Accredited by: Český institut pro akreditaci, www.cia.cz



MANDATORY STATEMENTS

The LCA for this EPD is conducted according to the guidelines of ISO 14040-44, the requirements given in EN 15804:2012+ A2:2019 Sustainability of Construction Works: Environmental Product Declarations core rules for the product category of construction products, the Product Category Rules (PCR) document for Construction Products (PCR 2019:14 Version 1.1, 2020-09-14) and the general program guidelines by The International EPD System in accordance with ISO 14025:2006 standards.

The inventory for the LCA study is based on the 2019 production. Production plants are located in Dolní Bukovsko, Libochovice and Hevlín in Czech Republic. LCA study used for development of this declaration was modeled using GaBi software with the latest version characterization factors and the Ecoinvent database.

EPD of construction products may not be comparable if they do not comply with EN 15804:2012+A2:2019. This EPD covers the Cradle to Gate stage and disposal option.

The EPD certificate, its background data and the results will be used for business-to-business communications and is expected to be a reliable document for green building designers, architectures, manufacturers of construction products and the other stakeholders in the construction sector to understand the potential environmental impacts caused by in HELUZ cihlářský průmysl, v.o.s. EPDs within the same product category but from different programmes may not be comparable".

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REFERENCES

ISO 14020:2000 Environmental labels and declarations — General principles, 2000-09
ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures, 2006-07
ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework, 2006-07
ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines, 2006-07
EN 15804:2012+A2:2019 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, 2019.
General Programme Instructions of the The International EPD® System. Version 3.0.
Product Category Rules (PCR) document for Construction Products (PCR 2019:14 Version 1.1, 2020-09-14)



Verified EPD by Independent Third Party Accredited Certification Body
Building Research Institute - Certification Company Ltd.
Czech Republic, Prazska 810/16, 102 21 Praha 10 info@vups.cz www.vups.cz



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