

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	EJOT SE & Co. KG, Market Unit Construction
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EJO-20210060-IBD1-EN
Issue date	01.10.2021
Valid to	08.07.2026

**Fastening solutions for external thermal insulation
composite systems
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.
Panoramastr. 1
10178 Berlin
Germany

Declaration number

EPD-EJO-20210060-IBD1-EN

This declaration is based on the product category rules:

Wall plugs made of plastic and metal, 30.11.2017
(PCR checked and approved by the SVR)

Issue date

01.10.2021

Valid to

08.07.2026



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



Dr. Alexander Röder
(Managing Director Institut Bauen und Umwelt e.V.)

Fastening of external thermal insulation composite systems and ceiling insulation

Owner of the declaration

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

Declared product / declared unit

The present declaration describes the manufacture and disposal of a hypothetical, average anchor system for mechanical fastening of 1 m² external thermal insulation composite system (ETICS), ceiling insulation as well as for securing curtain walls, consisting of six individual systems.

Scope:

The EPD refers to the fastening elements in the ETICS portfolio including accessories. These products are produced in the manufacturing plants in Ciasna (Poland) and Dozwil (Switzerland). The results are given for the effective length 195 mm. For all other lengths, an interpolation or extrapolation can be carried out using the formula given in chapter 5.

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*.

Verification

The standard *EN 15804* serves as the core PCR

Independent verification of the declaration and data according to *ISO 14025:2010*

☐ internally ☒ externally



Juliane Franze
(Independent verifier)

2. Product

2.1 Product description/Product definition

The declared products of EJOT SE & Co. KG, Market Unit Construction, business unit ETICS Fasteners, are made of various plastics and/or steel. The products can be differentiated by the application and the length. Within the scope of this declaration, average anchors and screws with lengths of 175, 195 and 215 mm are considered. Linear extrapolation is permissible for lengths not shown. The declaration includes all products of the following product groups in the portfolio:

- Washer Anchor (screw and impact anchors)
- Additional washers for washer anchors
- Facade anchors (screw-in and hammer-in anchors)

- Screw-in anchor for securing double- leaf masonry
- Concrete screw for fastening ceiling insulation
- Accessories

These are products approved by European or national building authorities as well as constructive products without approval. This results in the following variants:

Products with ETA:

Regulation (EU) No. 305/2011(CPR) applies to the placing of the product on the market in the EU/EFTA (with the exception of Switzerland). The product requires a declaration of performance taking into

account the respective *ETA* and the CE marking. The respective national regulations apply to the use.

Products with exclusively national regulation:

The respective national regulations at the place of use apply to the use of the product, in Germany for example the building regulations of the federal states, and the technical regulations based on these regulations.

There are no building code requirements for constructive products.

2.2 Application

The products covered by this declaration are mainly used for the mechanical fastening of external thermal insulation composite systems on different substrates. Part of the product portfolio under consideration is used to secure double-leaf masonry or to fasten ceiling insulation.

2.3 Technical Data

Constructional data

The most important structural data of the products can be found in the following table.

For further information, please refer to the approval/assessment or the technical data sheets.

Name	Value	Unit
Anchor diameter	8 - 10	mm
Washer diameter without additional washer	60	mm
Drill hole depth	35 - 80	mm
Embedment depth	25 - 70	mm

Performance values of the product according to the declaration of performance in relation to its essential characteristics according to the applicable *ETA*. Performance values of the product in relation to its characteristics according to the applicable technical provision (no CE marking).

2.4 Delivery status

The products are packed and delivered in cardboard boxes or foil bags. The batch sizes are different. Common batch sizes are 100 or 200 pieces per packaging unit.

2.5 Base materials/Ancillary materials

The raw materials or intermediate products of the products under consideration consist of:

- Polyamide (unreinforced or glass fibre reinforced) (5-15 %)
- Polyethylene (10-20 %)
- Polypropylene (0-5 %)
- Dyes (1 %)
- Steel (70-80 %)

Auxiliary materials and additives are contained in the plastic granulate. In the EJOT production companies, no auxiliary materials and additives are added during 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 product.

Screws: By far the largest proportion of screws and fasteners are produced by non-cutting cold forming in the so-called "cold extrusion process". In this 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. preforming 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*.

Plugs and ring washers are bought in, they are moulded from polystyrene under steam and packaged.

2.7 Environment and health during manufacturing

The environmental management system of EJOT SE & Co. KG, Market Unit Construction is certified according to *ISO 14001* (certificate registration number 302825 UM). Furthermore, there is a certification of the energy management according to *ISO 50001*.

In the modern EJOT production facilities, strict safety and security risk reduction measures are complied with. Heat emissions from the granulate during the production process are removed by ventilation systems. This guarantees a constant exchange of air during the production process. The emissions fall below the requirements of European legislation.

Within the framework of the health management system based on the *DIN SPEC 91020* flu vaccinations, fitness courses and examinations by the company doctor are offered.

2.8 Product processing/Installation

When fixing thermal insulation composite systems, insulation boards are usually glued to the facade and then mechanically fixed with anchors. The anchors are pushed into a previously drilled hole and, depending on the type of anchor, are then expanded by hammering or screwing them in. A standard hammer or screwdriver with a suitable bit is required for the installation. The countersunk installation of anchor is only possible with special installation tools. The application of the products can be found in the respective valid approval/assessment or, in the case of constructive products, in the technical information.

2.9 Packaging

The products are packed in cardboard boxes or foil bags. Transport to the customer is stacked, on wooden pallets that are reused as circulation 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

When used properly, there is no effect relationship between the product and the environment or health.

2.12 Reference service life

The service life for the products is proven by the approval tests. For ETICS anchors, this is at least 25 years according to *ETAG 004*.

2.13 Extraordinary effects

Fire

The behaviour in the event of a fire is tested on the entire system including the fastening element. *ETAG 004* is authoritative for external thermal insulation composite systems.

Water

Even in the event of unforeseen exposure to water, there is no adverse effect on the environment.

Mechanical destruction

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

2.14 Re-use phase

The products are not intended for reuse. However, the products can be recycled. The plastic part can be thermally recycled.

2.15 Disposal

In case of dismantling the ETICS, it is theoretically possible to separate the individual components from each other. In practice, the complete ETICS - including the ETICS anchors - is deposited.

The individual components are assigned to the following waste codes according to the List of Wastes Ordinance:

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

2.16 Further information

For further and supplementary information:
<http://www.bau.ejot.de/>

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is an average anchor system for fixing 1 m² ETICS with a specific length of 195 mm, consisting of six 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 ETICS system. In order to convert the declared unit to kg, the weight per system is given.

Declared Unit

Name	Value	Unit
Declared unit	6	Pce/m ² _{system}
conversion factor [Mass/Declared Unit]	0.201	-

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 the waste treatment (Module C2), waste processing (Module C3) and the landfilling of plastics (Module C4) are considered. Avoided burdens from the recycling of metals are reported in Module D. Only the net scrap quantities are considered here.

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 and landfilled (plastics) or recycled (metals) after demolition.

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

3.4 Cut-off criteria

The EJOT company provided the data from the operational data collection, which contains all input

goods, as well as all available emission measurements for the LCA and took them into account in the model accordingly.

The only exception are wooden pallets that are reused in circulation and whose mass therefore falls under the cut-off criteria. 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 were checked for plausibility. The quality and representativeness of the foreground data collected 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 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.

3.9 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.

The background database used is *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 (0.130 kg) is 0.0617 kg. The cardboard packaging has a biogenic carbon content of 43 % (0.00186 kg biogenic carbon), for the wooden pallets a biogenic carbon content of 50 % (0.0431 kg biogenic carbon) was assumed.

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 (C1–C4)

Name	Value	Unit
Collected separately waste type	-	kg
Collected as mixed construction waste	0.201	kg
Reuse	-	kg
Recycling	0.139	kg
Energy recovery	-	kg
Landfilling	0.062	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Steel scrap (net)	0,135	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	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 6 pieces/m2 average anchor systems for ETICS of 195 mm

Core Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Global warming potential - total	[kg CO ₂ -Eq.]	8.11E-1	2.57E-3	1.26E-3	5.26E-4	4.37E-3	-2.34E-1
Global warming potential - fossil fuels	[kg CO ₂ -Eq.]	8.11E-1	2.55E-3	1.25E-3	5.22E-4	4.36E-3	-2.34E-1
Global warming potential - biogenic	[kg CO ₂ -Eq.]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-3.97E-7	0.00E+0
GWP from land use and land use change	[kg CO ₂ -Eq.]	6.42E-4	2.08E-5	1.02E-5	3.57E-6	3.54E-6	6.69E-6
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	2.91E-11	4.71E-19	2.31E-19	1.27E-18	9.88E-18	5.12E-16
Acidification potential, accumulated exceedance	[mol H ⁺ -Eq.]	2.25E-3	1.30E-5	7.67E-6	5.12E-6	1.32E-5	-5.22E-4
Eutrophication, fraction of nutrients reaching freshwater end compartment	[kg PO ₄ -Eq.]	2.49E-6	7.81E-9	3.83E-9	1.52E-9	7.98E-7	-1.33E-7
Eutrophication, fraction of nutrients reaching marine end compartment	[kg N-Eq.]	5.55E-4	6.15E-6	3.71E-6	2.49E-6	2.93E-6	-9.53E-5
Eutrophication, accumulated exceedance	[mol N-Eq.]	5.88E-3	6.83E-5	4.11E-5	2.73E-5	3.21E-5	-9.65E-4
Formation potential of tropospheric ozone photochemical oxidants	[kg NMVOC-Eq.]	1.73E-3	1.25E-5	7.17E-6	7.25E-6	9.54E-6	-3.93E-4
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	2.53E-5	2.07E-10	1.02E-10	5.72E-10	2.94E-10	-3.81E-6
Abiotic depletion potential for fossil resources	[MJ]	1.14E+1	3.42E-2	1.68E-2	1.02E-2	6.25E-2	-2.02E+0
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	[m ³ world-Eq deprived]	3.00E-2	2.50E-5	1.23E-5	1.01E-4	-4.89E-5	-1.77E-2

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 6 pieces/m2 average anchor systems for ETICS of 195 mm

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier	[MJ]	1.90E+0	1.98E-3	9.70E-4	7.36E-4	4.40E-3	1.56E-1
Renewable primary energy resources as material utilization	[MJ]	7.13E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	2.61E+0	1.98E-3	9.70E-4	7.36E-4	4.40E-3	1.56E-1
Non-renewable primary energy as energy carrier	[MJ]	9.32E+0	3.43E-2	1.68E-2	2.09E+0	6.26E-2	-2.02E+0
Non-renewable primary energy as material utilization	[MJ]	2.08E+0	0.00E+0	0.00E+0	-2.08E+0	0.00E+0	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	1.14E+1	3.43E-2	1.68E-2	1.02E-2	6.26E-2	-2.02E+0
Use of secondary material	[kg]	6.75E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.39E-1
Use of renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of non-renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of net fresh water	[m ³]	2.18E-3	2.30E-6	1.13E-6	2.87E-6	7.68E-7	-4.14E-4

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 6 pieces/m2 average anchor systems for ETICS of 195 mm

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	[kg]	3.75E-8	1.59E-9	7.79E-10	2.67E-10	2.28E-10	-2.58E-7
Non-hazardous waste disposed	[kg]	1.04E-2	5.44E-6	2.67E-6	2.76E-6	6.00E-2	2.40E-2
Radioactive waste disposed	[kg]	2.53E-4	6.33E-8	3.10E-8	1.35E-7	7.55E-7	7.17E-8
Components for re-use	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	[kg]	0.00E+0	0.00E+0	0.00E+0	1.39E-1	0.00E+0	0.00E+0
Materials for energy recovery	[kg]	2.46E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported electrical energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 6 pieces/m2 average anchor systems for ETICS of 195 mm

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Potential incidence of disease due to PM emissions	[Disease Incidence]	ND	ND	ND	ND	ND	ND
Potential Human exposure efficiency relative to U235	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
Potential comparative toxic unit for ecosystems	[CTUe]	ND	ND	ND	ND	ND	ND
Potential comparative toxic unit for humans - cancerogenic	[CTUh]	ND	ND	ND	ND	ND	ND
Potential comparative toxic unit for humans - not cancerogenic	[CTUh]	ND	ND	ND	ND	ND	ND
Potential soil quality index	[-]	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:

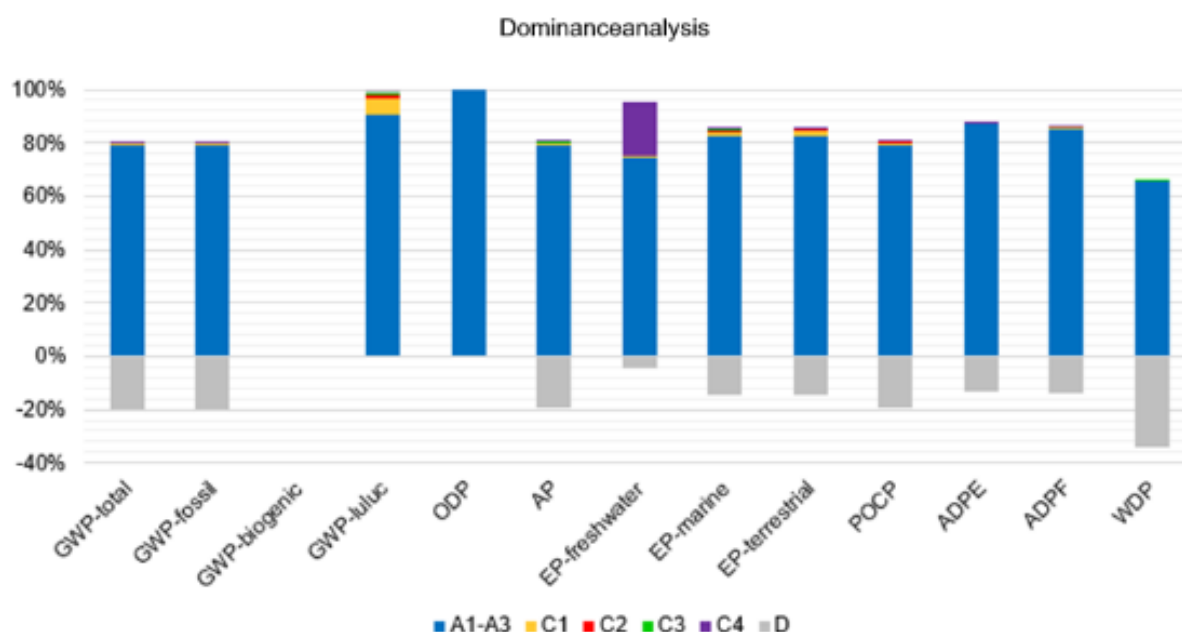
$$P(x) = [P(x_1)/x_1] \cdot x$$

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

P(x₁): Indicator of the declared product (e.g. Global Warming Potential (GWP) of the ETICS anchor system).

x: Anchor length of the new anchor system to be declared [mm] (e.g. 175 mm) x₁: Anchor length of the declared anchor system [mm] (here 195 mm)

6. LCA: Interpretation



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

The indicator Global Warming Potential fossil (GWP-fossil) is dominated by screws (59 %) as well as anchor sleeves (22 %).

The stratospheric ozone depletion potential (ODP) is dominated by the production of the caps.

The acidification potential of soil and water (AP) is 68 % influenced by the screws. The anchor sleeves contribute 15 % and the plastic nails 11 % to the AP.

The largest share of the eutrophication potential freshwater (EP-freshwater) is accounted for by packaging materials (46%), followed by screws (35%).

The eutrophication potential saltwater (EP-marine) and the eutrophication potential land (EP-terrestrial) are dominated by the steel screws and nails to 65% and 67% respectively. The anchor sleeves contribute 15% each and the plastic nails 10% to the EP-terrestrial.

Formation potential for tropospheric ozone (POCP) is influenced 64% by the steel screws and nails, 16% by the anchor sleeves and 11% by the plastic nails.

The potential for depletion of abiotic resources - non-fossil resources (ADPE) is 99% dominated by the screws.

The potential for the depletion of abiotic resources - fossil fuels (ADPF) is estimated at 42 %.

dominated by the screws and 36 % by the production of the anchor sleeves.

The use of renewable primary energy (PERT) is mainly due to cardboard packaging materials (49%).

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

The declared products are made of plastics and/or steel. The products can be differentiated by the application and the effective length. In the context of this declaration, average anchor and screws with useful lengths of 195 mm are considered. 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

No evidence is required according to PCR Part B.

8. References

Standards

DIN SPEC 91020

DIN SPEC 91020:2012-07, Occupational health management.

EN 15804

DIN EN 15804:2020-03, Sustainability of construction works - 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).

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.

ISO 50001

DIN EN ISO 50001:2018-12, Energy management systems - Requirements with guidance for use (ISO 50001:2018).

Further literature

EWC

European Waste Catalogue, Waste Catalogue Ordinance of 10 December 2001 (BGBl. I S. 3379), as 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.

ETAG 004

EOTA ETAG 004 - Guideline for European technical approval of external thermal insulation composite systems with rendering - Used as European Assessment Document (EAD).

ETA

European Technical Approval or European Technical Assessment (ETA) of the respective products. The ETA can be accessed via the following link: <https://www.ejot.de/zulassungen-eta-pruefzeugnisse>

GaBi

Software und Datenbank zur Ganzheitlichen Bilanzierung (GaBi), Version 9.5, Servicepack 40. LBP [Chair of Building Physics] University of Stuttgart and thinkstep AG, LeinfeldenEchterdingen, 1992 - 2020.

Product category rules for construction products Part A

Part A: Calculation rules for LCA and requirements for the project report according to EN 15804+A2:2019, version 1.0, 07-2020.

Product category rules for construction products

Part B: Plastic and metal anchors

Product category rules for building-related products and services. Part B: Environmental product declaration requirements for plastic and metal anchors. Berlin: Institut Bauen und Umwelt e.V. (ed.), 10-2013.

IBU 2016

Institut Bauen und Umwelt e.V.: General EPD Programme Guidance of the Institut Bauen und Umwelt e.V. (IBU). Version 1.1, Berlin: Institut Bauen und Umwelt e.V., 2016.
www.ibu-epd.com

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