

PRELIMINARY LCA STUDY for a following **EPD - ENVIRONMENTAL PRODUCT DECLARATION**

as per ISO 14025 and EN 15804+A2

Bau-EPD
Baustoffe mit Transparenz



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HOLDER OF THE DECLARATION

Name of declaration holder

DECLARATION NUMBER

To be accorded with Bau EPD GmbH

ISSUE DATE

Date

VALID TO

Date

NUMBER OF DATASETS

Number

ENERGY MIX APPROACH

MARKET BASED APPROACH

Name and description of product

Name of declaration owner

picture

**To be accorded with declaration
owner and Bau EPD GmbH**

**Company logo
of declaration owner**

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1 General information

Product name Name and description of product	Declared Product / Declared Unit Description of the declared product and declared unit/functional unit
Declaration number To be accorded with Bau EPD GmbH	Number of datasets in pre-study Document(s): XX
Declaration data <input type="checkbox"/> Specific data <input type="checkbox"/> Average data	Range of validity The product, the sites/distribution locations and sales location (region, country) on which the data of the LCA study is based must be cited.
Declaration based on: MS-HB Version XX dated TT.MM.YYYY: Name of PCR PCR-Code Version XX dated TT.MM.YYYY (PCR tested and approved by the independent expert committee = PCR-Gremium) Version of EPD-Format-Template M-Dok 14aA2 The owner of the declaration is liable for the underlying information and evidence; Bau EPD GmbH is not liable with respect to manufacturer information, life cycle assessment data and evidence.	In the case of average data sets for preliminary studies on EPDs, reference must be made to this type of data set. The representativeness of the declaration with regard to the production volume covered by the LCA and the technology used must be presented. If no plants exist as part of the preliminary study or production has not yet started, a brief description of the data basis and calculation used for the assessment must be provided. Points from EN 15804 that cannot be complied with must be quoted and justified. Points from c-PCR and PCR-B that cannot be complied with must be cited and justified. Goal of the study Description of the study objective: This life cycle assessment serves as the basis for issuing a preliminary life cycle assessment for a subsequent environmental product declaration (EPD). The preliminary study is initially prepared in accordance with the rules of Bau EPD GmbH as the programme operator for the preparation of preliminary studies for EPDs and thus also in accordance with EN 15804:2019+A2, with the exception of the deviations in the chapters: (The deviations from EN 15804:2019+A2 must be described). The results are intended for publication in a preliminary study for an EPD. The data is intended for use in the business-to-business and business-to-consumer sectors. If there are any additional objectives of the study, these must be stated.
Type of Declaration as per EN 15804 From cradle to LCA-method: (i.e. cut-off by classification)	Database, Software, Version Declaration of background database, Software used and both its versions Version Characterisation Factors: Quelle, Version
Author of the Life Cycle Assessment Name of the author Institution, Address COUNTRY	The CEN standard EN 15804:2012+A2:2019+AC:2021 serves as the core-PCR. The c-PCR of CEN xxxxxx has been applied. Independent verification of the declaration according to ISO 14025:2010 <input type="checkbox"/> internally <input checked="" type="checkbox"/> externally Verifier 1: Name Verifier 2: Name
Holder of the Declaration Name of the manufacturer/owner Institution Address COUNTRY	Owner, Publisher and Programme Operator Bau EPD GmbH Seidengasse 13/3 1070 Vienna Austria

Academic Title Name

Verifier

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Note: EPDs from similar product groups from different programme operators might not be comparable.

2 Product

2.1 General product description

Content as defined in product specific PCR-B document.

2.2 Application field

Content as defined in product specific PCR-B document.

2.3 Standards, guidelines and regulations relevant for the product

Content as defined in product specific PCR-B document.

Table 1: Product specific standards

Standard	Title

2.4 Technical data

Content as defined in product specific PCR-B document.

Table 2: technical data of the declared construction product(s)

Characterization	Value	Unit

2.5 Basic/auxiliary materials

Content as defined in product specific PCR-B document.

Table 3: Basic and auxiliary materials in mass percentage

Components	Function	Mass fraction in percent

Declaration number of the EPD document

2.6 Production stage

Content as defined in product specific PCR-B document.

2.7 Packaging

Content as defined in product specific PCR-B document.

2.8 Conditions of delivery

Content as defined in product specific PCR-B document.

2.9 Transport to site

Content as defined in product specific PCR-B document.

2.10 Construction product stage

Content as defined in product specific PCR-B document.

2.11 Use stage

Content as defined in product specific PCR-B document.

2.12 Reference service life (RSL)

Content as defined in product specific PCR-B document.

Table 4: Reference service life (RSL)

Characterization	value	unit
Product name		years
Differentiation indoor and outdoor etc. so relevant		years
Reference conditions on which the RSL is based (if relevant)		Individual units

2.13 End of life stage

Content as defined in product specific PCR-B document.

2.14 Further information

Content as defined in product specific PCR-B document.

3 LCA: Calculation rules

3.1 Declared unit/ Functional unit

Content as defined in product specific PCR-B document.

Table 5: Declared unit

characterization	value	unit
declared unit	1	m ³
Bulk density ¹⁾		kg/m ²
Weight for conversion into kg		kg

¹⁾ If the gross density corresponds to the conversion factor to 1 kg, the last line is omitted. In the last line, instead of 'weight', the usual term for the weight in question can be stated (e.g. weight per unit area, weight per piece, etc.).

Table 6: Functional unit

characterization	value	unit
functional unit	1	m ³
Bulk density ¹⁾		kg/m ²
Weight for conversion into kg		kg

¹⁾ If the gross density corresponds to the conversion factor to 1 kg, the last line is omitted. In the last line, instead of 'weight', the usual term for the weight in question can be stated (e.g. weight per unit area, weight per piece, etc.).

3.2 System boundary

Content as defined in product specific PCR-B document.

Table 7: Declared life cycle stages

PRODUCT STAGE			CON- STRUCTION PROCESS STAGE		USE STAGE							END-OF-LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Construction, installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction, demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

X = included in LCA; ND = Not declared

3.3 Flow chart of processes/stages in the life cycle

Content as defined in product specific PCR-B document.

3.4 Estimations and assumptions

Content as defined in product specific PCR-B document.

3.5 Cut-off criteria

Content as defined in product specific PCR-B document.

3.6 Allocation

Content as defined in product specific PCR-B document.

3.7 Comparability

Content as defined in product specific PCR-B document.

4 LCA: Scenarios and additional technical information

Content as defined in product specific PCR-B document.

4.1 A1-A3 product stage

Content as defined in product specific PCR-B document.

4.2 A4-A5 Construction process stage

Content as defined in product specific PCR-B document.

Table 8: Description of the scenario „Transport to building site (A4)“^{x)}

Parameters to describe the transport to the building site (A4)	Value	Unit
Average transport distance		km
vehicle type, Commission Directive 2007/37/EC (European Emission Standard)		-
Fuel type and average consumption of vehicle		l/100 km
Maximum transport mass		tons
Capacity utilisation (including empty returns)		%
Bulk density of transported products		kg/m ³
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)		-

^{x)} The table must be filled with available information from chosen datasets resp. must be adapted (e.g. transport by ship). The used datasets must be indicated in a footnote.

Table 9: Description of the scenario „Installation of the product in the building (A5)“

Parameters to describe the installation of the product in the building (A5)	Value	Unit
Ancillary materials for installation (specified by material);		kg/t t/t l/t
Ancillary materials for installation (specified by type);		-
Water use		m ³ /t l/t
Other resource use		kg/t t/t l/t
Electricity demand		kWh or MJ/t
Other energy carrier(s):		kWh or MJ/t
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)		kg/t
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route)		kg/t
Direct emissions to ambient air (such as dust, VOC), soil and water		tg/t

4.3 B1-B7 use stage

B1: Content as defined in product specific PCR-B document.

Table 10: Description of the scenario „maintenance (B2)“ based on table 9 in EN 15804

Parameters maintenance (B2)	value	unit
Maintenance process		Description or source where description can be found
Maintenance cycle		Number per RSL or year ^a
Ancillary materials for maintenance, e.g. cleaning agent, specify materials		Kg/cycle
Waste material resulting from maintenance (specify materials)		kg
Net freshwater consumption during maintenance		m ³

Energy input during maintenance, e.g. vacuum cleaning, energy carrier type, e.g. electricity, and amount, if applicable and relevant		kWh
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Table 11: Description of the scenario „repair (B3)“

Parameters repair (B3)	value	unit
Repair process		Description or source where description can be found
Inspection process		Description or source where description can be found
Repair cycle		Number per RSL or year
Ancillary materials, e.g. lubricant, specify materials		Kg or kg/cycle
Waste material resulting from repair, (specify materials)		kg
Net freshwater consumption during repair		m ³
Energy input during repair, e.g. crane activity, energy carrier type, e.g. electricity, and amount		kWh

Table 12: Description of scenario „replacement (B4)“

Parameters replacement (B4)	value	unit
Replacement cycle		Number per RSL or year
Energy input during replacement e.g. crane activity, energy carrier type, e.g. electricity and amount if applicable and relevant		kWh
Exchange of worn parts during the product's life cycle, e.g. zinc galvanised steel sheet, specify materials		kg

Table 13: Description of scenario „refurbishment (B5)“

Parameters refurbishment (B5)	value	unit
Refurbishment process		Description or source where description can be found
Refurbishment cycle		Number per RSL or year
Energy input during refurbishment e.g. crane activity, energy carrier type, e.g. electricity, and amount if applicable and relevant		kWh
Material input for refurbishment, e.g. bricks, including ancillary materials for the refurbishment process e.g. lubricant, (specify materials)		kg or kg / cycle
Waste material resulting from refurbishment (specify materials)		kg
Further assumptions for scenario development, e.g. frequency and time period of use, number of occupants		Units as appropriate

Table 14: Description of scenarios „energy (B6)“ resp. „Water (B7)“

Parameters energy (B6) and water (B7)	value	unit
Ancillary materials, e.g. lubricant, specify materials		Kg or kg/cycle
Net fresh water consumption		m ³
Type of energy carrier, e.g. electricity, natural gas, district heating		kWh or m ³
Power output of equipment		kW

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Characteristic performance, e.g. energy efficiency, emissions, variation of performance with capacity utilisation etc.		units as appropriate
Further assumptions for scenario development, e.g. frequency and period of use, number of occupants		units as appropriate

4.4 C1-C4 End-of-Life stage

Content as defined in product specific PCR-B document.

Table 15: Description of the scenario „Disposal of the product (C1 to C4)“

(Procedures of collection and recovery must be described in a footnote (including technical features)).

Parameters for End-of-Life stage (C1-C4)	value	Quantity per m ³ insulation material
Collection process specified by type		kg collected separately
		kg collected with mixed construction waste
Recovery system specified by type		kg for re-use
		kg for recycling
		kg for energy recovery
Disposal specified by type		kg product or material for final deposition
Assumptions for scenario development, e.g. transportation		Appropriate units

4.5 D Potential of reuse and recycling

Content as defined in product specific PCR-B document.

Table 16: Description of the scenario „re-use, recovery and recycling potential (module D)“

(Substituted primary materials resp. technologies must be declared in a separate footnote (including technical information)).

Parameters for module D	value	unit
Materials for reuse, recovery or recycling from A4-A5		%
Energy recovery or secondary fuels from A4-A5		MJ/t resp. kg/t
Materials for reuse, recovery or recycling from B2-B5		%
Energy recovery or secondary fuels from B2-B5		MJ/t resp. kg/t
Materials for reuse, recovery or recycling from C1-C4		%
Energy recovery or secondary fuels from C1-C4		MJ/t resp. kg/t

5 Information on data quality and data selection in accordance with EN 15941

5.1 Principles for the description of data quality

Content as defined in product specific PCR-B document.

5.2 Description of the temporal, geographical and technological representativeness of the product data

Content as defined in product specific PCR-B document.

5.3 Explanation of the averaging process

Content as defined in product specific PCR-B document.

5.4 Assessment of the data quality of the Life Cycle Inventory data

Content as defined in product specific PCR-B document.

6 LCA: results

Table 17: Parameters to describe the environmental impact

Parameter	unit	A1-A3	A4	A5	B1	B2	B5	B6	B7	B1-B7	C1	C2	C3	C4	C1-C4	A-C	D
GWP total	kg CO ₂ eq.																
GWP fossil fuels	kg CO ₂ eq.																
GWP biogenic	kg CO ₂ eq.																
GWP luluc	kg CO ₂ eq.																
ODP	kg CFC-11 eq.																
AP	mol H ⁺ eq.																
EP freshwater	kg P eq.																
EP marine	kg N eq.																
EP terrestrial	mol N eq.																
POCP	kg NMVOC eq.																
ADPE	kg Sb eq.																
ADPF	MJ H _u																
WDP	m ³ Welt eq. entz.																
Legende	GWP = Global warming potential; luluc = land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources WDP = Water (user) deprivation potential, deprivation-weighted water consumption																

Table 18: Additional environmental impact indicators

Parameter	Einheit	A1-A3	A4	A5	B1	B2	B5	B6	B7	B1-B7	C1	C2	C3	C4	C1-C4	A-C	D
PM	Auftreten von Krankheiten																
IRP	kBq U235 äquiv																
ETP-fw	CTUe																
HTP-c	CTUh																
HTP-nc	CTUh																
SQP	dimensionslos																
Legend	PM = Potential incidence of disease due to Particulate Matter 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 – cancer effect; HTP-nc = Potential Comparative Toxic Unit for humans – non-cancer effect; SQP = Potential soil quality index																

Declaration number of the EPD document

Table 19 presents disclaimers which shall be declared in the project report and in the EPD with regard to the declaration of relevant core and additional environmental impact indicators according to the following classification. That can be declared in a footnote in the EPD.

Table 19: Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD-classification	Indicator	disclaimer
ILCD-Type 1	Global warming potential (GWP)	none
	Depletion potential of the stratospheric ozone layer (ODP)	none
	Potential incidence of disease due to PM emissions (PM)	none
ILCD-Type 2	Acidification potential, Accumulated Exceedance (AP)	none
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	none
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	none
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	none
	Formation potential of tropospheric ozone (POCP)	none
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD-Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.		
Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.		

Table 20: Parameters to describe the use of resources

Parameter	Einheit	A1- A3	A4	A5	B1	B2	B5	B6	B7	B1- B7	C1	C2	C3	C4	C1- C4	A-C	D
PERE	MJ H _u																
PERM	MJ H _u																
PERT	MJ H _u																
PENRE	MJ H _u																
PENRM	MJ H _u																
PENRT	MJ H _u																
SM	kg																
RSF	MJ H _u																
NRSF	MJ H _u																
FW	m ³																
Legend	PERE = Renewable primary energy as energy carrier; PERM = Renewable primary energy resources as material utilization; PERT = Total use of renewable primary energy resources; PENRE = Non-renewable primary energy as energy carrier; PENRM = Non-renewable primary energy as material utilization; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of fresh water																

Table 21: Parameters describing LCA-output flows and waste categories

Parameter	Einheit	A1- A3	A4	A5	B1	B2	B5	B6	B7	B1- B7	C1	C2	C3	C4	C1- C4	A-C	D
HWD	kg																
NHWD	kg																
RWD	kg																
CRU	kg																
MFR	kg																
MER	kg																
EEE	MJ																
EET	MJ																
Legend	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electric energy; EET = Exported thermal energy																

Table 22: Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit
Biogenic carbon content in product	kg C
Biogenic carbon content in accompanying packaging	kg C
NOTE 1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

7 LCA: Interpretation

Content as defined in product specific PCR-B document.

8 Literature

Content as defined in product specific PCR-B document.

EN ISO 14040 Environmental management - Life cycle assessment -- Principles and framework

EN ISO 14044 Environmental management - Life cycle assessment -- Requirements and guidelines

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

EN 15804 Sustainability of construction works - environmental product declarations. Core rules for the product category of construction products

General Principles and Guidelines Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. Bau-EPD GmbH, in current version

9 Directory and Glossary

9.1 List of figures

none

9.2 List of tables

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9.3 Abbreviations

9.3.1 Abbreviations as per EN 15804

EPD	environmental product declaration
PCR	product category rules
LCA	life cycle assessment
LCI	life cycle inventory analysis
LCIA	life cycle impact assessment
RSL	reference service life
ESL	estimated service life
EPBD	Energy Performance of Buildings Directive
GWP	global warming potential
ODP	depletion potential of the stratospheric ozone layer
AP	acidification potential of soil and water
EP	eutrophication potential
POCP	formation potential of tropospheric ozone
ADP	abiotic depletion potential

9.3.2 Abbreviations as per corresponding PCR

CE-mark	french: Communauté Européenne or Conformité Européenne = EC certificate of conformity
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals



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