PRODUCT CATEGORY RULES FOR BUILDING RELATED PRODUCTS AND SERVICES

as per ISO 14025 and EN 15804+A2

**for preparation of EPDs (Environmental Product Declarations)
according to the EPD programme of the BAU EPD GmbH**

Bau-EPD
Baustoffe mit Transparenz

Akkreditierung Austria
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Part B: Requirements on the EPD for

Cast iron building products

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Seidengasse 13/3
A-1070 Vienna
Austria
http://www.bau-epd.at
office@bau-epd.at

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1. Scope

This document contains the **Requirements on an Environmental Product Declaration (EPD)** as per EN 15804 and ISO 14025 and requirements of Bau EPD GmbH.

The document applies to:

- Ductile cast iron piles (ÖNORM B 2567)
- Pipes, fittings, accessories made of ductile cast iron and their connections for water pipes (EN 545)
- Pipes, fittings, accessories made of ductile cast iron and their connections for sewage disposal (EN 598)
- Attachments and covers for traffic areas made of cast iron (EN 124-2, September 2015 edition) and ÖNORM B 5110, Part 1: Interchangeable tops and covers made of cast iron - Supplementary national provisions for ÖNORM EN 124-1 and -2, October 2015 edition and ÖNORM B 5110, Part 2: Non-exchangeable tops and covers made of cast iron - Supplementary national provisions for ÖNORM EN 124-1 and -2, October 2015 edition

The requirements on the EPD include:

- Requirements from EN ISO 14025
- Requirements on the EN 15804 standard as a European core EPD
- Requirements from EN 15941 for data quality information for recording the environmental quality of products - Selection and application of data
- Complementary requirements on EPD of Bau EPD GmbH

Complementary PCR (c-PCR) from CEN, if available, must always be applied at the same time as the PCR-B from Bau EPD GmbH. The documents complement each other.

The calculation rules for the Life Cycle Assessment and Requirements on the project report are specified in a separate document – "Management System Handbook chapter 5" of Bau EPD GmbH.

Requirements on the layout of the EPD

Bau-EPD GmbH determines the following features with regard to the layout of the EPD:

- The document on hand defines the format template for EPD-document that is to fill in (Word file „Format template EPD Bau EPD GmbH", download at www.bau-epd.at).
- The content of an EPD is not limited in length of text.
- The layout of the front page of the EPD is defined and picture material must be accorded with Bau EPD GmbH (not more than 4 MB).
- On the last page of the EPD the publishing institution as well as the programme operator (Bau EPD GmbH in both cases), the LCA practitioner and owner of the declaration must be indicated with a logo and full address (including telephone number, fax number, email and website).
- Generally the font „Calibri" must be used.
- In addition to the EPD as Microsoft Word format an Excel-document (BAU EPD M-DOCUMENT 8- excel-file for electronic data transfer Editor baubook ECO Platform) must be created including the result tables for electronic transfer and complying to EN 15942 (ITM Matrix). The templates of Bau EPD GmbH must be used, for these tables also serve to forward data to database owners (ECO Platform/ECO Portal, OEKOBAUDAT and BAUBOOK).

Content of the EPD

The following format template respective guidance describes the required structure of the EPD document including the **required content for each individual chapter**.

In addition to that, this document is giving **specific notes for the creation of an EPD for cast iron building products** and **specific LCA calculation rules for cast iron building products** that must be considered when creating the EPD and underlying LCA study.

Parts of the content that are considered as additional information of optional character (=not required as per international standard and/or guidelines from ECO Platform) are marked in lilac colour. This information is free to choose whether to declare or not and indications can be delivered by the owner of the declaration on optional basis.

Legend:

Blue:	required content for each chapter
Turquoise:	specific requirements for EPD of materials from the scope of the PCR
Green:	specific LCA rules for EPD of material from the scope of the PCR
Violet:	additional information of optional character

EPD - ENVIRONMENTAL PRODUCT DECLARATION

As per ISO 14025 and EN 15804

OWNER AND PUBLISHER	Bau EPD GmbH, A-1070 Wien, Seidengasse 13/3, www.bau-epd.at
PROGRAMME OPERATOR	Bau EPD GmbH, A-1070 Wien, Seidengasse 13/3, www.bau-epd.at
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 holder

picture

To be accorded with declaration owner and Bau EPD GmbH

(Note: photographic rights must be clarified and cited)

Company logo of declaration holder

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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 **Number of datasets in EPD Document(s):** XX **Range of validity** The products, sites and locations/countries considered in the data of the life cycle assessment and for which the declaration applies must be named. In the case of an average EPD, this type of EPD must be pointed out. The representativeness of the declaration must be shown with regard to the production volume covered by the life cycle assessment and the technology used. Likewise, the range of fluctuation of the product group considered, must be specified in the interpretation.
Declaration number To be accorded with Bau EPD GmbH	
Declaration data ☐ Specific data ☐ Average data	
Declaration based on: MS-HB version dated YYYY-MM-DD: Name of PCR PCR Code Version XX of YYYY-MM-DD Version XX of content and format template (PCR tested and approved by the independent expert committee = PKR-Gremium) 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.	
Type of Declaration as per EN 15804 From cradle to ... . LCA-method: (i.e. Cut-off by classification)	**Database, Software, Version** Declaration of backround database, Software used and both its versions **Version Characterisation Factors:** Source, Version
Author of the Life Cycle Assessment Name of the author Institution Address, Postal Code, city Country	**The CEN standard EN 15804:2019+A2+corr2021 serves as the core-PCR. The c-PKR of CEN EN XXXXXX was applied.** **Independent verification of the declaration according to ISO 14025:2010** ☐ internally ☒ externally **Verifier 1:** Name **Verifier 2:** Name
Holder of the Declaration Name of the manufacturer Address, Postal Code, city Country	**Owner, Publisher and Programme Operator** Bau EPD GmbH Seidengasse 13/3 1070 Vienna Austria

DI (FH) DI DI Sarah Richter
Head of Conformity Assessment Body

Academic Title Name
Verifier

Academic Title Name,
Verifier

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

2. Product

2.1 General product description

For the product description the characteristics of the declared product must be described. In case of average EPD ("sector or branch" EPD) all declared products must be described separately.

Indications for the general product description:

- Separate description of products/materials for each product standard applicable, citing the product types and names.
- Description of characteristic components.
- All factory locations for the respective product categories must be declared, alternatively a reference can be made to an overview in an appendix (mandatory information in the project report and in the EPD document)
- All manufacturers who have provided data for the life cycle inventory of the EPD must be listed (mandatory information in the project report and in the EPD document).

Specific notes for the creation of an EPD for cast iron building products:

Explanation based on an example:

The declared product is e.g. a ductile iron pole with a diameter of 118 mm, a wall thickness of 10.6 mm and a length of 1 m.

2.2 Application field

The use and application purpose of the named products are to specify. The individual applications (including functions) must be declared as a text or table format.

Specific notes for the creation of an EPD for cast iron building products:
None.

2.3 Standards, guidelines and regulations relevant for the product

The respective standard and/or general technical approval or comparable national regulation must be indicated.

Optional: Documentation under the frame of CE -certification such as certificates of constancy of performance, certificates of conformity of the internal production control on the manufacturer's site, Declarations of performance, Official certificates of registration, European Technical Assessments or Technical permissions of construction industry can be cited.

Specific notes for the creation of an EPD for cast iron building products:
The standards regulating cast iron building products must be cited (i.e. standards, guidelines, other regulations)
Examples for product standards for cast iron building products in Austria are illustrated in table 1.

Table 1: Product specific standards

Standard	Title
ÖNORM B 2567	Ductile iron piles
ÖNORM EN 545	Ductile iron pipes, fittings, fittings and their joints for water supply
ÖNORM EN 598	Ductile iron pipes, fittings, accessories and their connections for sewage disposal
ÖNORM EN 124-2, Ausgabe September 2015	Cast iron tops and covers for traffic areas
ÖNORM B 5110, Teil 1, Ausgabe Oktober 2015	Replaceable tops and covers made of cast iron - Supplementary national regulations to ÖNORMEN EN 124-1 and -2
ÖNORM B 5110, Teil 2, Ausgabe Oktober 2015	Non-exchangeable tops and covers made of cast iron - Supplementary national regulations to ÖNORMEN EN 124-1 and -2

2.4 Technical data

For products carrying a CE marking as per Construction Products Regulation (CPR) the EPD must declare at least the same technical data as required and indicated in the declaration of performance of the manufacturer. What kind of data is required in each individual case is to learn from the document underlying the CE marking: any Harmonized European Standard or European Technical Assessment (ETA). Additional technical data must be listed if relevant for product distinction or specification.

Specific notes for the creation of an EPD for cast iron building products:

The (construction) technical data listed in Table 2 to Table 4 are based on the national standards or the harmonized European product standards for construction products made of cast iron (see scope) and must be specified with reference to the test standard. An indication in the different categories is only to be made if these are relevant for the declared product according to the product standard (see footnotes).

Table 2: Technical data for ductile iron piles

Designation	Value	Unit
Density cast iron	Value	kg/m³
tensile strength	Value	MPa
Proportional limit, 0.2% proof stress	Value	MPa
elongation at break	Value	%
impact work	Value	J
Brinell hardness	Value	HB
compressive strength	Value	MPa
Modulus of elasticity E	Value	MPa
outer diameter	Value	mm
wall diameter	Value	mm
pile tube length	Value	mm
mass per running meter	Value	kg/m
Design value of the normal load-bearing capacity NSd without concrete filling and grouting (no loss of wall thickness)	Value	kN

Table 3: Specifications for Ductile Iron Pipes, Fittings, Accessories

Designation	Value	Unit
Density cast iron	Value	kg/m³
tensile strength	Value	MPa
Proportional limit, 0.2% proof stress	Value	MPa
elongation at break	Value	%
impact work	Value	HB
Brinell hardness	Value	MPa
compressive strength	Value	MPa
Modulus of elasticity E	Value	MPa
outer diameter	Value	mm
wall diameter	Value	mm
pile tube length	Value	mm
mass per running meter	Value	kg/m
Design value of the normal load-bearing capacity NSd without concrete filling and grouting (no loss of wall thickness)	Value	bar

Table 4: Technical data for tops and covers for cast iron traffic areas

The technical data listed in the declaration of performance are to be adopted here in tabular form.

For specific EPD the technical data of the product must be declared as required in Table 2 to Table 4.
For average EPD ("Sector or Branch-EPD", "Group EPD" or "EPD from Associations") the tables must be filled, average values or ranges are accepted, in addition a note stating „see product sheets" pointing to single technical product sheets can be cited. Technical data must be provided by the manufacturers. The manufacturers are to ensure that the relevant data are accessible, and the LCA-practitioner must indicate the sources where the technical data can be downloaded.

2.5 Basic/auxiliary materials

The product components and/or contents and ingredients must be declared in mass-% to enable the user of the EPD to understand the composition and structure of the product in delivery status. These indications shall also support security and efficiency in installation, use and disposal of the product.

The declaration of mass-% can be accurate numbers or a range by analogy with REACH[1] . The mass of components that make up less than 1 mass-% of the total product mass can be declared with < 1 mass-%.

The declaration of material product content must list at least those substances contained in the product which are included in the "Candidate List of Substances of Very High Concern for Authorization" where their contents exceed the limit values (0.1 mass-% on product level) for registration by the European Chemicals Agency (ECHA[2]). If substances and preparations lose their hazardous features during manufacturing (e.g. after a complete chemical reaction) they are exempted from the obligation of declaration.
If the content of the material is below the limit of ECHA the following note must be stated in the EPD:
„The content of XXXX is below the limit values of the registration by the European Chemicals Agency (ECHA). Interpreting statements such as "… free of …" or "… are entirely harmless …" are not permissible.

The product components must be described in detail, so that their sort of product is clear, but the protection of sensitive data is assured, and company secrets are not revealed.
For additives, the function and substance class respective chemical group (i.e. hydraulic binders) must be stated. In addition to that all auxiliary materials and additives that stay within the product must be declared.

Specific notes for the creation of an EPD for cast iron building products:
Basic materials are to be listed according to Table 5, auxiliary materials are to be listed separately.

Table 5: base materials in mass-% (example)

Bestandteile:	**Massen %**
iron 1)	94%
carbon 2)	3,5%
silicon 3)	Ca. 2%
iron accompanying elements x)	0,5%
component E x)	
...	

x) **Optional:** footnote with description for each component

[1] Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation 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

[2] European Chemicals Agency: http://echa.europa.eu/de

x) Optional: Footnote for each component with a brief explanation of the substance and raw material extraction (recycling, etc.)
1) Scrap iron, or iron ore, is melted in the furnace
2) Graphite or carbide carbon from foundry coke, blast furnace coke, petroleum coke or other carbon carriers depending on how the products are made
3) Silicon as an alloying element made of ferro-silicon, silicon carbide or other silicon carriers, specification of other alloying elements such as manganese, chromium, nickel, etc. depending on the type of manufacture of the products
4) common accompanying elements of steel scrap

Auxiliaries / additives
Specifications and proportions of excipients are to be stated (in text or tabular format)

2.6 Product stage

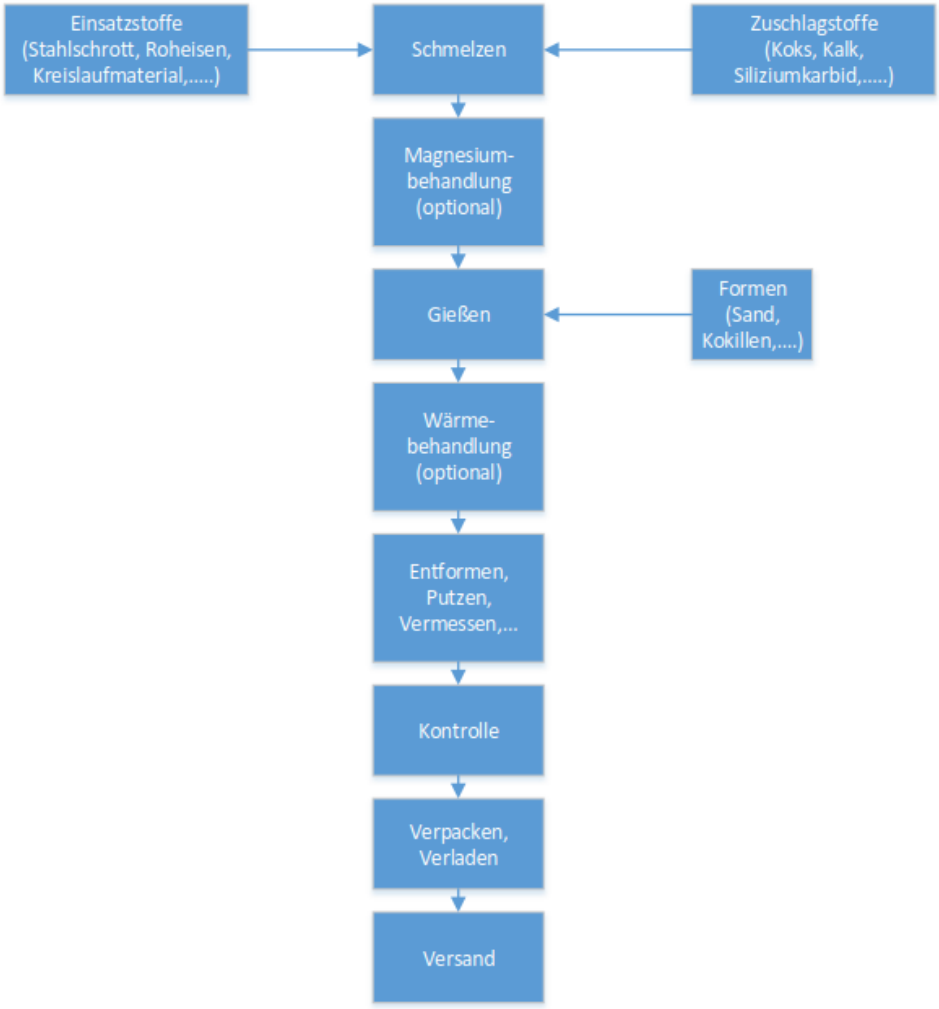
The process of production must be described and illustrated with a simple figure (i.e. flow chart). In case of average EPD the production processes of all sites must be described respective a useful summary must be included and a list of all production sites must be provided in an annex. Quality management systems, eco management systems etc. can be referred to.

Specific notes for the creation of an EPD for cast iron building products:

Example:

The cast iron is melted. The melt must then be alloyed for the final analysis. The addition of Mg is essential for this (ductile cast iron). The liquid metal is cast into a solid form in a casting machine. After unpacking from the mold, the product is cooled and, depending on the metallurgical composition, heat-treated on a case-by-case basis. Finally, the product is mechanically processed to obtain its final shape.

Figure 1: Example of a flow chart/graphic production stage



Legend:

Einsatzstoffe (Stahlschrott, Roheisen, Kreislaufmaterial)	Input materials (steel scrap, pig iron, return material)
Zuschlagstoffe (Koks, Kalk, Siliziumkarbid)	Aggregates (coke, lime, silicon carbide)
Magnesiumbehandlung (optional)	Magnesium treatment (optional)
Gießen	to water
Formen (Sand, Kokillen)	molds (sand, moulds)
Wärmebehandlung (optional)	heat treatment (optional)
Entformen, Putzen, Vermessen	Demoulding, cleaning, measuring
Kontrolle	control
Verpacken, Verladen	packing, loading
Versand	shipment

Description of chart

2.7 Packaging

Information concerning each component of packages:

Type (Foil, pallets, etc.),
Material (Paper, Polyethylene; including origin, e.g. recycled paper) and

Possibilities of reuse (e.g. multi way pallets).

Specific notes for the creation of an EPD for cast iron building products:
Example: As a rule, cast iron building products is delivered loose (without packaging material) but sometimes with squared timber as a stacking aid and with steel wire fastening straps for bundling.

2.8 Conditions of delivery

Written description of conditions of delivery, units of delivery, size and dimension as well as requirements on storage important for the declared product(s).

2.9 Transport to site

Description of delivery (Route and means of transport incl. capacity utilisation (including empty runs) in percent, bulk density of the transported products in kg/m³ and volume utilisation factor.)

2.10 Construction product stage

Description of way of treatment, used machines, tools, dust collection etc., auxiliary materials as well as measures of noise reduction. Notes regarding recognized rules of engineering, work safety or protection of the environment can be included.
References to detailed processing directives and referrals to user safety (safe use instruction sheets) of the manufacturer are required.

Specific notes for the creation of an EPD for cast iron building products:
The installation or incorporation of construction products made of cast iron depends to a large extent on the planned application (pile foundation, water supply, sewage disposal) and the respective product characteristics.

In the case of piles made of ductile cast iron, the description of the installation must explicitly define whether they are unfilled or uninjected piles or piles with concrete filling and/or jacket injection. Depending on the design variant, the additional construction processes (for concrete filling or grouting) must be taken into account in the EPD.

With regard to pipes for water pipes or sewers, the installation process, including digging or the production of cuvettes, does not necessarily have to be taken into account. If this is taken into account, it must be described transparently. In addition, a reference to the dependency of the environmental impact during installation, to accessibility, to the applicable device, the soil conditions, etc. must be given.

2.11 Use stage

Notes describing specific features of the material composition relevant for the use stage.

Specific notes for the creation of an EPD for cast iron building products:
In the case of building products made of ductile cast iron, there are no changes in the material composition over the period of use if they are properly planned, properly and professionally installed and used without problems.

2.12 Reference service life (RSL)

The indication of the reference service life (RSL) is imperative for EPDs covering the complete use stage (modules B1-B7), or if a use stage scenario is described, which refers to the lifetime of the product (“from cradle to grave”).
The RSL must refer to the declared technical and functional quality of the product. It must be established in line with all of the specific rules in the European product standards and must also take consideration of the ISO 15686-1, -2, -7 and -8 standards.
Where information is available for deriving the RSL from harmonized European product standards, such data has priority.
The assumption underlying the calculation of the RSL and for those only the RSL can be declared must be stated. Influence on aging as per recognized rules of engineering.

Table 6: Reference service life (RSL)

Characterization	value	unit
Ductile iron piles	100 a)	years
Ductile iron pipes	100 b)	years
Reference conditions on which the RSL is based (if relevant)		Individual units

a) Pile foundations must have a service life that corresponds to the structure as a whole. According to "Eurocode - Basis of structural design (ÖNORM EN 1990)", engineering structures (e.g. bridges) have a service life of 100 years, which is why a corresponding RSL is applied here for piles made of ductile cast iron.
b) Ductile iron pipes, fittings and accessories for water supply and sewage disposal can be coated or lined with a wide variety of materials. The RSL of the pipe variants depends heavily on the casing and the lining, but also to a large extent on the handling of the bedding and the installation conditions. With the correct selection of the material used and proper installation, actual service lives of more than 100 years can be achieved (see e.g. also study by the European Association for Ductile Iron Pipe Systems)

See EN 15804+A2 clause 6.3.4 and Annex A requirements and guidelines for reference service life

If no reference service life can be determined according to the rules of EN 15804+A2 (Annex A), a default value from a complementary PCR of the CEN/TC product committees, if available, must be used. If no complementary PKR is available, the service life can be declared from service life catalogues, depending on the area of application, stating the source, e.g. according to BAU EPD-M-DOKUMENT-20-Reference-usage-times-20150810 (Austria) or the BBSR table "Useful lives of components on life cycle analysis according to BNB" (Germany). If no information can be found there, the RSL can be derived from other sets of regulations (Eurocodes, other basis).

2.13 End of life stage

The different ways of end of life treatment must be described.
The EAK-waste disposal code (Disposal code following the European list of waste) must be declared.

2.14 Further information

Optional details, indication of reference source for additional information, e.g. websites…

3. LCA: Calculation rules

3.1 Declared unit/ Functional unit

The declared resp. functional unit, the mass reference and the conversion factor to 1 kg must be declared in a table.
If an average EPD is prepared, the average values used in the LCA and their range must be stated. Please refer to the explanations on averaging in section 5.3.

Specific LCA calculation rules for cast iron building products:

The declared unit for building products made of ductile cast iron is 1 t. The average gross density of the cast iron and the mass per running meter of product must be specified. Other declared units are permitted if the conversion to 1 t is shown transparently.

Table 7: **Declared unit 1 t**

characterization	value	unit
Declared unit	1	t
Bulk density cast iron		kg/m³
Linear mass		Kg/m
Nominal wall thickness		mm
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.).

A functional unit can be specified for construction products made of ductile cast iron if the function of the declared products can be clearly described. This is possible, for example, for poles, water pipes or sewage pipes, where the functional unit can be defined as a 1 m pole or pipe.

3.2 System boundary

The type of EPD with regard to the applied system boundaries must be specified in the EPD. All building products and materials must declare modules A1-A3, modules C1-C4 and module D. The following EPD types may be specified:

• from the cradle to the factory gate with modules C1-C4 and module D (A1-A3 + C + D);

• from the cradle to the factory gate with options, modules A1-A3, C1-C4 and D (A1-A3 + C + D and additional modules. The additional modules may be one or more modules selected from A4 to B7);

• from cradle to grave and module D (A + B + C + D)

Exceptions to this rule are specified in EN 15804+A2.

All declared life cycle stages (modules) are to be marked with an "X" in Table 8. Undeclared modules are to be marked with ND (= not declared).

Table 8: 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

The modules assessed in the LCA study must be described shortly. It should be made apparent, which processes are calculated in which module and how the system boundaries to nature resp. to other product systems are set (if relevant for the declared product).

If not all modules are declared in an EPD, a clear justification must be given.

Specific LCA calculation rules for cast iron building products:

A1-A3:

In the manufacturing phase, all materials, products and energies (including energy export) as well as any waste and its treatment or disposal must be taken into account. Modules A1, A2 and A3 can be evaluated and presented in aggregated form.

A4-A5:

Ductile iron piles can be designed as unfilled or ungrouted piles or piles with concrete filling and/or grouting. Depending on the design variant, the additional construction processes (for concrete filling or compression) must be taken into account in the life cycle assessment.

With regard to pipes for water pipes or sewers, the installation process, including digging or the production of cuvettes, does not necessarily have to be taken into account. If this is considered, the scenario used must be described transparently. In addition, a reference to the dependence of the environmental impact during installation on accessibility, the applicable device, the soil conditions, etc. must be given.

B1-B7:

As a rule, no LCA-relevant processes occur with building products made of ductile cast iron over the period of use.

C1 - C4 and D:

In principle, dismantled construction products made of ductile cast iron can be fed into a recycling process. Module D shows the substitution of primary raw materials by the removed cast iron in the course of the production of additional cast iron. The secondary material content of the cast iron specified according to the EN 15804 method must be taken into account.

In the case of piles made of ductile cast iron, depending on the given situation, the question arises as to whether an expansion should be carried out or whether it makes sense to do so. If no new structure is erected after the entire structure has been dismantled, the piles are left in the ground if they do not obstruct anything there and additional costs can thus be avoided.

In the case of balancing the concrete filling / jacket grouting, a realistic end-of-life utilization scenario must be selected. The recycling of the concrete filling/jacket grouting may have to be shown separately from the recycling of the cast iron.

3.3 Flow chart of processes/stages in the life cycle

A meaningful flow chart describing the manufacturing process shall give further aid to comprehension. The flow chart must be subdivided at least into the phases of life cycle declared (production, use, end-of-life). The phases can be partitioned into appropriate process stages.

3.4 Estimations and assumptions

The assumptions and assessments that are important for the interpretation of the life cycle assessment are to be listed here.

3.5 Cut-off criteria

The application of the cut-off criteria according to MS-HB Chapter 5 must be documented here.

3.6 Allocation

The allocations of relevance for calculation (appropriation of expenses across various products) must be indicated, at least:

- System boundary settings/allocation in the use of recycled and/or secondary raw materials
- Allocation concerning co-products
- Allocation of energy, auxiliary and operating materials used for individual products in a factory
- Loads and credits from recycling or energy recovery of packaging materials and production waste
- Loads and credits from recycling or energy recovery from the end of life of the product

whereby reference must be made to the modules in which the allocations are performed.
Detailed regulations concerning calculation of secondary materials and allocation MS-HB chapter “LCA rules” apply in all studies.

3.7 Comparability

With reference to comparability of EPD data the following facts must be mentioned:

Comparison or benchmarking of EPD data is only possible, if all compared data sets are calculating following EN 15804 in the same version, the same programme specific PCR-rules or other additional rules. The same backround data sources and software versions must be applied. Moreover, the context of the function in the building or product specific features of performance must be considered.

4. LCA: Scenarios and additional technical information

The following information is mandatory to give for all declared modules, for modules not declared it is optional. If need, additional information can be declared.

4.1 A1-A3 product stage

Following EN 15804 no scenario documentation is required for A1-A3 for the declaration and calculation of these modules lies within the responsibility of the manufacturer and must not be altered by the LCA practitioner.

In the project report and the EPD the following information must be declared:
The emission factors of the carbon footprint of the electricity mix used in XX kg CO2e/kWh.
The energy data sets used must be specified. Minimum: Indication of whether residual mix or self-modelled data sets were used. Information on whether Guarantees of Origin are used must be provided. The mix of energy sources should be specified/displayed.

4.2 A4-A5 Construction process stage

Table 9 and the units listed must be used for calculation the environmental impact of the transport phase.
Table 10 and the units listed must be used for calculation the environmental impact of the installation into the building.

Table 9: Description of the scenario „Transport to building site (A4)“

Parameters to describe the transport to the building site (A4)	Quantity per 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/m³
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	-

x) The table must be filled with reference to the information available from the datasets used (i.e. in case of transport by ship). The datasets used must be noted in a footnote.

Table 10: Description of the scenario „Installation of the product in the building (A5)“

Parameters to describe the installation of the product in the building (A5)	Quantity per unit
Ancillary materials for installation (specified by material);	Meaningful unit
Water use	m³
Other resource use	kg
Electricity demand	kWh or MJ
Other energy carrier(s): …….	kWh or other unit (e.g. litres)
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	kg
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
Direct emissions to ambient air, soil and water	kg

4.3 B1-B7 use stage

Reference Service life: [a]
Statements to B1 optional as long as no horizontal testing standards do exist. Else: 0

The parameters and the units listed in the following tables must be used for calculation the environmental impact of the use stage (B2-B7). The tables can be excluded if no input or output happens. In this case a note of explanation would be sufficient: "In module BX-BY no material resp. mass flows occur, input +/- output = 0

Table 11: Description of the scenario „maintenance (B2)"

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 fresh water 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

Table 12: 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 fresh water consumption during repair		m^3
Energy input during repair, e.g. crane activity, energy carrier type, e.g. electricity, and amount		kWh

Table 13: 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 14: 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 15: 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
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

Specific LCA calculation rules for cast iron building products:

In the use phase (B1), there are no material and energy flows relevant to the life cycle assessment for building products made of ductile cast iron (i.e. the results for B1 are to be set at "zero").

During use, no maintenance, repair, replacement or conversion processes take place for building products made of ductile cast iron, which is why modules B2 to B5 cause no environmental impact (i.e. the results for B2 are to be set at "zero"). Modules B6 and B7 are not relevant for construction products made of ductile cast iron, which means that there is no environmental impact either (B6 and B7 are to be declared with "0").

4.4 C1-C4 End-of-Life stage

Short description of processes concerning disposal and scenarios going with that (i.e. for transport).

Specific LCA calculation rules for cast iron building products:
In principle, dismantled building products made of cast iron are fed into a recycling process.

Table 16: Description of the scenario „Disposal of the product (C1 to C4)“

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

Short description of assumptions for reuse-, recover- and recycling processes.

Specific LCA calculation rules for cast iron building products:

The substitution of primary raw materials, taking into account the secondary material content of the cast iron removed in C1, is shown in Module D (net flow).

Table 17: 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

The information on data quality in the EPD must be consistent with the information on data quality provided in the project report and represent an appropriate summary of this data (EN 15941, point 7.3.3).

The project report must take into account the reporting requirements according to EN 15804:2012+A2:2019, 8.2, for example regarding the provision of information on averaging (see chapter 5.3 below) or on LCA rules such as the definition of system boundaries, cut-off rules, etc. (see chapter 3 LCA: Calculation rules).

The text describing the temporal, geographical and technological representativeness must use the terminology provided for the quality level in EN 15804:2012+A2:2019, Table E.1 and Table E.2 (EN 15941, point 7.3.3).

The EPD must contain the following statement (EN 15941, point 7.3.4):
The following data quality information shall be provided in accordance with the requirements of EN 15941 (EN 15941, point 7.3.4).

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

With regard to the temporal, geographical and technological representativeness of the product data, at least the following information must be described in the project report and in the EPD:

Temporal representativeness:
- Data collection period for the raw data
- Indication and justification for the deviation from data collection within one year

Geographical representativeness:
- The geographical area where the product is manufactured and where the construction, use and end of use phases of the product are modelled must be detailed.

Technological representativeness:
- Brief description of the technology and/or relevant inputs for the product or service covered by the EPD

Geographical and technological representativeness for EPDs covering an industry:
- Percentage of total consumption or production of the construction product or service represented by the EPD in the specified market or region in which the EPD is modelled;
Note: Total consumption includes the mix of products consumed in a region, total production includes the mix of products produced in a region.
- Number of products and/or sites included in the EPD;
- All sampling methods used to select sites must be described;

- The relative production volume covered by the data collection must be described in comparison to the production represented by the EPD;
- An explanation of the averaging procedure must be provided;

5.3 Explanation of the averaging process

For EPDs that cover an average environmental quality for several products or several sites, the averaging process must be explained. Chapter 7 LCA: Interpretation must describe the range of values and the variation of the impact assessment. The results in the core indicators for the environmental impacts of the individual products or sites should not differ significantly. If major differences in impacts are identified for the assessed sites and/or products, a reference must be made here to additional explanations in Chapter 7, e.g:
Information on the range of values and the variation of the impact assessment for the individual products can be found in Chapter 7 LCA: Interpretation.

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

5.4.1 Summarised assessment in the EPD

The source of the Life Cycle Inventory datasets must be indicated together with their age (e.g. name and dated version of the Life Cycle Inventory/LCA database). Specific EPDs used in the modelling should also be indicated.

It must be stated which table from EN 15804:2012+A2:2019, Annex E was used to assess the data quality of the relevant data.

Any use of authoritative data rated as poor or very poor in terms of time, geography or technology according to EN 15941, 7.1 and EN 15804:2012+A2:2019, 6.3.8.3
- have been assessed as poor or very poor
- have been assessed as medium and whose assessment has resulted in a contribution to any core indicators of more than 30 %
must be described, including the justification (the justification must only be given in the project report) for the quality level of the data and for the selection of the data set.

5.4.2 Documentation and evaluation of the raw data and life cycle inventory in the project report

The source of the raw data used in the EPD must be specified in the project report together with all sampling methods and calculations used for averaging.
An assessment of the data quality of the raw data and the life cycle inventory determined for the EPD must be provided in the project report based on one of the two systems described in EN 15804:2012+A2:2019, Annex E (Table E.2 is preferable).

5.4.3 Documentation of the generic and specific data used in the project report

The generic and specific data used in the modelling of the EPD, in particular all data sets of the life cycle inventory or of an upstream or downstream EPD, must be documented in the project report.

For the relevant data, the documentation must include the following:
- temporal coverage, e.g. year or years of collection of raw data and statistics, reference year of the life cycle inventory, validity of the EPD, etc.
- geographical scope;
- Technological coverage;
- Source including the year of publication.

In addition, the precision, consistency, completeness of the authoritative data used should be stated; any deviations from the requirements of EN 15804 must be stated and justified in the report, e.g. the use of upstream data that does not respect the allocation principles of EN 15804 must be clearly stated and justified in the project report, see EN 15804:2012+A2:2019, 6.4.3.1.

5.4.4 Assessment of the data quality of the authoritative data in the project report

According to EN 15804, point 6.3.8.3, the term ‘significant data’ refers to data with a major contribution that together account for at least 80% of the absolute impact of each core indicator included in the EPD, considered over the entire life cycle with the exception of Module D, or over those modules of the life cycle that are included in the EPD. The data quality of Module D must also be considered.

The assessment of the data quality of the relevant data in accordance with 7.1 and EN 15804:2012+A2:2019, 6.3.8.3 must be stated in the project report.

It must be stated which table from EN 15804:2012+A2:2019, Annex E was used to assess the data quality of the relevant data.

In Annex 4 - Life cycle inventory, input-output tables, LCA model, Table 21 shows a possible documentation of the data sets used, including a description of the representativeness according to EN 15941 and assessment according to EN 15804, Annex E for relevant process data.

Any use of relevant data that has been assessed as poor or very poor in terms of time, geography or technology according to EN 15804 Annex E.
- rated as poor or very poor,
- has been assessed as medium and whose assessment has resulted in a contribution to any core indicators of more than 30%,
must be described, including the justification for the level of quality of the data and for the selection of the data set.
Any data adjustments to improve the representativeness of the data or compliance with the requirements of EN 15804 must also be described.
The relevance of these datasets in terms of contribution to the results of the core indicators must also be described.

5.4.5 Verification of the mass balance in the project report

The verification of the mass balance must be shown in the project report. The mass balances must demonstrate that the inputs are sufficient to produce all outputs, including waste generated, process emissions and biogenic carbon emissions. Water and moisture should also be considered as part of the mass balance or a separate water balance should be provided. (Further information can be found in EN 15941, Annex B Mass balance at product level.
In any case, the mass balance should include
- Documentation of the complete mass balance for the relevant modules and processes.
- Documentation of all input and output flows
- Description of uncertainties if mass balance is not balanced
- Documentation of water balance (as part of the mass balance or separate water balance)
- Documentation of the truncated input and output flows
- Documentation of the correction calculations in the case of allocations, including consideration of inherent material properties (biogenic carbon, energy content, etc.)

5.4.6 Proof of avoidance of double counting in the assessment of electricity and all other relevant energy

The project report must demonstrate that double counting has been avoided in the assessment of electricity and all other relevant energy, see Annex E.

5.4.7 Documentation to support any statement contained in the EPD in the project report

Statements contained in the EPD may include certification to environmental standards such as EN ISO 14001 or certification to technical standards. EN ISO 14021 must be taken into account with regard to environmental statements made in the EPD such as ‘recyclate content’ and ‘recyclable’.
Evidence, e.g. certification, must support any claim made in the EPD.

5.4.8 General note

The data quality of the relevant data for Module D must also be specified.

6. LCA: results

The declaration of environmental indicators must be listed in the following tables with reference only to the declared life cycle stages. Indicator values should be declared with three valid digits (eventually exponential form (e.g. 1.23E-5 = 0.0000123). A uniform format should be used for all values of one indicator. It is preferred that the definitions of the environmental indicators are spelled out completely to ensure the best possible readability. If space is needed in case of too many columns the defined abbreviations are accepted.

Table 18: Parameters to describe the environmental impact

Para-meter	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	m3 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 19: Additional environmental 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	dimensions-los																
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															

Table 20 contains restrictions that must be declared according to the following classification in the project report and in the EPD with regard to the declaration of relevant core and additional environmental impact indicators.

Table 20: Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD-classification	Indicator	Disclaimer
ILCD-Type 1	GWP Global Warming Potential	none
	ODP Ozone Depletion Potential	none
	PM Particulate Matter	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 21: 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 22: Parameters describing LCA-output flows and waste categories

Para-meter	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 23: Information for description biogenic carbon content at factory gate

Biogenic carbon content	unit
Biogenic carbon content in the product	kg C
Biogenic carbon content of packing	kg C
Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2	

If the mass of biogenic carbon containing materials in the product is less than 5 % of the mass of the product, the declaration of biogenic carbon content may be omitted.
If the mass of biogenic carbon containing materials in the packaging is less than 5 % of the total mass of the packaging, the declaration of the biogenic carbon content of the packaging may be omitted.

7. LCA: Interpretation

For better understanding of the LCA, the aggregated indicators of the inventory analysis as well as those of the impact assessment (LCIA) from chapter 5 must be interpreted in a dominance analysis. The interpretation must describe a range resp. variance of LCIA results, if the EPD is valid for more than one product.

It is recommended to illustrate the interpretation of the results in the project report with graphs (e.g. the dominance analysis regarding the distribution of environmental impacts across the modules, etc.). In the EPD, graphs should only be inserted at the express request of the declaration holder (this involves a high level of effort in the course of translation services into other languages).

When declaring average products, the range of values and the variation of the key impact categories for the individual products or individual locations must be explained. The results should not differ significantly in the core indicators for the environmental impacts. If major differences in the impacts are identified for the sites and/or products assessed, an additional explanation must be provided.

Regarding Module D, the interpretation in the EPD shall indicate that the benefits and loads are outside the product system boundaries. Graphs for the interpretation of life cycle results shall be designed in such a way that modules A1-C4 are shown in one graph and module D in separate graphs. Alternatively, the results can be interpreted without graphs, it is recommended to include graphs only in the project report, see above.

Re-issuance of an EPD:
It is mandatory to declare in a separate block in the project report:
Reasons for deviations of results of single indicators of more than 15% compared to the results before. This serves as an information for verifiers and enhances legal compliance. Users of the data can be informed of such facts.
Claims that can be published (i.e. same framework conditions, different electricity mix) can be declared in the EPD, if desired.

8. Description of representativity of average EPD

In case of average EPD the following information must be given:

a) The market(s) for which the average EPD are representative;

b) A list of all production sites and products considered in the calculation

9. Literature

Relevant standards and sources for the preparation of the EPD resp. for the definition of the product must be listed here. The full documentation of references is to be done as follows:

Author, First name. and Author, First name. (year). Title of article. subtitle. location: publishing company.
Author, First name. (year). Title of article. In: Surname, First name. and Surname, First name. (Publishing company): Name of paper. Bd. 2 *or year number,* 207-210.
Organisation (Year): Full name of standard or rule. Date of Issue. Location. Legal institution.

Always to be quoted:

EN ISO 14025:2006-07 Environmental labels and declarations -Type III environmental declarations -- Principles and procedures

EN ISO 14040:2006+A1:2020 Environmental management - Life cycle assessment -- Principles and framework

EN ISO 14044:2006+A1:2017+A2:2020 Environmental management - Life cycle assessment -- Requirements and guidelines

EN 15804:2012+A2:2019+AC:2021 Sustainability of construction works - environmental product declarations. Core rules for the product category of construction products

EN 15941:2024 Sustainability of construction works - Data quality for the assessment of environmental quality of products and construction works - Selection and application of data

General Principles and Guidelines = MS-HB and applicable M-Docs of Bau-EPD GmbH, in the current version

10. Directory and Glossary

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10.3 Abbreviations

10.3.1 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

10.3.2 Abbreviations as per PCR on hand

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

Annex 1 - Documentation of data collection and calculation procedure

Table, text

Annex 2 – Table of basic/auxiliary material in detail

Table, text

Annex 3 – Description of the data quality of authoritative data according to ILCD data format

Time related coverage

Field name	Requirement Compliance	Compliance requirement type	Value
Data collection period (text)	optional	optional	
Reference year (Year)	recommended	ILCD documentation-compliant	
Data set valid until: (Year)	recommended	ILCD documentation-compliant	
Time representativeness description	recommended	ILCD documentation-compliant	
Data treatment and extrapolations principles	recommended	ILCD documentation-compliant	
Deviation from data treatment and extrapolations principles / explanations	recommended	ILCD documentation-compliant	

Geographical coverage

Field name	Requirement Compliance	Compliance requirement type	Value
Location	recommended	ILCD format schema valid data set	.
Latitude and Longitude	optional	optional	
Geographical representativeness description	optional	ILCD documentation-compliant	
Mix and location types	recommended	ILCD documentation-compliant	
Data treatment and extrapolations principles	recommended	ILCD documentation-compliant	
Deviation from data treatment and extrapolations principles / explanations	recommended	ILCD documentation-compliant	

Technological coverage

Field name	Field name	Requirement Compliance	Compliance requirement type
Technology description including background system	recommended	ILCD documentation-compliant	
Mix and location types	recommended	ILCD documentation-compliant	
Included data sets	recommended	ILCD documentation-compliant	
Technical purpose of product or process	recommended	ILCD documentation-compliant	

Pictogram of technology	optional	ILCD documentation-compliant	
Flow diagram(s) or picture(s)	optional	ILCD documentation-compliant	
Data treatment and extrapolations principles	recommended	ILCD documentation-compliant	
Deviation from data treatment and extrapolations principles / explanations	recommended	ILCD documentation-compliant	
Percentage supply or production covered	recommended	ILCD documentation-compliant	
Annual supply or production volume	optional	optional	

Aspect of Precision

Field name	Requirement Compliance	Compliance requirement type	Value
Mean amount	optional	optional	
Uncertainty distribution type	optional	optional	
Relative StdDev in %	optional	optional	
Comment	optional	optional	

Aspect of Completeness

Field name	Requirement Compliance	Compliance requirement type	Value
Data cut-off and completeness principles	recommended	ILCD documentation-compliant	
Deviation from data cut-off and completeness principles / explanations	recommended	ILCD documentation-compliant	

Aspect of Consistency

Field name	Requirement Compliance	Compliance requirement type	Value
Type of data set	recommended	ILCD documentation-compliant	
LCI method principle	recommended	ILCD documentation-compliant	
Deviation from LCI method principle / explanations	recommended	ILCD documentation-compliant	
LCI method approaches	recommended	ILCD documentation-compliant	
Deviations from LCI method approaches / explanations	recommended	ILCD documentation-compliant	
Modelling constants	recommended	ILCD documentation-compliant	
Deviation from modelling constants / explanations	recommended	ILCD documentation-compliant	

Sources of data

Field name	Requirement Compliance	Compliance requirement type	Value
Data source(s) used for this data set	recommended	ILCD documentation-compliant	
Data selection and combination principles	recommended	ILCD documentation-compliant	

Deviation from data selection and combination principles / explanations	recommended	ILCD documentation-compliant	
Sampling procedure	optional	optional	

Annex 4 – Inventory Analysis, Input-Output tables, LCA-Model

Screenshots of the life cycle inventory or the model

Specification of the baseline database, justification if additional or alternative data sets were used

Documentation of the process data, the assigned generic or specific data sets, the data source, the temporal, geographical and technological representativeness and the assessment of the data quality in accordance with EN 15805, Annex E.

Table 21 shows possible documentation of the data sets used, including a description of representativeness in accordance with EN 15941 and assessment in accordance with EN 15804, Annex E for relevant process data. The processes are to be assigned to the respective modules in which they occur. The heading of the table shall indicate whether the assessment is carried out in accordance with Table E.1 or E.2 of EN 15804, Annex E.

Table 24: Relevant process data with documentation of the data sets used, including description of representativeness in accordance with EN 15941 and assessment in accordance with EN 15804, Annex E, Table E.1

Process	**Used data**		**Time-related representativity**		**Geographical representativity**		**Technological representativity**	
Example	**Name of dataset**	**Data set source**	Description	Quality level	Description	Quality level	Description	Quality level
Transport	Transport, freight, lorry >32 metric ton, EURO6 {RER}| transport, freight, lorry >32 metric ton, EURO6 | Cut-off, S	ecoinvent v3.9.1	Reverence year 2009–2022	2	Europe	2	Euro 6	1
Valid for all life cycle stages								
A1–A3								
A4								
A5								
B1–B7								
C1								
C2								
C3								
C4								
Module D from A5								
Module D from C1-C4								

Bau-EPD Baustoffe mit Transparenz	**Owner and Publisher** Bau EPD GmbH Seidengasse 13/3 1070 Vienna Austria	Tel Mail Web	+43 664 2427429 office@bau-epd.at www.bau-epd.at
Bau-EPD Baustoffe mit Transparenz	**Programme Operator** Bau EPD GmbH Seidengasse 13/3 1070 Vienna Austria	Tel Mail Web	+43 664 2427429 office@bau-epd.at www.bau-epd.at
Logo	**Author of the Life Cycle Assessment** Name of creator in person Name of Institution (if rel.) Address Postcode, Location	Mail Person creator Tel Mail Web	
Logo	**Holder of the declaration** Name of creator in person Name of Institution (if rel.) Address Postcode, Location	Tel Mail Web	