

ENVIRONMENTAL-PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	EJOT SE & Co. KG, Market Unit Construction
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EJO-20210061-IBD3-EN
Issue date	01.10.2021
Valid to	08.01.2027

Fastening systems for rear-ventilated curtain wall facades EJOT SE & Co. KG, Market Unit Construction

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1. General Information

EJOT SE & Co. KG, Market Unit Construction

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-EJO-20210061-IBD3-EN

This declaration is based on the product category rules:

Wall plugs made of plastic and metal, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

01.10.2021

Valid to

08.01.2027



Dipl.-Ing Hans Peters
(chairman of Institut Bauen und Umwelt e.V.)



Dr. Martina Bender
(Managing Director Institut Bauen und Umwelt e.V.)

Fastening systems for rear-ventilated curtain wall facades

Owner of the declaration

EJOT SE & Co. KG, Market Unit Construction
In der Stockwiese 35
57334 Bad Laasphe
Germany

Declared product / declared unit

The declared unit is an average connection, fastening and Anchoring element for use in 1 m² rear-ventilated facade systems with a specific length of 120 mm, which consists of four individual systems.

Scope:

The EPD refers to all products in the EJOT portfolio that are used in rear-ventilated facade systems.
The declared product is manufactured in the plants Ciasna in Poland, Tambach in Germany and Dozwil in Switzerland. The data basis is the year 2012. The declared results apply to a length of 120 mm, for all other lengths the results can be extrapolated using the formula given.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804 bezeichnet*.

Verification

The standard EN 15804 serves as the core PCR		
Independent verification of the declaration and data according to ISO 14025:2011		
☐	internally	☒ externally



Juliane Franze,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Connecting, fastening and anchoring elements of EJOT SE & Co. KG, Market Unit Construction are finished products consisting of

a plastic sleeve
and an expansion element made of steel or stainless steel, only a plastic
element or only one or more steel parts.

The declaration
applies to all anchoring, connecting and fastening elements
mentioned below,
which preferably

can be used in the rear-ventilated
facades system or in conjunction with the rear-ventilated
facades system. **Product
according to CPR with ETA**

Regulation

(EU) No 305/2011 (CPR) applies to the placing on the market of the
product in the EU/EFTA (except Switzerland). The product
requires a declaration
of performance taking into account ETA-10/0305,
ETA-12/0502, ETA-15/0027, ETA-15/0387, ETA-19/0128, ETA-

18/0219
or
ETA-10/0200 and the CE marking.

The respective
national regulations apply to the use.

2.2 Application

1.) The following
products are preferably used for anchoring, connecting and / or
fastening facade
cladding:

-Insulation holder:
DH

-Insulation metal
holder / stress plate: DMH, DMT

-Fasteners Screws:
JT3 & JT4 (stainless steel A2) JT6 & JT9 (stainless steel A4)

-Facade anchors 8 mm, 10 mm and 14 mm: SDF, SDP 2.)
The following products are preferably used for the renovation of
exterior wall
elements:

-cavity wall repair
anchor: VSD

-Pre-cast panel anchor:
WSS

-KERI anchor

3.) The
following products are used for anchoring load-bearing
components in concrete:

-EJOT Through Bolts
BA and BA-Plus

2.3 Technical Data

The technical data are given as examples and representative
for each
of the 3 average declared products.

Constructional Data

Name	Value	Unit
Screw diameter	4.8 - 10	mm
Anchor diameter	8 - 14	mm
Plate diameter	16 - 26	mm
Hole depth	50 - 80	mm
Embedment depth	40 - 70	mm
Characteristic tension resistance	4 - 8.5	kN
max. impermissible loads	1.6 - 3.4	kN

Product according to CPR with ETA

Performance values of the product according to
the declaration of performance with regard to its essential
characteristics
according to ETA-10/0305, ETA-12/0502,
ETA- 15/0027, ETA-15/0387, ETA-19/0128, ETA-18/0219

or ETA-10/0200.

2.4 Delivery status

Anchors approved by the building authorities are always packaged and delivered as a unit consisting of an anchor sleeve with the associated special screw. The packaging units vary between 100 and 300 pieces, depending on the dimensions.

2.5 Base materials/Ancillary materials

The main basic materials or primary products for the anchoring and fastening products from the ventilated curtain wall system are:

- Steel (mass 75-80 %)
- PE HD Polyethylene high density (mass 15-17 %)
- PA polyamide (3-6 %)
- Dyes (< 1 %)

The auxiliary materials and additives are contained in the plastic granulate. In the EJOT production companies, no auxiliary materials and additives are used in production.

The product contains substances on the ECHA list of Substances of Very High Concern (SVHC) (date 19.01.2021) above 0.1% by mass: no.

The product contains other CMR substances of category 1A or 1B not on the candidate list above 0.1% by mass in at least one sub-product: no.

Biocidal products have been added to the present construction product or it has been treated with biocidal products (it is therefore a treated product within the meaning of the Biocidal Products Regulation (EU) No 528/2012): no.

2.6 Manufacture

The plastic anchor sleeves are manufactured using conventional injection moulding techniques. For this purpose, an injection moulding machine is used to plasticise the respective plastic in an injection unit and inject it into an

injection mould.

The cavity of the mould determines the shape and surface structure of the finished part (here plastic anchor).

Screws: The vast majority of screws and fasteners are produced by non-cutting cold forming. The cold extrusion process: The starting material is delivered as "wire" wound on spools and uncoiled, straightened and, if necessary, reduced to the desired diameter in equipment upstream of the presses. Modern cold extrusion presses work in several stages, i.e. several operations are linked in succession per stroke, e.g.

performing the screw head, upsetting, deburring and reducing the threaded part. In the subsequent process, the threads are rolled onto the reduced threaded parts by thread rolling machines with flat dies or rolling and segment tools without cutting. Preferably cold extrusion presses with integrated thread rolling machines are used. EJOT SE & Co. KG, Market Unit Construction is certified according to *ISO 9001*.

2.7 Environment and health during manufacturing

EJOT SE & Co. KG, Market Unit Construction is certified according to *ISO 14001*, Environmental Management Systems. DQS GmbH under the certificate registration number 302825 UM.

2.8 Product processing/Installation

To fix a rear-ventilated facade, wall brackets, usually made of aluminum or stainless steel, are anchored to masonry or concrete using plastic frame plugs. The wall holders serve here as spacers on which support profiles are fastened with the help of stainless steel self-drilling screws, onto which facade panels are then fixed. To install the anchors in the substrate, a drill hole must first be made into which the anchor unit, consisting of a plastic sleeve and the corresponding screw, is inserted. Screwing in the anchor screw creates a so-called expansion pressure on the wall of the drilled hole, which generates tensile strength capacity. Drill screws are screwed in using a cordless screwdriver. The application of the products can be found in the respective valid approval or a building authority test certificate.

The products

used for rear-ventilated facades systems are usually installed using conventional screwdrivers. In most cases, a drill hole corresponding to the substrate must first be created. Some of the products serve to secure the position of add-on parts or support systems, which in turn serve as a base for add-on parts.

2.9 Packaging

Cartons in article and quantity-specific dimensions are used for packaging. Transport to the customer is stacked on wooden pallets.

2.10 Condition of use

In the installed state, the material composition does not change any more, so that no emissions are produced after installation.

2.11 Environment and health during use

After installation, there are no negative effects on the environment and health.

2.12 Reference service life

The service life of the rear-ventilated facades anchors is above the service life of the rear-ventilated facade systems. Description of the influences on the ageing of the product when applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire

The anchors are used to fix a cladding or a component that does not comply with class A1; the plastic parts of the anchor are located in the drilled hole of the anchoring base (concrete or masonry) or in the drilled hole of the fixture. It can be assumed that the plastic parts of the anchor embedded in concrete or masonry do not contribute to the spread of fire or to the fully developed fire and do not have any influence on the smoke hazard.

Within the framework of these end-use conditions, the plastic parts embedded in concrete or masonry can be assumed to meet all requirements for reaction to fire.

If the plastic

parts of the anchor are installed in a cladding or building component not classified as class A1, the plastic parts can be assumed to have no influence on the reaction to fire class of the cladding or building component.

Fire protection

Name	Value
Building material class	
Burning droplets	
Smoke gas development	

Water

Even in the event of unforeseen exposure to water, there is no adverse effect on the environment. The basic materials of the fastening elements neither absorb water after installation nor do components dissolve in combination with water

Mechanical destruction

No hazardous substances are released if the product is mechanically destroyed.

2.14 Re-use phase

Reuse of the products after installation is not possible

2.15 Disposal

It is possible to dismantle a ventilated facade by type, so that the individual components are separated from each other.

In practice, the complete rear-ventilated facades system - including the fastening elements - is deposited.

The individual components of the fastening units for rear-ventilated facades are assigned to the following waste codes in accordance with the Waste Catalogue Ordinance AVV and the European Waste Catalogue EWC:

- EWC 17 02 03 - Plastics
- EWC 17 04 05 - Iron and steel

2.16 Further information

www.bau.ejot.de

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is an average anchor system for use in 1 m² rear-ventilated facades with a specific length of 120 mm, consisting of four individual systems.

"Average" describes all produced anchor types of the system on average according to production shares weighted on the basis of a parameter

analysis. This means that a hypothetical anchor system is calculated, which represents the entire rear-ventilated facades system. To convert the declared unit to kg, the weight per system is given.

Declared unit

Name	Value	Unit
Declared unit	4	Pce/m ² _{system}
conversion factor	0.13	-

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by actual production.

3.2 System boundary

Type of EPD: Cradle to factory gate - with options. The environmental product declaration refers to the production stage (module A1-A3), the disposal stage (modules C1-C4) as well as

Credits and loads outside the system boundary (module D).

In the production stage, the procurement of raw materials including the corresponding upstream chains, the necessary procurement transports to the plants as well as the energies required for the production of the anchor systems are considered.

The country-specific electricity mix was modelled for each of the plants. The material composition and the energy demand of the declared anchor systems were calculated according to their production shares in each plant.

In the disposal phase, the dismantling of the anchor systems (Module C1), the transport to waste treatment (Module C2), the waste treatment (Module C3) and the landfilling of the plastics (Module C4) are considered.

Avoided burdens from the recycling of metals are reported in Module D. For this purpose, only the net scrap quantities are considered.

3.3 Estimates and assumptions

Since no quantitative information on the end-of-life of the anchor system is available, it was assumed that the components are separated after demolition and landfilled (plastics) or recycled (metals).

Water use in the production phase was not considered in the model, as it is a cycle of cooling water.

3.4 Cut-off criteria

The wooden pallets for transport were not considered, as these circulate several times and their mass therefore falls under the cut-off criteria. The material flows cut off beyond this amount to 0.4 % of the total weight of the rear-ventilated facades. It can be assumed that the sum of the neglected processes therefore does not exceed 5 % of the impact categories.

3.5 Background data

In principle, the Background database *GaBi* in the latest version

9.5 (Service Pack 40) was used. The available data sets also support the evaluation period of 100 years with regard to potential environmental impacts. The consistent data sets contained in the *GaBi* database are documented online.

3.6 Data quality

The primary data were provided by the company EJOT SE & Co. KG, Market Unit Construction and checked for plausibility. The quality and representativeness of the collected foreground data can therefore be considered high.

The data quality of the background data used was rated as good in terms of technical, geographical and temporal representativeness. The majority of the background data used is from the reference year 2019.

3.7 Period under review

The data basis for this LCA is based on data collected by EJOT in 2012. The period under consideration is 12 months.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Europe

3.9 Allocation

The total production of EJOT SE & Co. KG, Market Unit Construction includes other products in addition to the product under consideration. The values for thermal and electrical energy as well as auxiliary materials were related accordingly to the product groups to be declared during data collection. This division was carried out according to mass.

Accumulating production waste (e.g. packaging waste of raw materials) is fed into an energy recovery process. The resulting electrical and thermal energy is accounted for within module A1-A3. The thermal energy released during thermal waste incineration can be considered equivalent to the thermal process energy required.

3.10 Comparability

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* and the building context, respectively the product-specific characteristics of performance, are taken into account. Bei der verwendeten Hintergrunddatenbank handelt es sich um *GaBi 9.5*, Service Pack 40

4. LCA: Scenarios and additional technical information

Characteristic product properties

Information on biogenic carbon

The biogenic carbon content of the unpackaged product is less than 5 %.

The total biogenic carbon content of the packaging materials (0.142 kg) is 0.0609 kg. The cardboard packaging has a biogenic carbon content of 43 % (0.0123 kg biogenic carbon), for the wooden pallets a biogenic carbon content of 50 % (0.0566 kg biogenic carbon) assumed.

Information describing the biogenic carbon content at the factory gate

Name	Value	Unit
Biogenic carbon content in accompanying packaging	0.0609	kg C

Technical information

The following technical information is the basis for the declared modules or can be used for the development of specific scenarios in the context of a building assessment.

End of life journey (C1-C4)

Name	Value	Unit
Collected separately waste type	-	kg
Collected as mixed construction waste	0.13	kg
Reuse	-	kg
Recycling	0.0988	kg
Energy recovery	-	kg
Landfilling	0.0312	kg

Reuse, recovery and recycling potential (D), relevant scenario information

Name	Value	Unit
Steel scrap (net)	0,0839	kg
Collection rate	100	%
Recycling losses	3	%

5. LCA: Results

In the following, the results of the indicators of impact assessment, resource use, waste and other output flows are presented.

EP-freshwater:

This indicator was calculated as "kg P-eq." in accordance with the characterisation model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; <http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>)).

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

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

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 4 pieces/m2 average anchor systems for rear-ventilated facades of 120 mm length

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO ₂ eq	6.71E-01	2.56E-03	8.95E-04	3.41E-04	2.21E-03	-1.46E-01
Global Warming Potential fossil fuels (GWP-fossil)	kg CO ₂ eq	6.7E-01	2.54E-03	8.88E-04	3.38E-04	2.21E-03	-1.46E-01
Global Warming Potential biogenic (GWP-biogenic)	kg CO ₂ eq	0	0	0	0	0	0
Global Warming Potential luluc (GWP-luluc)	kg CO ₂ eq	5.48E-04	2.07E-05	7.25E-06	2.31E-06	1.79E-06	4.17E-06
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	3.87E-11	4.7E-19	1.64E-19	8.21E-19	5E-18	3.19E-16
Acidification potential of land and water (AP)	mol H ⁺ eq	2.43E-03	1.29E-05	5.46E-06	3.32E-06	6.68E-06	-3.25E-04
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	1.76E-06	7.8E-09	2.73E-09	9.87E-10	4.03E-07	-8.27E-08
Eutrophication potential aquatic marine (EP-marine)	kg N eq	4.64E-04	6.14E-06	2.64E-06	1.61E-06	1.48E-06	-5.93E-05
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	4.82E-03	6.82E-05	2.93E-05	1.77E-05	1.62E-05	-6.01E-04
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	1.36E-03	1.25E-05	5.1E-06	4.7E-06	4.82E-06	-2.45E-04
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	9.11E-05	2.07E-10	7.24E-11	3.71E-10	1.49E-10	-2.37E-06
Abiotic depletion potential for fossil resources (ADPF)	MJ	9.26E+00	3.42E-02	1.19E-02	6.61E-03	3.16E-02	-1.26E+00
Water use (WDP)	m ³ world eq deprived	7.16E-02	2.5E-05	8.73E-06	6.52E-05	-2.48E-05	-1.1E-02

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 4 pieces/m2 average anchor systems for rear-ventilated facades of 120 mm length

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	1.81E+00	1.98E-03	6.91E-04	4.77E-04	2.22E-03	9.74E-02
Renewable primary energy resources as material utilization (PERM)	MJ	3.07E-01	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	2.12E+00	1.98E-03	6.91E-04	4.77E-04	2.22E-03	9.74E-02
Non renewable primary energy as energy carrier (PENRE)	MJ	8.16E+00	3.43E-02	1.2E-02	1.11E+00	3.16E-02	-1.26E+00
Non renewable primary energy as material utilization (PENRM)	MJ	1.11E+00	0	0	-1.11E+00	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	9.27E+00	3.43E-02	1.2E-02	6.62E-03	3.16E-02	-1.26E+00
Use of secondary material (SM)	kg	5.44E-02	0	0	0	0	8.65E-02
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0

Use of net fresh water (FW)	m ³	2.4E-03	2.3E-06	8.05E-07	1.86E-06	3.88E-07	-2.58E-04
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RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:
4 pieces/m2 average anchor systems for rear-ventilated facades of 120 mm length

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	2.03E-08	1.59E-09	5.54E-10	1.73E-10	1.15E-10	-1.61E-07
Non hazardous waste disposed (NHWD)	kg	4E-02	5.44E-06	1.9E-06	1.79E-06	3.04E-02	1.5E-02
Radioactive waste disposed (RWD)	kg	2.35E-04	6.32E-08	2.21E-08	8.74E-08	3.82E-07	4.46E-08
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	5.3E-03	0	0	9.89E-02	0	0
Materials for energy recovery (MER)	kg	1.28E-02	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
4 pieces/m2 average anchor systems for rear-ventilated facades of 120 mm length

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND
Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

The additional indicators according to EN 15804+A2 are optional. The indicators are not shown in the EPD ("ND").

Disclaimer 1 -
applies to indicator IRP

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 radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 -
applies to indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP

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 experience with the indicator.

As the raw materials at the production stage are the main contributors to the LCA results,

there is a linear relationship between the weight of the raw materials (and thus the length of the anchor systems, as the density remains the same) and the environmental impact. So for further results of other anchor lengths, please use the following formula:

$$P(x) = [P(x_1)/x_1] \cdot x$$

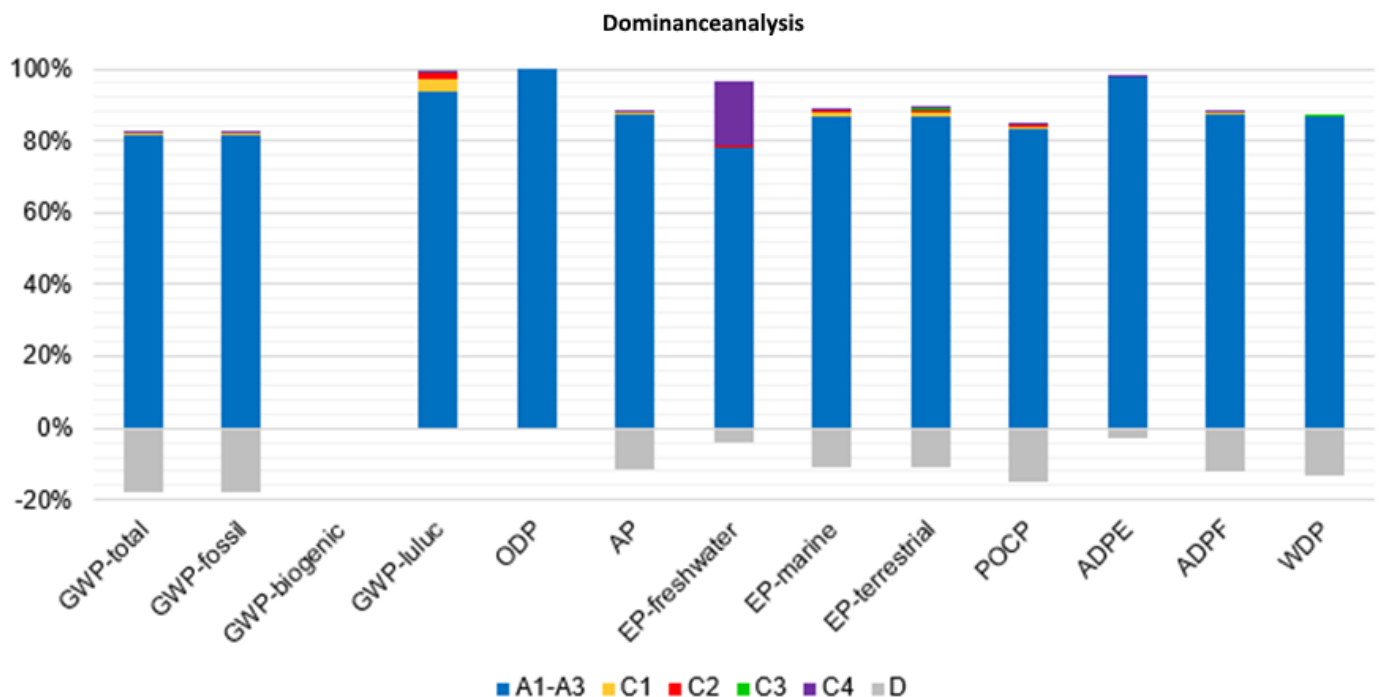
$P(x)$:
Indicator for the new anchor system to be declared

$P(x_1)$: Indicator
of the declared product (e.g. Global Warming Potential (GWP) of the rear-ventilated facades anchor system)

x : Anchor length
of the new anchor system to be declared [mm] (e.g. 100 mm)

x_1 : Anchor
length of the declared anchor system [mm] (here 120 mm)

6. LCA: Interpretation



All indicators are significantly dominated by the production stage and the material and energy upstream chains (module A1-A3). In the A1-A3 module, the screws in particular

and the production of the anchor sleeves contribute to the potential environmental impacts. The credits and loads in Module D result from the End-of-life steel credits from steel recycling.

The main influences in the manufacturing phase (module A1-A3) are shown below.

Global warming potential fossil (GWP-fossil) is dominated by the production of anchor sleeves (47 %) and screws (53 %).

The stratospheric ozone depletion potential (ODP) is dominated by the screws (75 %).

Acidification potential of soil and water (AP) is dominated by the screws (78 %). The production of the anchor sleeves contributes to 18 % of the AP.

Eutrophication potential freshwater (EP-freshwater) is dominated by the packaging materials (43

%).

Eutrophication potential of saltwater (EP-marine) is most influenced by the screws (70 %) and the production of the anchor sleeves (23 %).

Eutrophication potential land (EP-terrestrial) is dominated to 72 % by the production of the screws and to 23 % by the production of the anchor sleeves.

The formation potential for tropospheric ozone (POCP) is also affected by the production of the screws (69

%) and the anchor sleeves (24 %) dominate.

The screws contribute to 99% of the potential abiotic resource depletion - non-fossil resources (ADPE).

The potential for abiotic depletion - fossil fuels (ADPF) is dominated by the production of anchor sleeves (53 %) and screws 33 %).

The use of renewable primary energy (PERT) is mainly due to cardboard packaging materials (40%).

Non-renewable primary energy (PERT) is mainly used in the upstream chains of plastics and

metals.

Water Removal
Potential (WDP) is dominated by the production of the screws
(71 %) and the
anchor sleeves (29 %).

The declaration
refers to the production of average connecting, fastening and
anchoring
elements of 120 mm length for use in ventilated curtain wall
systems (rear-ventilated
facades). Due to the variability of the materials and thus also
the
manufacturing processes as well as the length of the anchor
systems, there are
deviations in the LCA results around the average. Linear
extrapolation is
permissible for lengths not shown (see Chapter 5). If the
material composition
deviates from the average, the LCA results may deviate from
the average.

7. Requisite evidence

8. References

Standards

EN 15804

EN 15804:2019-04+A2 (in press), Building Sustainability - Environmental Product Declarations - Basic Rules for the Product Category of Building Products.

ISO 9001

DIN EN ISO 9001:2015-11,

Quality management systems - Requirements (ISO 9001:2015); German and English version EN ISO 9001:2015.

ISO 14001

ISO 14001:2015-09, Environmental management systems - Requirements with guidance for use.

ISO 14025

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

Further literature

AVV

Abfallverzeichnis-Verordnung (AVV) of 10 December 2001 (BGBl. I p. 3379), last amended by Article 1 of the Ordinance of 30 June 2020 (BGBl. I p. 3005).

EWC

European Waste Catalogue, List of Wastes ordinance of 10 December 2001 (BGBl. I p. 3379), last amended by Article 1 of the ordinance of

30 June 2020
(Federal Law Gazette I p. 1533).

ECHA list

List of substances of very high concern for authorisation (ECHA Candidate List), dated 19.01.2021, published in accordance with Article 59 (10) of the REACH Regulation. Helsinki: European Chemicals Agency.

ETA-10/0305

European Technical Assessment ETA-10/0305 of

6 December 2017.

13 March 2020.

ETA-12/0502

European
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The literature referred to in the Environmental Product
Declaration must be listed in full. Standards already fully quoted
in the EPD do not need to be listed here again.

The current version of PCR Part A and PCR Part B of the PCR
document on which they are based must be referenced.



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