Environmental Product Declaration

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

Ytong autoclaved aerated concrete blocks, Ytong reinforced autoclaved aerated concrete elements

by

Xella CZ, s.r.o.

Programme:	"National Environmental Labeling Program" - Czech Republic (NPEZ)
Programme operator:	Ministry of the Environment of the Czech Republic, CENIA, Czech Environmental Information Agency, executive function of the NPEZ Agency
EPD registration number:	**3015-EPD-030065682**
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An EPD should provide current information and may be updated if conditions change.

General information

Programme information

Programme:	"National Environmental Labeling Program" - Czech Republic (NPEZ)
Address:	Ministry of the Environment of the Czech Republic Department of Voluntary Instruments 100 10 Praha 10, Vršovická 1442/65
Website:	www.mzp.cz, www.cenia.cz
E-mail:	info@mzp.cz

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804+A2 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *EN 15804+A2 (EF 3.1)*
Life Cycle Assessment (LCA)
LCA accountability: *Xella CZ, s.r.o.*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by accredited certification body Third-party verification: ***Technický a zkušební ústav stavební Praha, s.p.*** is an approved certification body accountable for the third-party verification. 190 00 Praha 9, Prosecká 811/76a, CZ The certification body is accredited by: ***Českým institutem pro akreditaci, o.p.s., Osvědčení č. 456/2024*** Verifier: Ing. Lenka Vrbová    
Procedure for follow-up of data during EPD validity involves third party verifier: ☐Ano ☒ne

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

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

Company information

Owner of the EPD: Xella CZ, s.r.o.

664 62 Hrušovany u Brna, Vodní 550, CZ
IČ: 64832988
Contact:
Ing. Ludmila Šmerdová - product manager
Ludmila.Smerdova@xella.com, +420 724 823 269

Description of the organisation:

The organization Xella CZ, s.r.o. through this type III environmental product declaration. (EPD) expresses its position on environmental protection issues and demonstrates that it has adequate data on the environmental impacts caused by the production of its products.
This EPD provides quantified environmental information about the construction product on a harmonized and scientifically based basis. The aim of this EPD is also to provide basic information about the product within the framework of the life cycle assessment of buildings and other structures and to help identify those products that have a lower environmental impact.
With regard to the possibility of comparing products within the framework of the life cycle assessment of a building based on their EPD, which is carried out by determining their contribution to the environmental performance of the building, it is necessary that the EPD of the given construction products is prepared in accordance with the requirements of the standard **EN 15804:2012+A2:2019/AC:2021** *Sustainability of buildings - Environmental product declaration - Basic rules for the product category of construction products*.

Product-related or management system-related certifications:

The quality of the products is ensured by an effective quality management system according to EN ISO 9001 and is in accordance with the technical regulations regarding the type of product. The manufacturer has implemented and certified the EN ISO 14001 environmental management system, the EN ISO 50001 energy management.

Name and location of production site(s):

Ytong AAC blocks:

Hrušovany u Brna
664 62 Hrušovany u Brna, Vodní 550, CZ
Horní Počaply
277 03 Horní Počaply, Horní Počaply - Křivenice 279, CZ
Chlumčany
334 42 Chlumčany u Přeštic, U Keramičky 449, CZ

Ytong AAC reinforced elements:

Chlumčany
334 42 Chlumčany u Přeštic, U Keramičky 449, CZ

Product information

Product name:

Ytong AAC blocks
Ytong AAC reinforced elements

Product identification:

Product lines of AAC blocks: Ytong Lambda YQ, Ytong Standard
, Ytong Univerzal, Ytong Klasik, Ytong Statik.
The average of autoclaved aerated concrete (AAC) blocks is determined as a weighted average based on production output at each production plants.
Reinforced AAC elements are manufactured only at the Chlumčany plant.

Product description:

Ytong AAC Blocks

Blocks under the brand Ytong are masonry elements (blocks, partition blocks) of various formats, made from non-reinforced autoclaved aerated concrete.
The following products are primarily manufactured at the Xella CZ, s.r.o. plants:

- Thermal Insulation Blocks Ytong Lambda YQ
- Blocks for Exterior and Load-Bearing Walls
- Blocks for Non-Load-Bearing Walls
- Ytong Starter Blocks, Ytong Pillar Blocks, Ytong Ring Beam Blocks, Ytong U-Shales

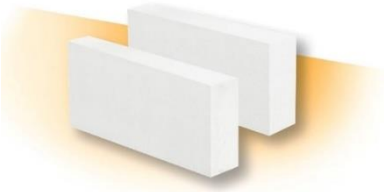
Blocks are produced in three variations:

- With tongue and groove,
- With tongue, groove, and grip holes
- Smooth.

Each product line is labeled according to its specific name, with clearly defined compressive strength and bulk density values, as stated in the Declaration of Performance. The following product lines are manufactured: **Ytong Lambda YQ, Ytong Standard, Ytong Universal, Ytong Klasik, Ytong Statik, Ytong Statik Plus, Ytong Start.**
Supplementary products are always made from one of these product lines. These product lines are also included in the average Ytong product.
Blocks are manufactured in the following size combinations:

- **Length:** 399, 499, 599 mm
- **Width:** 50, 75, 100, 125, 150, 200, 250, 300, 375, 450, 500 mm
- **Height:** 249 mm and 749 mm (for large-format blocks)

Blocks for masonry of load-bearing and non-load-bearing walls and pillars. Masonry must be protected from direct contact with water.



Technical product data:

Bulk density:	300 – 650 kg/m^3
Compressive Strength, mean value:	2,2 – 6,5 N/mm^2
Tensile Strength:	0,2 – 1,2 N/mm^2
Flexural Tensile Strength:	0,4 – 2,2 N/mm^2
Modulus of Elasticity:	750 – 3250 N/mm^2
Moisture Deformation:	≤ 0,2 mm/m
Thermal Conductivity Coefficient (λ):	0,07 – 0,16 W/(m.K)
Reaction to Fire:	A1, non-combustible
Water vapor diffusion coefficient (μ):	5/10

Masonry elements are supplied and labeled in accordance with ČSN EN 771-4+A1:2017 *Specification for masonry units – Part 4: Autoclaved aerated concrete masonry units* and are assessed in compliance with Regulation (EU) No. 305/2011 of the European Parliament and of the Council**.** **(**System for Assessment and Verification of Product Performance 2+). A Declaration of Performance is issued for the products.

Product Packaging
Products are supplied in accordance with the standards specified in the product description. Most products are transported on wooden pallets and protected by LDPE foil.
Product Labeling
Products are labeled with a paper or plastic label attached to the foil.

Reinforced Autoclaved Aerated Concrete (AAC) Elements

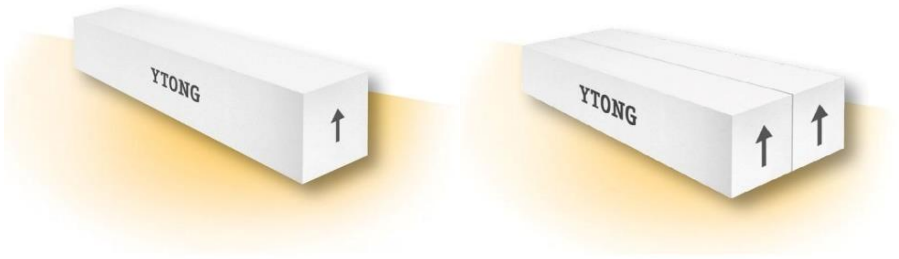
Reinforced AAC elements under the brand Ytong are available in various formats and are made from reinforced autoclaved aerated concrete. These include:

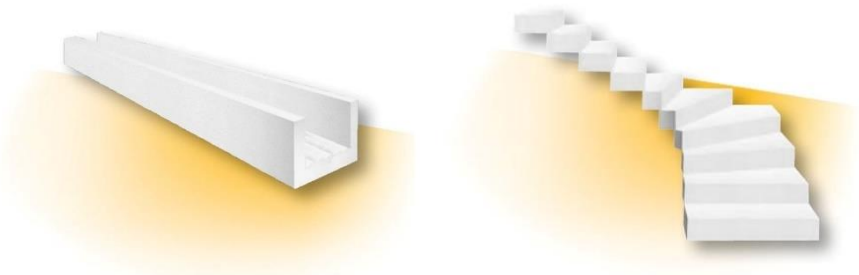
- Lintels for wall openings,
- Reinforced shuttering elements,
- Stair treads,
- Reinforced wall panels.

These elements are manufactured at the Chlumčany plant, in class AAC 4.5-600, which defines autoclaved aerated concrete in terms of compressive strength and bulk density. The reinforcing element used is ribbed steel reinforcement BSt 500 G.
Available Types:

- Ytong Load-Bearing Lintels (NOP): Lengths 1250 – 2500 mm, widths 200 – 375 mm, height 249 mm.
- Ytong Flat Lintels (PSF): Lengths 1250 – 3000 mm, widths 125 and 150 mm, height 124 mm.
- Ytong Non-Load-Bearing Lintels (NEP): Lengths 1250 and 2500 mm, widths 75 – 150 mm, height 249 mm.
- Ytong UPA Profiles: Length 3000 mm, widths 250 – 375 mm, height 249 mm.
- Ytong Stair Treads: Lengths 1200 – 1800 mm, width up to 600 mm, height 150 mm.
- Ytong Wall and Partition Panels: Lengths up to 3000 mm, width up to 598 mm, thickness up to 300 mm.

These elements must be protected from direct contact with water.





Technical product data:

Bulk density:	600 kg/m^3
Compressive Strength, mean value:	4,5 N/mm^2
Thermal Conductivity Coefficient (λ):	0,165 W/(m.K)
Reaction to Fire:	A1, non-combustible
Water vapor diffusion coefficient (μ):	5/10

Reinforced aerated concrete elements are supplied and marked in accordance with **ČSN EN 845-2+A1:2017** *Specification for auxiliary products for masonry structures - Part 2: Lintels* and **ČSN EN 12602:2017** *Prefabricated reinforced elements of autoclaved aerated concrete* and are assessed in accordance with *Regulation (EU) No. 305/2011 of the European Parliament and of the Council (System of Assessment and Verification of Product Performance 2+).* A *Declaration of Performance* is issued for the products.

Product Packaging

Products are supplied in accordance with the standards specified in the product description. Most products are transported on wooden pallets and protected by LDPE foil**.**

UN CPC code: 37540 Tiles, bricks and similar articles of cement, concrete or artificial stone

Geographical scope:

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

Environment and health during use

During the entire production process, it is not necessary to take any special health protection measures beyond the legally specified industrial protection measures for production employees.

LCA information

Functional unit / declared unit:

Ytong AAC blocks:

The declared unit is 1 m³ of the average manufactured product – Ytong AAC blocks.

The average value of aerated concrete blocks is formed by a weighted average according to production output in individual plants.

Designation	Unit	Value
Declared unit	m^3	1
Conversion factor to 1 kg	kg	0,0024
Average bulk weight	kg/m^3	418

Ytong AAC reinforced elements:

The declared unit is 1 m³ of the average manufactured product – Ytong AAC reinforced elements

Reinforced aerated concrete elements are produced only at the Chlumčany plant.

Designation	Unit	Value
Declared unit	m^3	1
Conversion factor to 1 kg	kg	0,0020
Average bulk weight	kg/m^3	502

Reference service life:

The reference lifetime is not declared. These are construction products with many different application purposes. The expected service life in common structures is 80 years. Carbonation of aerated concrete is also assumed during the service life.

Time representativeness:

For specific data, the manufacturer's data for the **year 2022** is used. For generic data, data from the Ecoinvent database version 3.9 is used. Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - very good.

Database(s) and LCA software used:

SimaPro Craft calculation software, version 10.1, Ecoinvent database version 3.9.
GWP-GHG from electricity production: 0.605 kg CO2 eq/kWh (CZ residual mix).

Description of system boundaries:

b) Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules). The additional modules may be one or more selected from A4–A5 and/or B1–B7.

The production phase 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 the supplier to the manufacturer, waste removal
- **A3 - production of products**, production of auxiliary materials and semi-finished products, energy consumption, including waste processing until reaching a state where it ceases to be waste or after removal of the last material residues during the production phase.
  Results A1-A3 include a "***compensation report***" of biogenic CO_2 from packaging released in module A5, as module A5 is not fully included. According to the "polluter pays" principle, the costs/benefits from further management of this packaging are also included in this module.

The construction phase includes the following modules:

- **A4** - **transport to the construction site**. Transport is carried out by truck with a capacity of 7.5 - 16 t (EURO 6). The transportation of the declared product unit (based on the average volumetric weight of 1 m3) over a distance of 1 km is considered.

The usage phase includes the module:

- **B1**, use of the installed product in terms of emissions and the environment, taking into account the effect of carbonation The calculation of the effect of carbonation (the process by which CO_2 from the ambient air penetrates the concrete and reacts with the hydration products of the concrete) was carried out according to the procedure specified in Annex BB.3 of the EN 16757 standard.

The end-of-life phase includes modules:

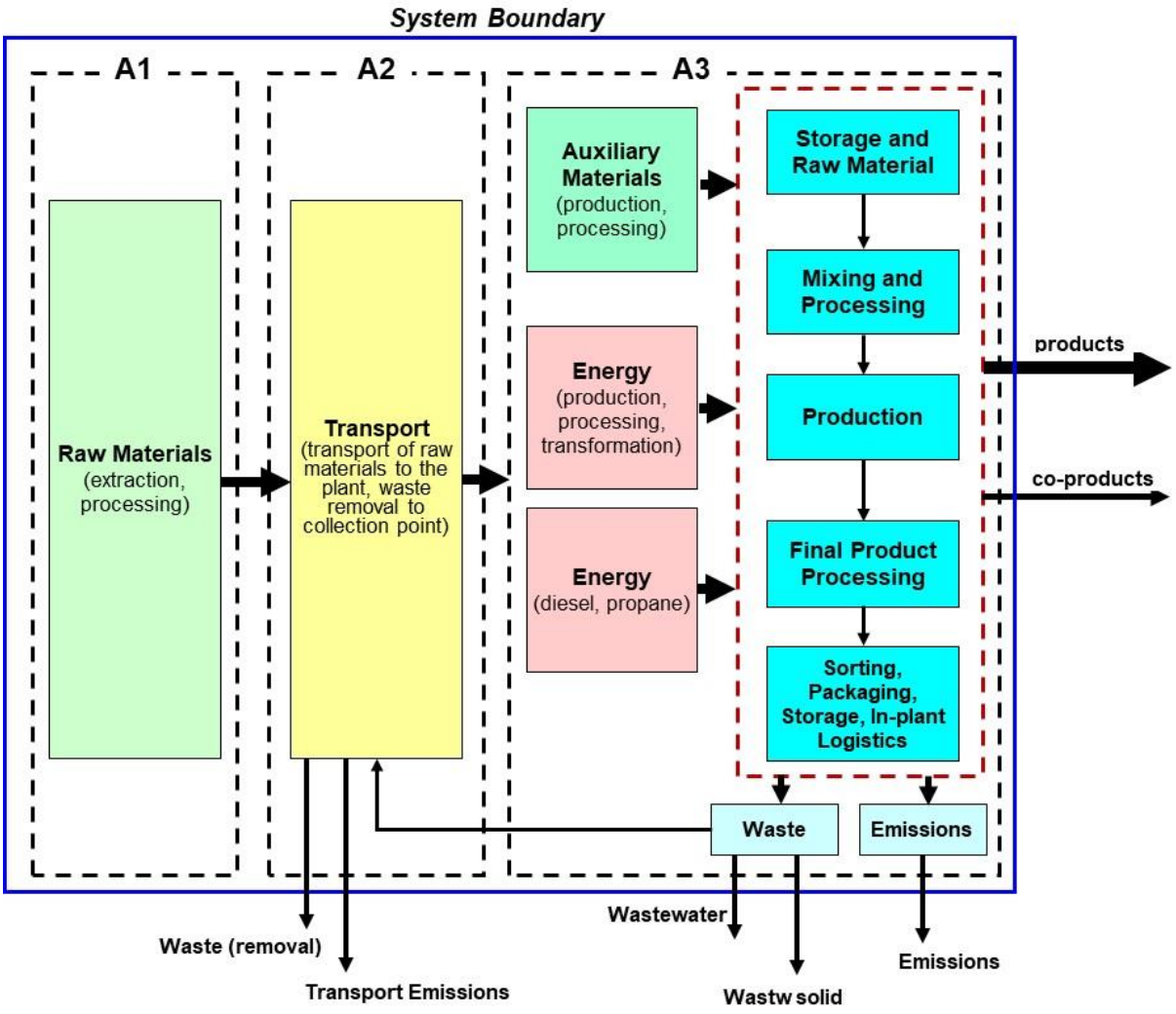
- **C1,** deconstruction, demolition; product from the building, including its dismantling or demolition, including the initial sorting of materials at the construction site. Decomposition and/or dismantling of the product is part of the demolition of the entire building. For the decomposition of masonry, the necessary consumption of construction machinery is calculated. It is assumed that 0.35 kg of diesel is needed to deconstruct/demolish 1 m^3 of the final product.
- **C2,** transport to the waste processing site; transportation of discarded product as part of waste processing, e.g. to a recycling site, and transportation of waste, e.g. to a final disposal site. The transport from the dismantled building is carried out by a truck with a capacity of 7.5 - 16 t (EURO 6) to the inert material dump as a demolition of a mixed building, estimated transport distance: 50 km to the recycling center or to the dump.
- **C3,** waste treatment for reuse, recovery and/or recycling; e.g. collection of waste fractions from deconstruction, and treatment of waste from material streams intended for reuse, recycling and energy recovery. A scenario is assumed where 10% of aerated concrete is deposited in an inert landfill. 90% is considered for the use of products (together with other concrete products) as recyclable material (treatment by crushing into aggregates for various purposes or input raw materials for other processes in the amount of 0.7 liters of diesel per 1 m3). For reinforced parts, treatment by crushing is considered only after excluding steel. Steel recycling is assumed to be 100%.
- **C4,** waste disposal including its pre-treatment and management of the disposal site. 10% of the dismantled aerated concrete is disposed of as mixed construction rubble in an inert material landfill, without taking into account the energy recovery of the landfill gas from (fine) organic components. For reinforced elements, this amount is reduced by the weight of the steel (which is expected to be recycled).

Benefits and costs beyond the product system boundary are presented in module D.
Module D includes:

- **D,** potential for reuse, recovery and/or recycling, expressed in net impacts or benefits. The module D scenario takes into account the saving of primary raw material inputs (excluding transport and energy) in another product system (crushed aggregates, sand; pig iron for steel from reinforced sections).

Production:
Ground quartz sand is mixed with lime, cement, and crushed aerated concrete (AAC) residues from previous production. Water and aluminum powder or paste are added, and the mixture is stirred into an aqueous suspension in a mixer before being poured into a mold. During this process, gaseous hydrogen is released, creating pores within the material, which then completely escape. The pores typically have a diameter of 0.5 – 1.5 mm and are filled only with air. After the initial setting, semi-solid raw blocks are formed, from which aerated concrete building elements are precisely cut using machinery.
The final properties of aerated concrete are achieved through subsequent curing in saturated steam within high-pressure steam boilers, known as autoclaves, for 5 – 12 hours at approximately 190 °C and a pressure of about 12 bar. During this process, the raw materials react to form calcium-silicate hydrates. The material reaction is completed once it is removed from the autoclave. The steam used in the curing process is reused for subsequent autoclave cycles, and the resulting condensate is utilized as a water source in production. This approach conserves energy and prevents environmental impact from escaping hot steam and water.

System diagram:



More information:

Information module **A5** from the construction phase was not included in the LCA due to the difficult availability of input data and is therefore not declared.

Information modules from the use phase **B2 to B7** are also not declared, as these types of products, assuming correct use, do not require maintenance, repair or replacement during the normal life time in the use phase. They also do not require energy or water consumption during the use phase.

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 production and emissions according to plant records were taken. In terms of produced waste, only those wastes that are clearly related to production activities were included in the analysis.

The EPD also assessed the product's carbon footprint according to **ČSN EN ISO 14067:2022** *Greenhouse gases - Product carbon footprint - Requirements and guidelines for quantification*. The assessment is presented separately in the section "Other environmental performance indicators".

The processes required for the installation of production equipment and the construction of infrastructure were not included in the analysis. Also, administrative processes are not included – inputs and outputs are balanced per production phase.

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	**x**	**x**	**x**	**x**	ND	**x**	ND	ND	ND	ND	ND	ND	**x**	**x**	**x**	**x**	**x**
Geography	GLO	GLO, EU	EU, CZ	EU		EU							EU	EU	EU	EU	GLO, EU
Specific data used	> 90 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	< 10 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	< 10 %					-	-	-	-	-	-	-	-	-	-	-	-

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

Technological point of view: Data corresponding to the current production of individual types of partial products of the plant and corresponding to the current state of the technologies used are used. Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - very good.

The aspect of completeness and completeness: Most of the input data is based on consumption balances, which are precisely recorded in the manufacturer's information system. The reliability of the source of specific data is determined by the uniformity of the collection methodology of the information system.

Consistency point of view: Uniform points of view are used throughout the report (allocation rules, age of data, technological scope of validity, temporal scope of validity, geographical scope of validity).

Credibility aspect: All important data were checked for adherence to cross-comparison of mass balances.

The GWP-GHG variability between the sub-products included (see Product Description) is less than 10%. Also, the variability between plants is less than 10%. For reinforcement elements, production takes place in only one plant.

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

Content information - Ytong AAC blocks

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Sand	57,1	0	0
Lime, Anhydrite, Zeolite	9,8	0	0
Cement	22,0	0	0
Energy gypsum	6,3	0	0
Aluminium	0,1	0	0
Chemical additives	0,1	0	0
Water	4,7	0	0
TOTAL	100	0	0
Packaging materials	**Weight %**	**Weight-% (versus the product)**	**Biogenic carbon content in kg C/DU**
Packaging - wood (spruce)	47,7	1,92E-01	3,59E-01
Packaging - PE foil	47,1	1,36E-01	0
Packaging - steel	2,1	7,56E-03	0
Packaging - paper	1,2	4,12E-03	0
Packaging - PET	1,8	4,43E-03	0
TOTAL	100	3,44E-01	3,59E-01

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Content information - Ytong AAC reinforced elements

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Sand	53,2	0	0
Lime, Anhydrite, Zeolite	8,9	0	0
Cement	19,6	0	0
Energy gypsum	11,0	0	0
Steel reinforcement	0,1	0	0
Chemical additives	0,1	0	0
Water	2,5	0	0
TOTAL	100	0	0
Packaging materials	**Weight %**	**Weight-% (versus the product)**	**Biogenic carbon content in kg C/DU**
Packaging - wood (spruce)	80,0	4,79E-01	8,95E-01
Packaging - PE foil	17,9	1,08E-01	0
Packaging - steel	1,7	1,02E-02	0
Packaging - paper	0,3	1,92E-03	0
Packaging - PET	0,1	5,52E-04	0
TOTAL	100	6,00E-01	8,95E-01

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Results of the environmental performance indicators - Ytong AAC blocks

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fosil	kg CO_2 ekv.	1,56E+02	7,72E-02	ND	-1,62E+01	ND	ND	ND	ND	ND	ND	1,48E+00	5,05E+00	2,50E+00	2,36E-01	-1,03E+00
GWP-biogenic	kg CO_2 ekv.	4,49E+00	5,71E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,58E-03	3,42E-02	4,37E-03	5,75E-03	0,00E+00
GWP- luluc	kg CO_2 ekv.	3,83E-02	3,81E-05	ND	ND	ND	ND	ND	ND	ND	ND	1,67E-04	2,56E-03	2,81E-04	4,66E-05	0,00E+00
GWP - total	kg CO_2 ekv.	1,60E+02	7,78E-02	ND	-1,62E+01	ND	ND	ND	ND	ND	ND	1,48E+00	5,09E+00	2,50E+00	2,42E-01	-1,03E+00
ODP	kg CFC 11 ekv.	2,30E-06	1,68E-09	ND	ND	ND	ND	ND	ND	ND	ND	2,35E-08	7,74E-08	3,98E-08	8,20E-09	-1,23E-07
AP	mol H^+ ekv.	3,61E-01	1,69E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,37E-02	1,23E-02	2,32E-02	1,53E-03	-9,91E-03
EP-freshwater	kg P ekv.	2,89E-02	5,49E-06	ND	ND	ND	ND	ND	ND	ND	ND	4,54E-05	4,06E-04	7,68E-05	1,10E-05	-2,31E-07
EP- marine	kg N ekv.	1,07E-01	4,26E-05	ND	ND	ND	ND	ND	ND	ND	ND	6,36E-03	2,91E-03	1,07E-02	6,66E-04	-2,48E-03
EP - terrestrial	mol N ekv.	1,13E+00	4,33E-04	ND	ND	ND	ND	ND	ND	ND	ND	6,91E-02	2,99E-02	1,17E-01	7,14E-03	-2,71E-02
POCP	kg NMVOC ekv.	4,27E-01	2,62E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,05E-02	1,59E-02	3,46E-02	2,83E-03	-6,72E-03
ADP- minerals& metals*	kg Sb ekv.	1,63E-04	2,52E-07	ND	ND	ND	ND	ND	ND	ND	ND	5,16E-07	1,59E-05	8,73E-07	2,49E-07	-3,06E-08
ADP-fosil*	MJ	1,30E+03	1,10E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,94E+01	7,00E+01	3,27E+01	6,01E+00	-1,77E+01
WDP*	m^3	1,46E+01	4,59E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,28E-02	2,97E-01	7,23E-02	2,19E-02	-7,51E-02
Acronyms	**GWP-fossil** = Global Warming Potential fossil fuels; **GWP-biogenic** = Global Warming Potential biogenic; **GWP-luluc** = Global Warming Potential land use and land use change; **ODP** = Depletion potential of the stratospheric ozone layer; **AP** = Acidification potential, Accumulated Exceedance; **EP-freshwater** = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 ekv.	1,56E+02	7,73E-02	ND	ND	ND	ND	ND	ND	ND	ND	1,48E+00	5,06E+00	2,50E+00	2,37E-01	-9,95E-01
PM	Disease incidence	3,89E-06	5,75E-09	ND	ND	ND	ND	ND	ND	ND	ND	3,82E-07	3,24E-07	6,46E-07	3,85E-08	-1,24E-07
IRP	kBq U235 ekv.	8,55E+00	1,48E-03	ND	ND	ND	ND	ND	ND	ND	ND	9,19E-03	6,04E-02	1,55E-02	5,73E-03	-1,94E-01
ETP- fw	CTUe	2,68E+02	4,69E-01	ND	ND	ND	ND	ND	ND	ND	ND	8,13E+00	3,46E+01	1,37E+01	2,19E+00	-3,98E+00
HTP-c	CTUh	2,47E-08	1,85E-11	ND	ND	ND	ND	ND	ND	ND	ND	2,49E-10	1,03E-09	4,21E-10	4,18E-11	-6,60E-11
HTP- nc	CTUh	4,35E-07	2,84E-10	ND	ND	ND	ND	ND	ND	ND	ND	7,35E-09	1,88E-08	1,24E-08	1,12E-09	-3,76E-09
SQP	dimensionless	1,03E+03	6,62E-01	ND	ND	ND	ND	ND	ND	ND	ND	1,29E+00	3,60E+01	2,19E+00	1,24E+01	0,00E+00
Acronyms	**GWP-GHG** = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide and biogenic carbon stored in the product; as such the indicator is identical to GWP-total except that the CF for biogenic CO 2 is set to zero, **PM** = Potential incidence of disease due to PM emissions, **IRP** = Potential Human exposure efficiency relative to U235, **ETP-fw** = Potential Comparative Toxic Unit for ecosystems, **HTP-c** = Potential Comparative Toxic Unit for humans, **HTP-nc** = Potential Comparative Toxic Unit for humans, **SQP** = Potential soil quality index														

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

Resource use indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	8,90E+01	1,72E-02	ND	ND	ND	ND	ND	ND	ND	ND	1,10E-01	9,41E-01	1,86E-01	1,19E-01	-7,12E-01
PERM	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,90E+01	1,72E-02	ND	ND	ND	ND	ND	ND	ND	ND	1,10E-01	9,41E-01	1,86E-01	1,19E-01	-7,12E-01
PENRE	MJ	1,40E+03	1,17E+00	ND	ND	ND	ND	ND	ND	ND	ND	2,06E+01	7,44E+01	3,48E+01	6,39E+00	-1,86E+01
PENRM	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,40E+03	1,17E+00	ND	ND	ND	ND	ND	ND	ND	ND	2,06E+01	7,44E+01	3,48E+01	6,39E+00	-1,86E+01
SM	kg	2,85E+01	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,14E-02	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acronyms	**PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable primary energy resources used as raw materials; **PERT** = Total use of renewable primary energy resources; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources used as raw materials; **PENRT** = Total use of non-renewable primary energy re-sources; **SM** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels; **FW** = Use of net fresh water														

Additional environmental information - Waste indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	6,58E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	4,18E+01	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,29E-01	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,76E+02	0,00E+00	0,00E+00
Materials for energy recovery	kg	8,03E-01	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	1,12E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	2,29E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Results of the environmental performance indicators - Ytong AAC reinforced elements

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fosil	kg CO_2 ekv.	2,77E+02	9,27E-02	ND	-1,62E+01	ND	ND	ND	ND	ND	ND	1,48E+00	6,07E+00	2,50E+00	2,52E-01	-9,22E+01
GWP-biogenic	kg CO_2 ekv.	7,18E+00	6,86E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,58E-03	4,10E-02	4,37E-03	6,13E-03	-3,68E-01
GWP- luluc	kg CO_2 ekv.	1,16E-01	4,58E-05	ND	ND	ND	ND	ND	ND	ND	ND	1,67E-04	3,08E-03	2,81E-04	4,97E-05	-2,31E-02
GWP - total	kg CO_2 ekv.	2,84E+02	9,35E-02	ND	-1,62E+01	ND	ND	ND	ND	ND	ND	1,48E+00	6,11E+00	2,50E+00	2,58E-01	-9,26E+01
ODP	kg CFC 11 ekv.	4,79E-06	2,02E-09	ND	ND	ND	ND	ND	ND	ND	ND	2,35E-08	9,29E-08	3,98E-08	8,75E-09	-2,32E-06
AP	mol H^+ ekv.	8,62E-01	2,03E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,37E-02	1,47E-02	2,32E-02	1,63E-03	-3,52E-01
EP-freshwater	kg P ekv.	9,02E-02	6,59E-06	ND	ND	ND	ND	ND	ND	ND	ND	4,54E-05	4,87E-04	7,68E-05	1,18E-05	-3,72E-02
EP- marine	kg N ekv.	2,18E-01	5,12E-05	ND	ND	ND	ND	ND	ND	ND	ND	6,36E-03	3,50E-03	1,07E-02	7,10E-04	-8,46E-02
EP - terrestrial	mol N ekv.	2,26E+00	5,20E-04	ND	ND	ND	ND	ND	ND	ND	ND	6,91E-02	3,59E-02	1,17E-01	7,62E-03	-8,97E-01
POCP	kg NMVOC ekv.	9,98E-01	3,15E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,05E-02	1,91E-02	3,46E-02	3,02E-03	-4,94E-01
ADP- minerals& metals*	kg Sb ekv.	6,28E-04	3,03E-07	ND	ND	ND	ND	ND	ND	ND	ND	5,16E-07	1,91E-05	8,73E-07	2,66E-07	-4,69E-05
ADP-fosil*	MJ	2,59E+03	1,32E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,94E+01	8,40E+01	3,27E+01	6,41E+00	-9,78E+02
WDP*	m^3	4,37E+01	5,51E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,28E-02	3,56E-01	7,23E-02	2,34E-02	-4,84E+00
Acronyms	**GWP-fossil** = Global Warming Potential fossil fuels; **GWP-biogenic** = Global Warming Potential biogenic; **GWP-luluc** = Global Warming Potential land use and land use change; **ODP** = Depletion potential of the stratospheric ozone layer; **AP** = Acidification potential, Accumulated Exceedance; **EP-freshwater** = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[2]	kg CO_2 ekv.	2,77E+02	9,28E-02	ND	ND	ND	ND	ND	ND	ND	ND	1,48E+00	6,07E+00	2,50E+00	2,52E-01	-9,21E+01
PM	Disease incidence	1,28E-05	6,91E-09	ND	ND	ND	ND	ND	ND	ND	ND	3,82E-07	3,89E-07	6,46E-07	4,11E-08	-6,49E-06
IRP	kBq U235 ekv.	1,49E+01	1,78E-03	ND	ND	ND	ND	ND	ND	ND	ND	9,19E-03	7,26E-02	1,55E-02	6,11E-03	-1,36E+00
ETP- fw	CTUe	1,01E+03	5,63E-01	ND	ND	ND	ND	ND	ND	ND	ND	8,13E+00	4,16E+01	1,37E+01	2,34E+00	-1,72E+02
HTP-c	CTUh	4,72E-07	2,22E-11	ND	ND	ND	ND	ND	ND	ND	ND	2,49E-10	1,24E-09	4,21E-10	4,46E-11	-4,99E-07
HTP- nc	CTUh	2,75E-06	3,41E-10	ND	ND	ND	ND	ND	ND	ND	ND	7,35E-09	2,26E-08	1,24E-08	1,19E-09	-1,67E-06
SQP	dimensionless	1,68E+03	7,96E-01	ND	ND	ND	ND	ND	ND	ND	ND	1,29E+00	4,33E+01	2,19E+00	1,32E+01	-1,80E+02
Acronyms	**GWP-GHG** = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide and biogenic carbon stored in the product; as such the indicator is identical to GWP-total except that the CF for biogenic CO 2 is set to zero, **PM** = Potential incidence of disease due to PM emissions, **IRP** = Potential Human exposure efficiency relative to U235, **ETP-fw** = Potential Comparative Toxic Unit for ecosystems, **HTP-c** = Potential Comparative Toxic Unit for humans, **HTP-nc** = Potential Comparative Toxic Unit for humans, **SQP** = Potential soil quality index															

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

Resource use indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2,22E+02	2,07E-02	ND	ND	ND	ND	ND	ND	ND	ND	1,10E-01	1,13E+00	1,86E-01	1,27E-01	-2,01E+01
PERM	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,22E+02	2,07E-02	ND	ND	ND	ND	ND	ND	ND	ND	1,10E-01	1,13E+00	1,86E-01	1,27E-01	-2,01E+01
PENRE	MJ	2,77E+03	1,40E+00	ND	ND	ND	ND	ND	ND	ND	ND	2,06E+01	8,93E+01	3,48E+01	6,82E+00	-1,03E+03
PENRM	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,77E+03	1,40E+00	ND	ND	ND	ND	ND	ND	ND	ND	2,06E+01	8,93E+01	3,48E+01	6,82E+00	-1,03E+03
SM	kg	2,43E+01	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,28E-02	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acronyms	**PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable primary energy resources used as raw materials; **PERT** = Total use of renewable primary energy resources; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources used as raw materials; **PENRT** = Total use of non-renewable primary energy re-sources; **SM** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels; **FW** = Use of net fresh water														

Additional environmental information - Waste indicators

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	1,87E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	4,18E+01	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,06E-01	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,76E+02	0,00E+00	0,00E+00
Materials for energy recovery	kg	2,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	2,79E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	5,71E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Other environmental performance indicators

Within the product system defined in the section “LCA information” on page 5, the **partial carbon footprint (CFP)** of all assessed product groups is also assessed and declared in accordance with **ČSN EN ISO 14067:2022** *Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification*. The carbon footprint addresses only one impact category: climate change. The calculation is based on the IPCC-2021 model and expressed in 100-year global warming potential (GWP) in [kg CO2e].

The scope of the carbon footprint study, the product system and its boundaries are identical to the assessment of products within the EPD. The relevant environmental indicators are declared according **to the information modules A1-A4 and C1-C4** used in the EPD (see table on page 9). The use phase (modules B1-B7) is not included. The declared unit is 1 m3 of product. The total for the entire life cycle is given.

Product group - Ytong AAC blocks

Greenhouse gas emissions	Carbon footprint by life cycle stage in [kg CO_2e].						
	A1-A3	A4	C1	C2	C3	C4	Total
Net emissions and removals of **fossil** greenhouse gases	1,56E+02	7,72E-02	1,48E+00	5,05E+00	2,50E+00	2,36E-01	1,65E+02
Net emissions and removals of **biogenic** greenhouse gases	4,49E+00	5,71E-04	2,58E-03	3,42E-02	4,37E-03	5,75E-03	4,54E+00
Greenhouse gas emissions and removals **from direct land-use change**	3,83E-02	3,81E-05	1,67E-04	2,56E-03	2,81E-04	4,66E-05	4,14E-02
Greenhouse gas emissions **from aviation**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Product group - Ytong AAC reinforced elements

Greenhouse gas emissions	Carbon footprint by life cycle stage in [kg CO_2e].						
	A1-A3	A4	C1	C2	C3	C4	Total
Net emissions and removals of **fossil** greenhouse gases	2,77E+02	9,27E-02	1,48E+00	6,07E+00	2,50E+00	2,52E-01	2,87E+02
Net emissions and removals of **biogenic** greenhouse gases	7,18E+00	6,86E-04	2,58E-03	4,10E-02	4,37E-03	6,13E-03	7,23E+00
Greenhouse gas emissions and removals **from direct land-use change**	1,16E-01	4,58E-05	1,67E-04	3,08E-03	2,81E-04	4,97E-05	1,20E-01
Greenhouse gas emissions **from aviation**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Assessment of the content of natural radionuclides

The assessment is conducted in accordance with Recommendation SÚBJ DR-RO-5.2 (Rev. 0.0) „Měření a hodnocení obsahu přírodních radionuklidů ve stavebním materiálu“, issued by SÚBJ Praha under reference number SÚBJ/OS/18895/2017, November 2017.

It is carried out once per year at all three production plants.

Evaluation results for the assessed year 2022:

Hrušovany u Brna: Protocol No. PR2288201, Horní Počaply: Protocol No. PR2246832, Chlumčany: Protocol No. PR2264377.
The mass activity index (I) does not exceed the value of 1.00, as stipulated by Decree No. 422/2016 Coll. for building materials used in structures containing residential or occupied rooms.
The effective dose does not exceed the reference level of 1 mSv/year, as set by Decree No. 422/2016 Coll., considering that the mass activity index demonstrably does not exceed 1.00.
Conclusion:
The material represented by the submitted sample can be used without restrictions in buildings containing residential and occupied rooms. Naturally, it can also be used without restrictions in all other types of buildings. If the material is used as a raw material for the production of other building materials, the final construction material is subject to evaluation

References

EN ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
EN ISO 14040:2006 Environmental management - Life Cycle Assessment - Principles and Framework
EN ISO 14044:2006 Environmental management - Life Cycle Assessment – Requirements and guidelines
EN ISO 14063:2020 Environmental management - Environmental communication - Guidelines and examples
EN 15643:2021 Sustainability of construction works - Framework for assessment of buildings and civil engineering works
EN 15942:2021 Sustainability of construction works - Environmental product declarations - Communication format business-to-business
EN 17672:2022 Sustainability of construction works - Environmental product declarations - Horizontal rules for business-to-consumer communication
TNI CEN/TR 15941:2012 Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data
EN 16908:2017+A1:2022 Cement and building lime - Environmental product declarations - Product category rules complementary to EN 15804
EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide
ILCD General guide for Life Cycle Assessment (2010) - JRC EU
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives; CZ - Act No. 541/2020 Coll., as amended (Waste Act)
Decree No. 8/2021 Coll. Waste catalogue – Waste catalogue
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
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 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
SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com
Ecoinvent Centre, www.Ecoinvent.org
EU PEF (EF reference package) - https://eplca.jrc.ec.europa.eu/LCDN/EN15804.html
Explanatory documents are available from the head of Technical Support of the EPD owner.