ENVIRONMENTAL PRODUCT DECLARATION
according to ISO 14025 and EN 15804

Owner of the Declaration	**“CSP BZS” JLLC**
Program holder	CENIA, Czech Environmental Information Agency, executive function of the NPEZ Agency
EPD prepared by	“CSP BZS” JLLC
Declaration number	3015-EPD-030061383
Issue date	2021-03-25
Valid to	2026-03-24 (EN 15804+A1:2013)

Cement-bonded particleboard

BZSPlus, BZSPlus+

1. General Information. Statement.

“CSP BZS” JLLC	**Cement-bonded particleboard**
Program: “National Environmental Labeling Program” - CZ **Program holder:** CENIA, Czech Environmental Information Agency, executive function of the NPEZ Agency, Vršovická 1442/65, Praha 10, 100 10, www.cenia.cz	**Owner of the Declaration:** **“CSP BZS” JLLC,** 137, Komsomolskaya Str., 213500, Krichev, the Republic of Belarus
Declaration number: 3015-EPD-030061383	**Declared product / Declared unit:** **1 m³ of manufactured products** – BZSPlus, BZSPlus+
This Declaration is based on the Product Category Rules: EN 15804+A1:2013 as basic PCR **Issue date: 2021-03-25** **Valid to: 2026-03-24** (EN 15804**+**A1:2013)	**Product:** **Cement-bonded particleboard** **BZSPlus, BZSPlus+**

We remind you that this study is only based on facts, circumstances and assumptions that are specified in the report. If these facts, circumstances or assumptions were different, our conclusions might be different.

Moreover, the results of the study should be considered in the aggregate with regard to the assumptions made and not taken individually.

This document is consistent with the international standards of construction products: **ISO 21930:2013** Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services and **EN 15804+A1:2013** Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products and with the life cycle assessment (LCA) standards **EN ISO 14040:2006** Environmental management - Life Cycle Assessment - Principles and Framework and **EN ISO 14044:2006** Environmental management - Life Cycle Assessment- Requirements and guidelines.

A Product Category Rules (PCR) document: **EN 16485:2014** Round and sawn timber - Environmental Product Declarations - Product category rules for wood and wood-based products for use in construction.

The calculation of the biogenic carbon content was performed according to **EN 16449:2014** Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide.

The company has a certified integrated quality management system according to EN ISO 9001 standard and the environment management system according to EN ISO 14001.

1.1. Product description

1.1.1. Product

Cement-bonded particleboard is a multipurpose building material with unique properties. This material combines strength and durability of cement with simplicity of wood processing and flexibility.

Due to their technical and qualitative characteristics, cement-bonded particleboards are widely used in construction and for repair, restoration and reconstruction, as well as in architecture and interior design.

Cement-bonded particleboards are manufactured by pressing molded technologic ready-made mixture that consists of softwood chips, Portland cement, mineral substances and water.

The use of cement-bonded particleboards allows to reduce considerably time and money spent on construction and repair work, as well as minimize maintenance costs of completed buildings due to the durability, strength and other useful qualities of this material.

Cement-bonded particleboards are successfully used both for large construction projects and for the construction of country houses and cottages.

1.1.2. Application

Cement-bonded particleboards BZSPlus and BZSPlus+ are produced in accordance with EN 13986:2004+A1:2015.

Cement-bonded particleboards **BZSPlus** with thickness 8, 10, 12, 16, 18, 20, 22 and 24 mm are intended for internal and external use as structural components, uncoated and they have a fire rating class B-s1, d0.

Cement-bonded particleboards **BZSPlus+** with thickness 8, 10, 12, 14, 16, 18, 20, 22 and 24 mm are intended for internal and external use as structural (≥ 16 mm) and non-structural (≤ 16 mm) components in dry and wet conditions, uncoated and they have a fire rating class A2–s1, d0.

Application of cement-bonded particleboards:

Exterior construction work and external finishing:

- prefabricated frame structures;
- façade cladding of residential and office buildings, gas stations, shopping facilities, mobile residential containers, warehouses and sheds;
- thermal insulation of industrial and agricultural buildings and facilities;

- adding floors to existing buildings;
- stay-in-place and reusable formwork for monolithic construction;
- prefabricated residential and office buildings, etc.;
- screed of floor and roof structures;
- sandwich panels with additional thermal insulation;
- relocatable buildings;
- fences, shieldings, soundproof panels, sound-absorbing and protective walls along highways;
- temporary fences around construction sites;
- saunas, shower cabins, garages, cellars, barns, toilets and other non-residential buildings;
- elements of outdoor billboard structures and poster panels;
- landscape design elements, flower beds, paving of paths and surroundings of outdoor swimming pools.

Interior finishing

- interior lining of houses with wooden or metal frame;
- stay-in-place formwork for monolithic reinforced concrete internal walls, partitions, ceilings, elevator shafts, elements of framework;
- ceilings and partition walls;
- sub-flooring for floor finishing;
- soundproof and fire-resistant partitions and floors;
- suspended ceilings;
- indoor staircases;
- lining of columns, beams, shafts and pipelines;
- lining of wet areas;
- ventilation ducts.

1.1.3. Technical Data

Cement-bonded particleboards are manufactured in accordance with EN 13986+A1:2015.
Boards are manufactured in thickness (in mm): 8, 10, 12, 14, 16, 18, 20, 22, 24.

Main physical and mechanical properties of cement-bonded particleboards BZSPlus:

Essential characteristics	Standard	Standard value	Actual mean value
Density, kg/m^3	EN 323	min. 1000	1350
Bending strength, N/mm^2	EN 310	min. 9,0	13,0
Bending stiffness (modulus of elasticity), N/mm^2	EN 310	min. 4500	6300
Moisture, %	EN 634-1	9 ± 3	11
Durability – swelling in thickness after 24 hours, %	EN 317	max. 1,5	0,5
Tensile strength perpendicular to the board plane, N/mm^2	EN 319	min. 0,5	0,8
Moisture resistance – swelling in thickness after cyclic testing, %	EN 321	max. 1,5	0,15
Moisture resistance – tensile strength perpendicular to the board plane after cyclic testing, N/mm^2	EN 321	min. 0,3	0,5
Reaction to fire	EN 13501-1		B - s1, d0
Release of formaldehyde, mg/m^3	EN 717-1		< 0,002 (E1)
Hydrogen value (pH)			11 - 13

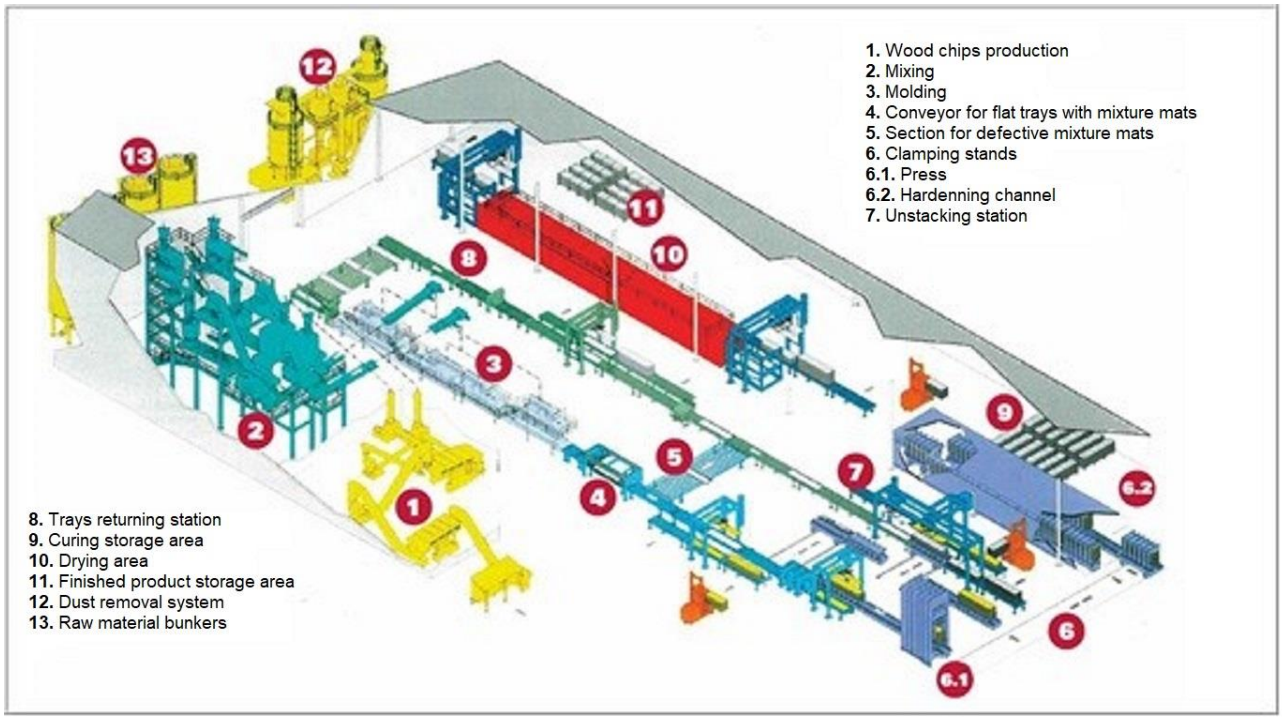
Main physical and mechanical properties of cement-bonded particleboards BZSPlus+:

Essential characteristics	Standard	Standard value	Actual mean value
Density, kg/m^3	EN 323	1350 - 1430	1400
Bending strength, N/mm^2	EN 310	min. 9,0	13,0
Bending stiffness (modulus of elasticity), N/mm^2	EN 310	min. 4500	6300
Moisture, %	EN 634-1	9 ± 3	10
Durability – swelling in thickness after 24 hours, %	EN 317	max. 1,5	0,5
Tensile strength perpendicular to the board plane, N/mm^2	EN 319	min. 0,5	0,8
Moisture resistance – swelling in thickness after cyclic testing, %	EN 321	max. 1,5	0,15
Moisture resistance – tensile strength perpendicular to the board plane after cyclic testing, N/mm^2	EN 321	min. 0,3	0,5
Reaction to fire	EN 13501-1		A2 - s1, d0
Reaction to fire for flooring	EN 13501-1: 2018		$A2_{fl}$ –s1
Hydrogen value (pH)			11 - 13
Release of formaldehyde, mg/m^3			< 0,002 (E1)
Weighted sound permeability, Rw, dB			8 mm - 33 24 mm - 38
Water vapour diffusion current density, g, mq.m^{-2}.h^{-1}			2884,2437
Water vapour permeability, W, mq.m^{-2}.h^{-1}.Pa^{-1}			1,2068
Diffusion conductivity factor, δ, mq.m^{-1}.h^{-1}.Pa^{-1}			0,0145
Diffusion resistance factor, μ			48
Thermal conductivity, λ_{10}, W.m^{-1}.K^{-1}	EN 12667		0,234
Radiological data:			12,5
– Mass activity index		0,5	0,18
– K 40, Bg.kg^{-1}			201
– Ra 226, Bg.kg^{-1}		150	18,7
– Th 228, Bg.kg^{-1}			11,3

1.1.4. Cement-bonded particleboard manufacturing process / Installation

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

Production scheme



Debarking. Round timber that has to be debarked, free of metal inclusions, is delivered to the debarking machine where the logs are debarked.

Debarked wood yard. Debarked wood is seasoned for about three months in order to achieve uniform moisture content and reduce the content of sugar and tannin.

Wood chips production. Seasoned wood is delivered to the chipping machine that produces fine flat chips. Then the chips are fed proportionally to the hammer mill, where they are ground to smaller size thinner particles. The material is separated into two fractions and loaded into the corresponding separate bunkers.

Mixing. The next step is mixing the components of cement-bonded particleboard in two mixers for surface and internal layers. The components are fed to the mixers in the following order: wood chips, residual water and aluminum sulphate solution, liquid glass solution, cement.

Table 1: The content of the individual components in the mixture

Portland cement	65
Wood chips	24
Mineral substances	2,5-3,0
Water	8,0-8,5

Molding. The prepared mixture is laid on the trays through proportioning bunkers in four layers – two surface layers of fine fraction chips and two internal layers of coarse fraction chips.

Weighing station. Then the mixture mat is weighed and checked for compliance with the preset tolerance rate. If the mat weight is not met the tolerance rate, it is delivered back into the internal layer bunker of the molding unit.

Pressing and hardening. The trays with mixture mats are stacked in the clamping stands. Then a full clamping stand is put into the press. After the press is unlocked, the clamping stand is removed from the press and delivered to the hardening channel. The temperature in the hardening channel is 60-70°C. The curing period is more than 8 hours.

Unstacking station. After the hardening channel, the clamping stands return to the press for unlocking and removing the boards and the trays separately.

Trays returning station. After cleaning and treating with emulsion spacer fluid, the trays return to the molding conveyor to be filled again with four-layer mixture mat.

Curing storage area. The boards are cleaned on both sides, put on the storage pallets and kept in the storage area for 5-10 days.

Drying and cutting. The boards are finally dried while passing through the drying channel. After the drying channel the boards are cut on all sides and stacked.

Finished product storage area. Transportation pallets with a specific number of boards are transported with a forklift to the finished product storage area.

Cement-bonded particleboard is an environmentally and hygienic safe material. It is not contain formaldehyde resins, phenol and its derivatives, asbestos and other toxic, hazardous and harmful substances.

Environmental protection. If cement-bonded particleboards are used as designated and according to the current state of knowledge, there is no danger to the environment (water, air, soil).

Easy processing is one of the advantages of cement-bonded particleboards. Though they are much stronger than chipboards, they can be processed with similar tools. Tungsten carbide or diamond tipped tools should be used to achieve smooth cut surface.

Cutting, drilling, milling and sanding of cement-bonded particleboards produces a lot of dust, therefore dust collection systems and local dust extraction solutions are required.

Cement-bonded particleboards can be fixed to the supporting structure with screws and rivets (when fixing to metal profiles). Metal staples are used for fixing cement-bonded particleboards to the wooden frame at the production site.

All fasteners and metal parts of supporting structures should have a corrosion resistant coating.

1.1.5. Packaging

Cement-bonded particleboards are stored on transportation wooden pallets allowing for forklift and electric lift truck handling. The boards are protected against the weather with PE foil. They are fastened to the pallet with cross polypropylene strips. On customer’s request the boards can be additionally lengthwise tied.

The boards wrapped into PE foil do not meet the requirements for long-term weather protection in case of open-air storage.

The boards should be stored horizontally in a roofed dry storage area in order to prevent moistening of the boards before installation.

The pallets with boards of the same size may be stacked. The boards should be only handled on pallets.

If the boards are stored differently, they may be transferred only in a vertical position. Manual transfers should also be performed only in a vertical position, holding the ends of the boards.

1.1.6. Reference Service Life (RSL)

RSL is not specified for applied modules A1, A2 and A3.

1.1.7. Disposal

Correctly demounted boards can be reinstalled. Lightly damaged boards can be used as cut boards or insulation.

When collecting: the cement-bonded particleboad is kept separately from wood waste and other mineral waste.

The waste code number for production waste of mineral boards is according to the /European Waste Index/ 101311.

1.2. LCA: Calculation rules

1.2.1. Declared unit

For assessing products (BZSPlus, BZSPlus +) was chosen **declared unit 1 m^3**.

Conversion factor for 1 kg of product is based on the bulk density of each product and is shown in the following table:

Table 2: Conversion factor for 1 kg of product

Product	Bulk density(kg/m^3)	Conversion factor for 1 kg
BZSPlus	1340	**0,000746**
BZSPlus+	1430	**0,000699**

2. System boundary according to the modular approach

The system boundary with nature is set to include those technical processes that provide the material and energy inputs into the system and the following manufacturing, and transport processes up to the factory gate as well as the processing of any waste arising from those processes.

The boundary of the product system of the product life cycle is only the information module **A1 - A3 "Production phase"** in accordance with the standard EN 15804 + A1: 2013. The project report includes all relevant "cradle to gate" processes.

The boundaries of the system are set to include both those processes that provide material and energy inputs to the system and subsequent production and transportation processes up to the production gateway, as well as the processing of all waste resulting from these processes.

Applied information modules according to EN 15804 + A1 are listed in the following table:

Table 3: Applied information modules

Information about product system boundaries - information modules (**X** = included, **MND** = module not declared)																
Product stage			**Construction process stage**		**Use stage**							**End-of-life stage**				**Benefits and loads beyond the system boundary**
Raw materiál supply	transport	Manufacturing	transport to the building site	Construction - Installation proces	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction, demolition	transport to waste processing	Waste processing	Disposal	Reuse, recovery and/or recycling potential recycling
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	**X**	**X**	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

A1-A3 Product stage:

- A1 - raw material supply
- A2 - transport to the manufacturer
- A3 - manufacturing,

2.2. Omissions of life cycle stages

Information modules A4 to C4 and module D, which is intended to provide additional information beyond the life cycle, have not been included in the LCA due to the difficult availability of input data and are therefore not declared. The reference service life of the assessed floor systems is also not declared depending on the unavailability of representative data on operating conditions in the product use phase.

Benefits and costs beyond the system: They are not quantified in the study. In other product systems, the energy recovery of some wastes could be considered.

2.3. Cut-off criteria

The cut-off rules set for this project are the ones recommended by the document EN 15804+A1:2013.

Criteria for the exclusion of inputs and outputs (cut-off rules) in the LCA and information modules and any additional information are intended to support an efficient calculation procedure. They shall not be applied in order to hide data. Any application of the criteria for the exclusion of inputs and outputs shall be documented.

The cut-off criterion used EPD will be the mass criterion with the following details:

- Taking into account all input and output flows in a unit process i.e. taking into account the value of all flows in the unit process and the corresponding LCI whenever available
- The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%)
- No simplification of the LCI by additional exclusions of material flows

The following flows are not recorded in the system boundaries:

- Flows related to human activities such as employee transport are excluded
- The construction of plants, production of machines and transportation systems is excluded since the related flows are supposed to be negligible compared to the production of the building product when compared at these systems lifetime level
- All types of waste not related to the production process were excluded

2.4. Sources of environmental data

All operational data concerning product recipes, energy data, diesel consumption and the distribution of annual waste production and emissions according to plant records were taken for the study. For all considered inputs and outputs, transport costs were considered or differences in transport distances were recognized.

Quantifications for the input and output of energy and materials were directly derived from annual **production data of 2019** and detailed in the LCA study.

The basic source of the necessary data from the area of production, purchasing and consumption on the basis of technological data, etc. was the information system and operational data of the company. The annual report on waste production for 2019 was used to determine the production of waste.

In this EPD, only data related to one plant (production site) and 2 product types (average values for BZSPlus and BZSPlus +) are given. Data on all inputs and outputs are obtained separately for each product type. For this reason, no calculation rules are used to average the data.

The structure of electricity generation in Belarus in 2016 is used for LCIA calculations (data from THE WORLD FACTBOOK).

Used software for data processing and evaluation: SimaPro - version 9.1, SimaPro Analyst, Ecoinvent database 3.6.

2.5. Data quality

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

Time period: Manufacturer's data for **2019** are used for specific data (the requirement to use average data for a period of 1 year is met). Data from the Ecoinvent database version 3.6 are used for generic data.

Technological aspect: Data corresponding to the current production of individual types of products and corresponding to the current state of the used production technologies (product recipes, technological procedures) are used. For each product type, all the data needed to calculate the average product of that type are used.

Aspect of completeness: Most of the input data is based on consumption balances, which are accurately recorded in the company's information system. The reliability of the source of specific data is given by the uniformity of the company's information system collection methodology. The source of some data, or their allocations, were also qualified technological calculations.

Geographical aspect: The generic data used from the Ecoinvent database are used valid for the EU (eg energy mix of electricity generation).

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

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

2.6. Allocation

The allocation criteria are based on the volume of production.

2.7. Comparability

Environmental product statements from different programs may not be comparable. Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to EN 15804+A1:2013 and the building context, respectively the product-specific characteristics of performance, are taken into account.

The used background database has to be mentioned.

2.8. Product variability

In this EPD, only data related to one plant (production site) and 2 product types (average values for BZSPlus and BZSPlus +) are given. Data on all inputs and outputs are obtained separately for each product type. For this reason, no calculation rules are used to average the data.

For assessing products (BZSPlus, BZSPlus +) was chosen **declared unit 1 m^3**.

2.9. LCA: Results

The impact assessment calculations are made in full accordance with standard EN 15804+A1:2013. This standard requires parameters describing the environmental impacts, the use of resources, the waste disposal and the others output flows.

The calculation of environmental impacts is realized with the impact characterization factors defined in the CML-IA (database developed by Institute of Environmental Sciences Faculty of Science University of Leiden, Netherlands).

The biogenic carbon content was calculated according to the procedure given in European Standard EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide.

2.9.1. Parameters describing the environmental impacts

Table 4: Parameters describing the environmental impacts - BZSPlus

Results LCA – Parameters describing environmental impacts (DJ = 1 m³ of product)					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential (GWP)	kg CO2 equiv.	1,94E+02	1,62E+01	1,34E+00	2,11E+02
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 equiv.	4,02E-05	2,84E-06	7,88E-08	4,31E-05
Acidification potential of soil and water (AP)	kg SO2 equiv.	1,96E+00	8,40E-02	5,28E-03	2,05E+00
Eutrophication potential (EP)	kg (PO4)3- equiv.	5,61E-01	1,98E-02	1,96E-03	5,83E-01
Formation potential of tropospheric ozone (POCP)	kg Ethene equiv	9,31E-02	2,40E-03	1,37E-03	9,69E-02
Abiotic depletion potential (ADP-elements) for non fossil resources	kg Sb equiv.	4,39E-03	6,56E-04	1,65E-05	5,07E-03
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	MJ, net calorific value	5,65E+03	2,35E+02	3,46E+01	5,92E+03

Table 5: Parameters describing the environmental impacts - BZSPlus+

Results LCA – Parameters describing environmental impacts (DJ = 1 m³ of product)					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential (GWP)	kg CO2 equiv.	3,60E+02	1,30E+01	1,32E+00	3,75E+02
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 equiv.	4,12E-05	2,72E-06	7,76E-08	4,36E-05
Acidification potential of soil and water (AP)	kg SO2 equiv.	2,04E+00	6,26E-02	5,20E-03	2,11E+00
Eutrophication potential (EP)	kg (PO4)3- equiv.	5,85E-01	1,48E-02	1,92E-03	6,02E-01
Formation potential of tropospheric ozone (POCP)	kg Ethene equiv	9,32E-02	1,88E-03	1,35E-03	9,65E-02
Abiotic depletion potential (ADP-elements) for non-fossil resources	kg Sb equiv.	4,31E-03	6,23E-04	1,62E-05	4,96E-03
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	MJ, net calorific value	5,78E+03	1,89E+01	3,41E+01	6,01E+03

2.9.2. Parameters describing the resource use

Table 6: Parameters describing the resource use - BZSPlus

Results LCA – Parameters describing resource use					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	21,8	0	0	21,8
Use of renewable primary energy resources used as raw materials	MJ	0	0	0	0
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	21,8	0	0	21,8
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	1549	62,1	0	1611
Use of non-renewable primary energy resources used as raw materials	MJ	0	0	0	0
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	1549	62,1	0	1611
Use of secondary material	kg	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0
Net use of fresh water	m^3	5,23E-01	0	0	5,23E-01

Table 7: Parameters describing the resource use - BZSPlus+

Results LCA – Parameters describing resource use					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	21,8	0	0	21,8
Use of renewable primary energy resources used as raw materials	MJ	0	0	0	0
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	21,8	0	0	21,8
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	1548	8,47E-01	0	1549
Use of non-renewable primary energy resources used as raw materials	MJ	0	0	0	0
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	1548	8,47E-01	0	1549
Use of secondary material	kg	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0
Net use of fresh water	m^3	5,23E-1	0	0	5,23E-1

2.9.3. Parameters describing the waste categories and others output flows

Table 8: Parameters describing the waste categories - BZSPlus

Results LCA – Other environmental information describing waste categories					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	kg	0	4,58E-03	7,33E-03	1,19E-02
Non-hazardous waste disposed	kg	0	0	1,42E+01	1,42E+01
Radioactive waste disposed	kg	0	0	0	0

Table 9: Parameters describing the others output flows - BZSPlus

Results LCA – Other environmental information describing output flows					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Components for re-use	kg	0	0	0	0
Materials for recycling	kg	0	0	3,02E-02	3,02E-02
Materials for energy recovery	kg	0	0	2,57E-01	2,57E-01
Exported energy	MJ per energy carrier	0	0	0	0

Table 10: Parameters describing the waste categories - BZSPlus+

Results LCA – Other environmental information describing waste categories					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	kg	0	4,51E-03	0	4,51E-03
Non hazardous waste disposed	kg		0	1,40E+01	1,40E+01
Radioactive waste disposed	kg	0	0	0	0

Table 11: Parameters describing the others output flows - BZSPlus+

Results LCA – Other environmental information describing output flows					
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Components for re-use	kg	0	0	0	0
Materials for recycling	kg	0	0	2,86E-02	2,86E-02
Materials for energy recovery	kg	0	0	2,54E-01	2,54E-01
Exported energy	MJ per energy carrier	0	0	0	0

2.9.4. LCA: Interpretation

Influence of modules A1, A2 and A3 on individual types of impacts:

Figure 1: Influence of modules A1, A2 and A3 - BZSPlus

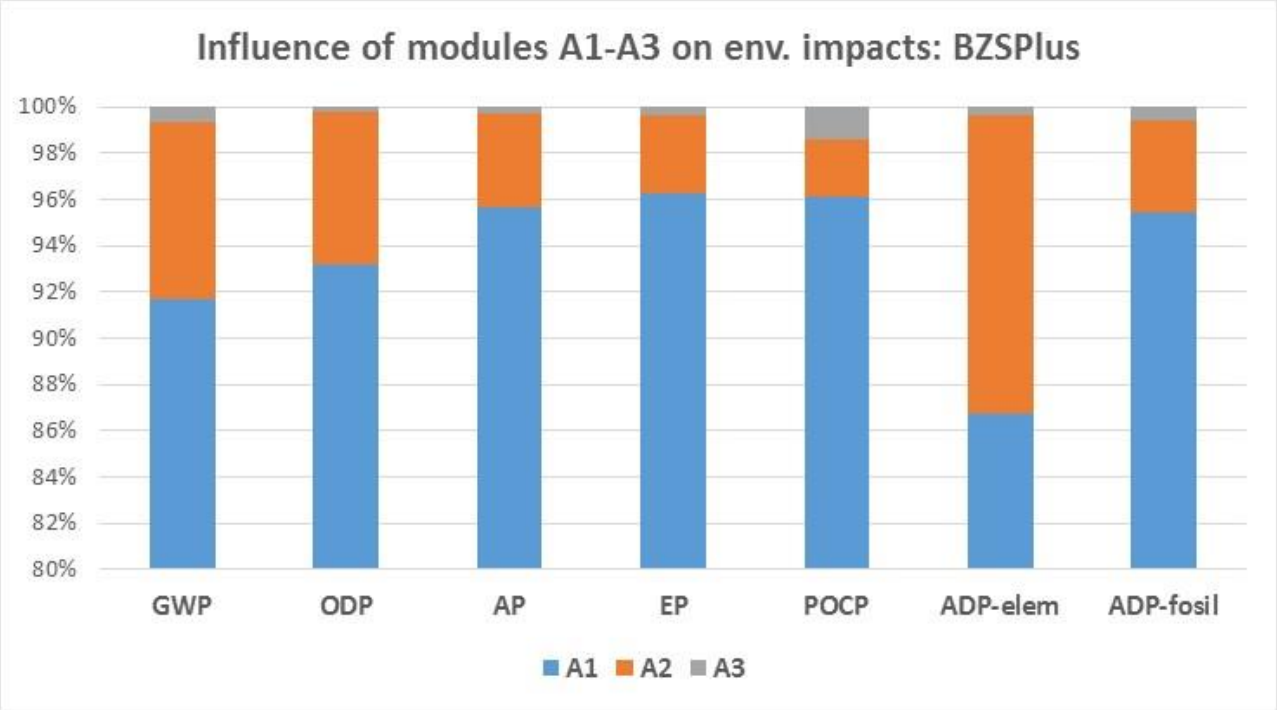
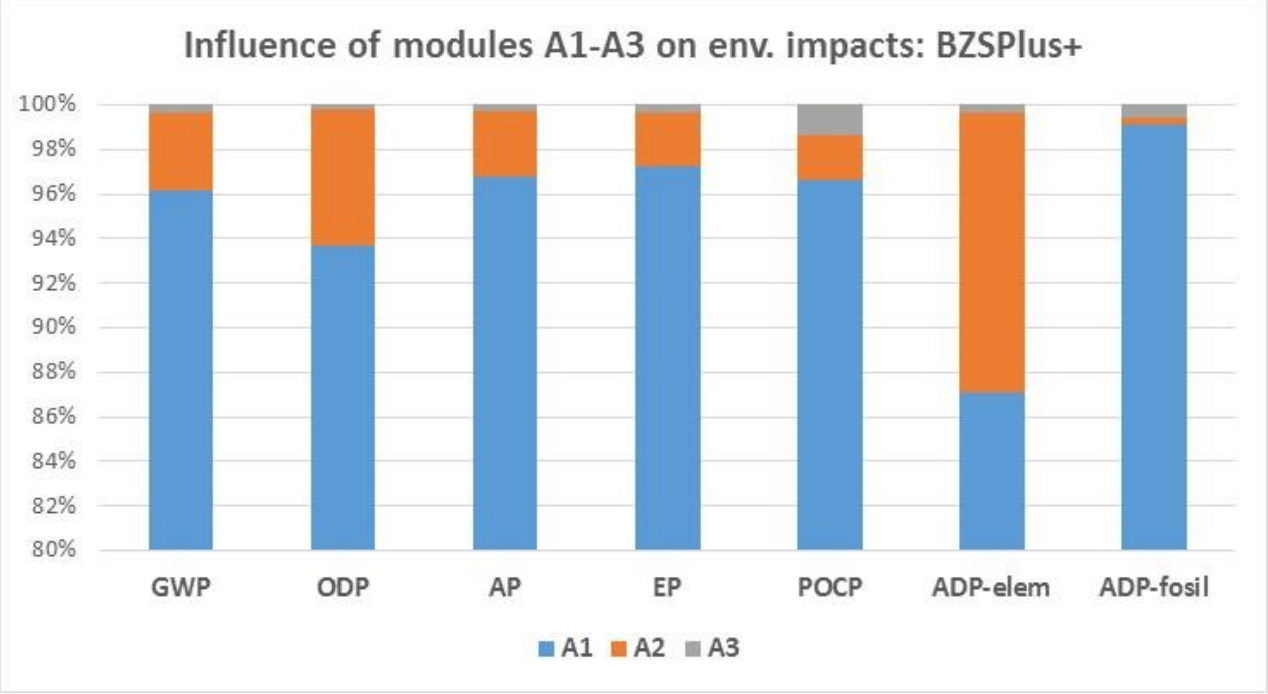


Figure 2: Influence of modules A1, A2 and A3 - BZSPlus+



3. LCA: Scenarios and additional technical information

Information modules A4 to C4 and module D were not included in the LCA analysis.

4. LCA: Additional information

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

5. References

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

EN 15804+A1:2013 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

EN 16485:2014 Round and sawn timber - Environmental Product Declarations - Product category rules for wood and wood-based products for use in construction.

EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide.

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 14063:2010 Environmental management - Environmental communication - Guidelines and examples

EN 15643-1:2010 Sustainability of construction works - Sustainability assessment of buildings - Part 1: General framework

EN 15643-2:2011 Sustainability of construction works - Assessment of buildings - Part 2: Framework for the assessment of environmental performance

EN 15942:2011 Sustainability of construction works - Environmental product declarations - Communication format business-to-business

TNI CEN/TR 15941:2010 Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data

ILCD handbook - JRC EU, 2011

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

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 1907/200

SimaPro - LCA software for fact-based sustainability, Pré Consultants, the Netherlands,

www.pre-sustainability.com

Ecoinvent Centre, www.Ecoinvent.org

Explanatory documents are available from the "technologist" of CSP BZS JLLC

6. EPD verification

CEN standard EN 15804+A1 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. 51/2021	

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