ENVIRONMENTAL PRODUCT DECLARATION

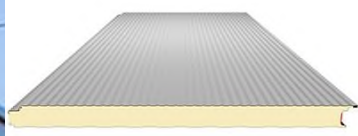
In accordance with /ISO 14025/ and /EN 15804/

Owner of the declaration	**Brucha Gesellschaft m.b.H**
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-BRU-20190033-IBC1-DE
Issue date	1st July 2019
Valid to	30th June 2024

BRUCHAPaneel PUR/PIR+ Facade Panel – FP-P

BRUCHA Gesellschaft m.b.H

www.ibu-epd.com / https://epd-online.com



1. General information

Brucha Gesellschaft m. b. H	BRUCHAPaneel PUR/PIR+ Facade Panel – FP-P
Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastrasse 1 10178 Berlin Germany	**Owner of the declaration** Brucha Gesellschaft m.b.H Rusterstrasse 33 3451 Michelhausen, Austria
Declaration number EPD-BRU-20190033-IBC1-DE	**Declared product/declared unit** 1m² prefabricated double skin steel faced BRUCHAPaneel PUR/PIR+ Facade Panels – FP-P with an insulating core made of rigid polyurethane foam.
This declaration is based on the product category rules: Double skin steel faced sandwich panels, 07/2014 (PCR-tested and approved by the independent advisory board (SVR))	**Scope** The purpose of this document is limited to continuously produced sandwich panels with face sheets made of steel manufactured by BRUCHA in Michelhausen (Austria). Data for the year 2011 has been provided. The owner of the declaration is liable for the basic information and supporting evidence; any liability of the IBU in relation to manufacturer's information, LCA data and supporting evidence is excluded. This document is a translation from German to English. It is based on the original declaration number EPD-BRU-20190033-IBC1-DE.
Issue date 1st July 2019	
Valid to 30th June 2024	**Verification** CEN standard /EN 15804/ serves as the core PCR Verification of the EPD by an independent third party in accordance with /ISO 14025:2010/ ☐ internal ☒ external
Prof. Dr.-Ing. Horst J. Bossenmayer (President of IBU - Institut Bauen und Umwelt e.V. [institute for construction and environment])	
Dr. Alexander Röder (Executive Director IBU)	Dr. Stefan Diederichs Independent verifier appointed by SVR

2. Product

2.1 Product description

BRUCHAPaneel PUR/PIR+ Facade Panels – FP-P consist of a rigid polyurethane foam (PUR/PIR+) supporting core rigidly connected to colour-coated metal covering sheets. The metal facing panels are protected against corrosion by means of zinc plating and organic coatings.

The elements are manufactured with an overall width of up to 1,000 mm and a thickness of up to 200 mm. Both flat and profiled steel sheets are used as facings.

The panels are pre-fabricated double skin steel faced sandwich panels with a core made of mineral wool used for load-bearing, self-supporting and non-supporting application in facade structures.

The basis of the results of the life cycle assessment (LCA) is an allocation which is in turn based on the annual production volumes (m² of produced FP-P PUR/PIR+ facade panels) obtained from specific manufacturer information.

EU Directive no. 305/2011 (CPD) applies for putting the product on the market within the EU/EFTA (with the exception of Switzerland). The product requires a declaration of performance taking into account /EN 14509:2013/, self-supporting sandwich elements with metal covering sheets on either side – factory-made products – specifications and CE labelling. The respective national regulations apply to use.

2.2 Application

To be used as a construction element in roof structures for mainly static loads. The sandwich panel assumes building-physics related tasks in the roof structure. The panel ensures protection against noise, heat and humidity and simultaneously takes on the function of making the building shell airtight.

2.3 Technical data

Technical specifications can be found in

- /EN 14509/: Self-supporting double-skin metal-faced insulating panels, factory made products, specifications
- /EN 13165/: Heat insulation for buildings, factory-made products made of rigid polyurethane foam (PU), specifications,
- And also in the German Institute for Structural Engineering (DIBt)'s general building authority approval number /Z-10.49-527/.

Constructional data

Name	Value	Unit
Density of the insulating layer	43	kg/m^3
Thickness of the panel; when the outer layers are even, this is the overall height of the panel (D); on heavily profiled panels, this is the consistent core thickness without profile (dc)	80 - 200	mm
Thickness of the inner layer	0.5	mm
Thickness of the outer layer	0.6	mm
Rated value Thermal conductivity of the insulating material	0.0221	W/(mK)
Heat transfer coefficient of the total panel including any thermal bridges due to overlapping and fixing elements in accordance with DIN EN 14509	0.288	W/(m^{2}K)
Sound reduction index Rw (C; Ctr); testing in accordance with ISO 140-3	0.111	dB
Sound absorption coefficient, testing according to EN ISO 354 Product not perforated	27	%
Sound absorption coefficient, testing according to EN ISO 354 Product perforated	0.15	%

Performance values of the product corresponding to the declaration of performance in relation to its main features in accordance with /EN 14509;2013/, Self-supporting double-skin metal-faced insulating panels, Factory made products – Specifications.

2.4 Delivery status

The sandwich panels are ordered on a project basis, manufactured in the ordered lengths to be delivered in panel form in consignment-based lengths of up to 16 m, thicknesses of up to 200 mm and construction widths of up to 1,000 mm and delivered ready-for-use depending on the progress of the object and/or construction.

2.5 Base materials/ancillary materials

The base materials are steel and a polyurethane insulating layer.

Type of steel in accordance with /EN 10169/:
S 280 GD up to S 320 GD

Metallic coating in accordance with /EN 10346/:

Zinc Z 275, coating 275 g/m². The zinc layer contains at least 99 % zinc by weight. Typical layer thickness 20 µm.

Organic coating in accordance with /DIN EN ISO 12944-1/ (DIN 55634):
Polyester coating (SP), coil coating 25 µm on the visible face side and max. 15 µm on the reverse side.

Thermal insulation core in accordance with /EN 13165/
Rigid polyurethane foam sealing tapes

Sealing tapes in accordance with /DIN 18542/:
Impregnated sealing tapes made of cellular plastics.

2.6 Manufacture

Sandwich panels are manufactured on continuously operated manufacturing systems producing an endless string with speeds of 4 to 8 m/min depending on the respective panel thickness.

At the beginning of the manufacturing process, the surface-finished tapes are conveyed over two decoiling stations into two roll formers arranged one above the other. The surface-finished tape is continuously moulded in a gradual transformation process by the roller pairs until it has reached its final form. The number of transformation stations is stipulated by the finished profile geometry, i.e. the higher, broader or more complex a profile shape, the more stations are required for the profiling process. Here, the surface itself is formed first, followed by the edges.

In the downstream foaming station, the PUR/PIR+ sandwich panel is produced by introducing the liquid polyurethane component, which is also known as "foaming" the core insulation. The thickness of the panels is fixed by the rotating steel plate conveyors. The panels are cut to the ordered length once they have left the reaction section. The panels then run through a cooling section known as a Kühligel®, or cooling hedgehog, before being automatically packed into packages suitable for transport and assembly on a stacking line.

The surface of the finished profile panels is then covered with an adhesive protective foil.

2.7 Health and the environment during production

Apart from the legal stipulations, there are no other specific requirements with regard to safety, environment and health during the production of the profile panels.

2.8 Product processing/installation

The sandwich panels are unloaded at the specified point of use and are either positioned manually or using lifting equipment and connected to the supporting structure. The surface protective foil should be removed before installation / finishing.

The sandwich panels are fixed by means of fixing elements in accordance with general building authority approval Z-10.49-527 or European technical approval. The holes required for this purpose are either pre-drilled or the fixing elements produce the drilling holes themselves when being mounted by means of a drill bit.

Any cuts in the profile panel element on the construction site are to be reduced to a minimum through thorough planning. Special jigsaws, hand-held circular saws and special chain saws which cut without flying sparks and without great heat development are suitable for professional cutting. The saw blades to be used must be suitable for this type of operation. Coated surfaces are to be protected against flying sparks if parting-off grinders and also plasma cutters and others are used for technical reasons. Subsequent

treatment of the cut surfaces may be required at locations at risk of corrosion (e.g. external areas).

If an air-tight and heat-insulating building envelope is required, sealing tapes which comply with /DIN 18542/ and heat insulation material made of polyurethane are used. The manufacturers of sealing tapes and heat insulation material will provide corresponding EPDs.

2.9 Packaging

The panels are shipped on wooden transport packaging. The packages are protected against damage and contamination by means of foil.

The packages may be loaded and unloaded with lifting trucks or cranes. The packaging material is to be collected separately and recycled. The packaging material is to be collected separately and recycled via ARA no. 13099 in Austria and in compliance with the corresponding regulations in other countries.

2.10 Condition of use

The material composition of the sandwich panels during use corresponds to that at the time of manufacture.

2.11 Environment & health during use

The zinc erosion depends on the effects of the local microclimate. The allocation to the respective corrosion category is based, among other things, on area-related weight loss and/or thickness reduction in accordance with /EN 12944-2/.

No adverse effects caused by sandwich panels with double-skin steel faces and a heat-insulating core made of polyurethane have been identified.

2.12 Reference period of use

The corrosion protection system of sandwich panels with steel faces used in a building must generally be effective for more than 15 years. The protective period is defined as the period up to the first partial renewal unless regular inspections and maintenance activities are carried out in order to prevent premature failure.

The period of use depends on the location of the building, the effects of the weather and the quality of the coating. According to life cycle analyses and depending on their intended purpose, sandwich panels with steel faces have a service life of 40 - 45 years (see /BBSR/ table).

The information in this section is not based on any reference period of use in accordance with /ISO 15686/.

2.13 Extraordinary influence

Fire

BRUCHA Gesellschaft m.b.H BRUCHAPaneel PUR/PIR+ Facade Panels – FP-P are flame resistant. Depending on the core layer, they are classified as category B-s2, d0 in accordance with /EN 13501-1/ (polyurethane (PUR) foam system consisting of the ISOPUR P02 foam system).

Water

No risks for the environment or for living organisms caused by unforeseen water ingress have been identified.

Mechanical destruction

No risks for the environment or for living organisms caused by unforeseen mechanical destruction have been identified.

2.14 End of life phase

The covers of the sandwich panels can be removed from the core and collected and reused or recycled after dismantling. The polyurethane core is used for generating industrial process heat depending on the location.

2.15 Disposal

According to the European Waste Catalogue (EWC), the waste codes for thin-walled steel profile panels, including coating, are as follows:

17 04 05 – Iron and steel

17 06 04 – Insulation material

2.16 Further information

Technical product information and dimensioning, planning and implementation rules are available from www.brucha.com.

3. LCA: Calculation rules

3.1 Declared unit

The declared unit is a 1m² sandwich panel with the technical characteristics indicated under 2.3. The mean value is formed based on annual production quantities in square metres.

Indication of the declared unit

Designation	Value	Unit
Conversion factor to 1 kg	0.066	-
Declared unit	1	m^2
Surface weight of the entire panel	15.2	kg/m^2
Thickness of the declared unit	110	Mm

3.2 System boundary

EPD type: Cradle to gate, with options (A1-A3, A5, C3, C4, D). Modules A1 to A3 include raw material provision and processing as well as the processing steps of material serving as input including transport to the manufacturer and production. Module A5 includes the biogenic CO_2 integration of the paper packaging. Module C3 includes the incineration of the polyurethane foam and addresses the MFR indicator (steel for recycling). Module D includes the reuse, recovery and recycling potential.

3.3 Estimations and assumptions

For the end-of-life phase, it is assumed that the steel share is recycled (with losses of 5 % in the recycling process), and the PU share is incinerated. Credits are provided for the recycling potential of steel and energy from waste incineration. The fact that the steel sheet contains a specific amount of recycled steel is taken into consideration in the end-of-life phase, i.e. no credit is granted for the amount of recycled steel in the end-of-life phase.

3.4 Cut-off rules

More than 99% of data from the operational data collection was taken into consideration. Material flows with a share of less than 1 percent were therefore also included in the assessment. The only element not included in the LCA is a polyurethane additive which amounts to 0.24 to 0.34% of the total weight of one square metre of panel.

3.5 Background data

The thinkStep AG /GaBi 8/ integrated balancing software system was used to model the lifecycle for the declared Brucha products. The consistent data in the GaBi database is documented and can be viewed online in the GaBi documentation. The last revision of the data used was less than 2 years ago (as of February 2018).

Not all background data used in this study supports the assessment of the waste and water indicators. This data is based on publications by the industry. The waste and water indicators have been assessed but should be regarded as uncertain.

In order to guarantee the comparability of the results, the consistent background data of the GaBi database has been used exclusively in the life cycle assessment (e.g. data on energy, transportation and auxiliary and operating supplies). A representative EU-28 mixture has been assumed to model the electricity mix.

3.6 Data quality

The data collection was implemented locally by Brucha by means of a questionnaire via which production data for 2011 was collected.
According to the manufacturers, the background database used has been updated but otherwise no significant changes have taken place in the manufacturing process/technology since then.

In accordance with the target definition, all significant input and output flows which occur in connection with the products or product systems examined have been identified and quantified in the LCA.

The primary data collection reflects the annual input and output quantities of the respective representative thickness (REP) for PUR/PIR+ facade panels.

The actual transport distances and means of transport were estimated for all inputs and outputs. The primary data was checked for plausibility on receipt and the weight, energy and material balances were verified. With regard to plausibility, the data was compared to both published and internal thinkstep data. Excellent data quality can therefore be assumed.

3.7 Period under review

All data is based on a one-year average for 2011.

3.8 Allocation

Emissions dependant on input (e.g. CO_2, HCl, SO_2 or heavy metals) in the end-of-life stage were calculated according to the material composition of the product ranges introduced. Technology-dependent emissions (e.g. CO) are attributed according to the flue gas volume.

Energy credits for electricity produced in the waste incineration plant and thermal energy in the end-of-life stage are allocated according to the heating value of the input; the efficiency of the plant is also taken into consideration.

Credit for thermal energy is calculated from the "EU-28: Thermal energy from natural gas ts" data record whilst credit for electricity is calculated from the "EU-28: electricity mix ts" data record.
All waste was entirely allocated to production.

3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all data sets to be compared have been created in accordance with /EN 15804/ and the building context and/or the product-specific performance characteristics are taken into consideration.

The /GaBi 8/ database developed by thinkstep was used to produce this EPD.

4. LCA: Scenarios and additional technical information

Installation in buildings (A5)
The product arrives on the building site packaged. The packaging materials are expanded polystyrene (EPS), low-density polyethylene (LDPE) and paper. Disposal of the packaging materials is not part of the LCA. A biogenic carbon dioxide integration of approximately 1.8 kg CO_2/kg paper is included for paper which is declared in A5.

Designation	Value	Unit
Expanded polystyrene (EPS)	0.1014	kg
Low Density Polyethylene (LPDE)	0.07901	kg
Paper	0,005134	Kg

End-of-life (C1-C4)
The calculated scenario includes the incineration of polyurethane remains in module C3.

Designation	Value	Unit
To recycling	9.03	kg
To energy recuperation	4.2	kg
To landfill	0	kg

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARIES (X = INCLUDED IN LCA, MND = MODULE NOT DECLARED)

Production stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transportation	Production	Transportation to the construction site	Installation into the building	Use / application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use for the building	Operational water use for the building	Removal / demolition	Transportation	Waste processing	Disposal	Reuse, recovery or recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	X	X	MND	X	MND	MND	MNR	MNR	MNR	MND	MND	MND	MND	X	X	X

RESULTS OF THE LCA – ENVIRONMENTAL IMPACTS: 1 m² BRUCHAPaneel PUR/PIR+ Façade Panels – FP-P (110 mm)

Parameter	Einheit	A1-A3	A5	C3	C4	D
Global warming potential	[kg CO_2 eq.]	4.38E+1	9.23E-3	9.15E+0	0.00E+0	-2.00E+1
Depletion potential of the stratospheric ozone layer	[kg CFC11 eq.]	2.13E-5	IND	1.60E-13	0.00E+0	-4.90E-12
Acidification potential of land and water	[kg SO_2 eq.]	9.51E-2	IND	3.66E-3	0.00E+0	-4.56E-2
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	1.06E-2	IND	9.34E-4	0.00E+0	-4.04E-3
Formation potential for tropospheric ozone photochemical oxidants	[kg Ethen eq.]	1.30E-2	IND	2.30E-4	0.00E+0	-5.55E-3
Abiotic depletion potential for non-fossil resources	[kg Sb eq.]	2.20E-3	IND	7.81E-8	0.00E+0	6.27E-7
Abiotic depletion potential for fossil resources	[MJ]	6.09E+2	IND	2.11E+0	0.00E+0	-1.80E+2

RESULTS OF THE LCA – RESOURCE USE: 1 m² BRUCHAPaneel PUR/PIR+ Façade Panels – FP-P (110 mm)

Parameter	Einheit	A1-A3	A5	C3	C4	D
Renewable primary energy as energy carrier	[MJ]	32.17	IND	0.29	0.00	-0.71
Renewable primary energy resources as material utilisation	[MJ]	0.07	IND	0.00	0.00	0.00
Total use of renewable primary energy resources	[MJ]	32.24	IND	0.29	0.00	-0.71
Non-renewable primary energy as energy carrier	[MJ]	507.10	IND	2.40	0.00	-186.80
Non-renewable primary energy sources as material utilisation	[MJ]	130.80	IND	0.00	0.00	0.00
Total use of non-renewable primary energy resources	[MJ]	637.90	IND	2.40	0.00	-186.80
Use of secondary materials	[kg]	2.07	IND	0.00	0.00	6.96
Use of renewable secondary fuels	[MJ]	0.00	IND	0.00	0.00	0.00
Use of non-renewable secondary fuels	[MJ]	0.00	IND	0.00	0.00	0.00
Use of net fresh water	[m³]	1.02E-1	IND	2.12E-2	0.00E+0	-1.14E-2

RESULTS OF THE LCA: OUTPUT FLOWS AND WASTE CATEGORIES: 1 m² BRUCHAPaneel PUR/PIR+ Façade Panels – FP-P (110 mm)

Parameter	Einheit	A1-A3	A5	C3	C4	D
Hazardous waste disposal	[kg]	4.82E-7	IND	1,.0E-9	0.00E+0	-1.11E-7
Non-hazardous waste disposal	[kg]	5.75E-1	IND	9.45E-3	0.00E+0	1.65E-1
Radioactive waste disposal	[kg]	1.15E-2	IND	1.13E-4	0.00E+0	-2.62E-3
Components for reuse	[kg]	0.00	IND	0.00	0.00	0.00
Materials for recycling	[kg]	0.00E+0	IND	9.03E+0	0.00E+0	0.00E+0
Materials for energy recovery	[kg]	0.00E+0	IND	4.15E+0	0.00E+0	0.00E+0
Exported electrical energy	[MJ]	0.00E+0	IND	1.58E+1	0.00E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	IND	2.83E+1	0.00E+0	0.00E+0

6. LCA: Interpretation

Abiotic depletion (elementary)

The depletion potential of elementary abiotic resources is mainly caused by the provision of raw materials. The main factor here is the steel section which makes up more than 99% of the overall effect.

Abiotic depletion (fossil)

The depletion potential of fossil abiotic resources is dominated by the upstream chain for the steel section with 46%. The two other main factors are the polyether polyol with 25% and methylene diphenyl isocyanate (MDI) with 24%.

Acidification potential

Acidification potential is dominated by the steel section with 71%. Polyether polyol is responsible for a further 13% and MDI for 12%.

Eutrophication potential

Around 62% of eutrophication potential is caused by the steel section. The rest is mainly due to the raw materials polyether polyol (16%) and MDI (18%).

Global warming potential

68% of global warming potential comes from the steel section. The rest is mainly due to the raw materials polyether polyol (13%) and MDI (15%).

Ozone depletion potential

More than 99.8% of ozone depletion potential comes from the provision of MDI.

Photochemical oxidant creation potential

Photochemical oxidant creation potential (POCP) is dominated by the steel section at 65%. Polyether polyol is responsible for a further 13% and MDI 11%. The MDI emissions released into the atmosphere during the foaming of the PU thermal layer are not included in the assessment as POCP-effective emissions.

Non-renewable primary energy requirement

The non-renewable energy requirement is mainly caused by the provision of raw materials. The main factor here is the steel section which makes up 45% of the overall effect. Polyether polyol and MDI each contribute a share of 25% of the total non-renewable primary energy requirement.

Renewable primary energy requirement

The renewable energy requirement is mainly caused by the provision of raw materials and energy. The main factor here is the steel section with more than a 64% share. Polyether polyol and MDI each contribute 13% and 11% respectively to the total renewable primary energy requirement.

7. Verification

Sandwich panels for use in roof and wall structures form an enclosed space. The internal faces are in direct contact with the internal space.

Profile panels with a metallic covering and organic coating fulfil the requirements of the /AgBB/ scheme in accordance with /test report no. /SB-08-064/. VOC emissions are not relevant for the outer shell.

Evaluation in accordance with the AgBB protocol (2008)

Day 3: TVOC	5.9	Exposure concentrations
Day 28: TVOC	<0.3	Exposure concentrations

Compliance with the AgBB protocol: YES

8. References

/AgBB/

The German Committee for the Health-Related Evaluation of Building Products

/BBSR/

BBSR table entitled “Use periods for building components for LCA in accordance with the sustainable building assessment system (BNB)”, The Federal Institute for Research on Building, Urban Affairs and Spatial Research (BBSR) of the Federal Office for Building and Regional Planning; table available at:

https://www.nachhaltigesbauen.de/fileadmin/pdf/baustoff_gebaeudedaten/BNB_Nutzungsdauern_von_Bauteilen_2017-02-24_.pdf

/DIN 18542/

DIN 18542:2019-06, Sealing of outside wall joints with impregnated sealing tapes made of cellular plastics - Impregnated sealing tapes - Requirements and testing

/DIN 55634/

DIN 55634:2018-03, Paints, varnishes and coatings - Corrosion protection of supporting thin-walled building components made of steel

/EN 10169/

DIN EN 10169:2012-06, Continuously organic coated (coil coated) steel flat products – Technical delivery conditions

/EN 10346/

DIN EN 10346:2015-10, Continuously hot-dip coated steel flat products for cold forming - Technical delivery conditions

/EN 13165/

DIN EN 13165:2015-04, Thermal insulation products for buildings - Factory made mineral wool (MW) products - Specification

/EN 14509/

DIN EN 14509:2009-04 Self-supporting double skin metal faced insulating panels - Factory made products, Specifications

/DIN EN ISO 12944-1//

DIN EN ISO 12944:2019-01, Paints and varnishes - Corrosion protection of steel structures by protective paint systems – Part 1: General introduction

/DIN EN ISO 12944-2/

DIN EN ISO 12944-2:2018-04, Paints and varnishes - Corrosion protection of steel structures by protective paint systems – Part 2: Classification of environments (ISO 12944-2:2017)

/EN 13501/

DIN EN 13501:2019-05, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

/GaBi 8/

thinkStep AG; GaBi 8.7: Software system and database for integrated balancing. Copyright, TM. Stuttgart, Echterdingen, 1992-2018

DiBt general building authority approval Z-10.49-527 for BRUCHA Ges.m.b.h Type DP, WP, FP and FP-P sandwich elements, 2017

/ISO 15686/

ISO 15686-1:2011-07-31, Buildings and constructed assets. Service life planning. General principles and framework.

/ISO 140-3/

ISO 140-3, Acoustics – Measurement of sound insulation in buildings and of building elements – Part 3: Measurement of airborne sound insulation of components in test facilities

/ISO 354/

ISO 354:2003-12, Acoustics – Measurement of sound absorption in a reverberation room (ISO 354:2003)

/European Waste Catalogue/

European Waste Catalogue (EWC)

/PCR Part A/

Calculation rules for the LCA and requirements of the project report, Version 1.7, Institut Bauen und Umwelt e.V., www.bau-umwelt.com, 2018

/PCR Part B/

Product category rules for building products Part B: requirements of the EPD for sandwich elements with double-sided sheet metal covering sheets, Institut Bauen und Umwelt e.V (IBU) Version 1.6, 2017

/Declaration of performance/

DOP in accordance with Appendix III of EU Directive no. 305/2011 (building product directive) BRUCHAPaneel PUR/PIR+ Façade Panel – FP-P 100

/IBU 2016/

IBU (2016): General EPD programme instructions from the Institut Bauen und Umwelt e.V., (IBU) Version 1.1,

Institut Bauen und Umwelt e.V., Berlin.

/ISO 14025/

DIN EN ISO 14025:2011-10/

Environmental labels and declarations – Type III environmental declarations – Principles and procedures

/EN 15804:
EN 15804:2014-07, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. /German version EN 15804:2012+A1:2013)

/Test report no. SB-08-064/

Evaluation of VOC and formaldehyde emissions from a coated stainless steel product in accordance with the ECA, AgBB and AFSSET schemes, Mame-la-Vallée, 10th September, 2008.

	**Publisher** Institut Bauen und Umwelt e.V. Panoramastrasse 1 10178 Berlin Germany	Tel Fax Email Web	+49 30 30 87 74 8 - 0 +49 30 30 87 74 8 - 29 info@ibu-epd.com **www.ibu-epd.com**
	**Programme holder** Institut Bauen und Umwelt e.V. Panoramastrasse 1 10178 Berlin Germany	Tel Fax Email Web	+49 30 30 87 74 8 - 0 +49 30 30 87 74 8 - 29 info@ibu-epd.com **www.ibu-epd.com**
	**Author of the life cycle assessment** Thinkstep AG Hauptstrasse 111-113 70771 Leinfelden-Echterdingen Germany	Tel Fax Email Web	+49 711 34 18 17-0 +49 711 34 18 17-25 info@thinkstep.com **www.thinkstep.com**
	**Owner of the declaration** Brucha Gesellschaft m.b.H Rusterstrasse 33 3451 Michelhausen Austria	Tel Fax Email Web	+43 (2275) 5875 2300 +43 (2275) 5875 2304 office@brucha.at **www.brucha.com**