

# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	PONSBLOK Madencilik ve Yapı Elemanları San. Ve Tic. A.Ş.
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
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Valid to	13.12.2021

## PonceBloc Block and Filler-Block

## PONSBLOK Madencilik ve Yapı Elemanları San. Ve Tic. A.Ş.

[www.ibu-epd.com](http://www.ibu-epd.com) / <https://epd-online.com>



## General Information

### PONSBLOK Madencilik ve Yapı Elemanları San. Ve Tic. A.Ş.

#### Programme holder

IBU - Institut Bauen und Umwelt e.V.  
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Germany

#### Declaration number

EPD-PON-20160178-CAD1-EN

#### This Declaration is based on the Product Category Rules:

Lightweight concrete, 07.2014  
(PCR tested and approved by the SVR)

#### Issue date

14.12.2016

#### Valid to

13.12.2021



Prof. Dr.-Ing. Horst J. Bossenmayer  
(President of Institut Bauen und Umwelt e.V.)



Dr. Burkhard Lehmann  
(Managing Director IBU)

### PonceBloc Block and Filler-Block

#### Owner of the Declaration

PONSBLOK Madencilik ve Yapı Elemanları San. Ve Tic. A.Ş.

Umurbey quarter, Isciler street, No:143, Alsancak – Izmir/ Turkey

#### Declared product / Declared unit

Block and Filler-Block/1m<sup>3</sup>

#### Scope:

The declaration applies for PonceBloc block and filler-block produced by PONSBLOK located in Kayseri, Turkey. It is prepared as a weighted average EPD for the PonceBloc block and filler-block product group. In this study, the data collected refers to the year 2015. Life Cycle Assessment (LCA) was conducted based on the modules A1-A3 (cradle-to-gate).

This EPD is aimed to be used in business to business (B2B) communication. One of the main purposes of this EPD is to communicate regarding environmental performance of products with the market and PonceBloc's customers.

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.

#### Verification

The CEN Norm /EN 15804/ serves as the core PCR

Independent verification of the declaration according to /ISO 14025/

internally  externally



Mr Carl-Otto Neven  
(Independent verifier appointed by SVR)

## Product

### Product description / Product definition

PonceBloc blocks and filler-blocks are masonry units commonly used in building construction. They are made from the same materials and there is no difference in manufacturing process between two product groups except their composition rates.

#### Block:

The main raw material of the PonceBloc block is pumice which is a volcanic stone that passes through purification process. Its magmatic structure provides a big advantage in terms of heat transfer, which provides better heat insulation and durability for buildings. Apart from pumice, other raw materials include cement, water and closed-loop recycled materials.

PonceBloc Block also has a high sound absorption feature and its lightweight requires less labor force for

application and saves time. PonceBloc blocks are produced in accordance with /EN 771-3/ standard.

Block is A1 Class fireproof material so it does not release any poisonous gas into the environment during fire or it brings about a constitution of secure constructions against fire.

**Filler-Block:** The main raw material of the filler-block is also pumice. For this reason, all the advantages provided from pumice are valid for the filler-block too. The magmatic structure provides a big advantage in terms of heat transfer, which provides better heat insulation and durability for buildings. Apart from pumice, other raw materials include cement, water and closed-loop recycled materials.

Besides being very light compared to brick equivalents, they increase the comfort of occupants by providing sound and heat insulation. Filler blocks are also A1 Class fireproof materials.

For the placing on the market of the product in the EU/EFTA (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. The product needs a Declaration of Performance taking into consideration / EN 771-3:2011+A1:2015 Specification for masonry units — Part 3: Aggregate concrete masonry units (Dense and lightweight aggregates) / and the CE-marking. For the application and use the respective national provisions apply.

### Application

Block is used as interior and exterior wall construction material in all kinds of construction.

Filler-Block is used as light construction material for filling in pavements and spandrels.

### Technical Data

The following table shows the technical construction data of the product in accordance with the Declaration of Performance with respect to its Essential Characteristics according to /EN 771-3:2011+A1:2015/:

Constructional data		
Name	Value	Unit
Compressive strength (TS EN 771-3:2011+A1)	0.8 – 2.00	N/mm <sup>2</sup>
Gross density (TS EN 772-13:2002)	310 – 370	kg/m <sup>3</sup>
Thermal conductivity (TS EN 1745:2012)	0.09 – 0.12	W/(mk)
Water vapour diffusion resistance factor (TS EN ISO 12572:2001)	6 – 8.5	-

### Product according to the CPR, based on a hEN/:

PonceBloc has TS EN 771-3 standard (Specification for masonry units - Part 3: Aggregate concrete masonry units (Dense and lightweight aggregates). This standard specifies the characteristics and performance requirements of aggregate concrete masonry units made from dense and lightweight aggregates or a combination of both for which the main intended uses are common, facing or exposed masonry in load bearing or non-load bearing building and civil engineering applications. The units are suitable for all forms of walling, including single leaf, external leaf to chimneys, cavity wall, partitions, retaining and basement. They can provide fire protection, thermal insulation, sound insulation and sound absorption.

### Base materials / Ancillary materials

The final product components are pumice and cement.

The composition of block and filler-block in percentages (%) of total dry mass per 1m<sup>3</sup> (around 360kg of final product) (excluding packaging) is, as follows:

Pumice: >50%  
Cement CEM I: <50%

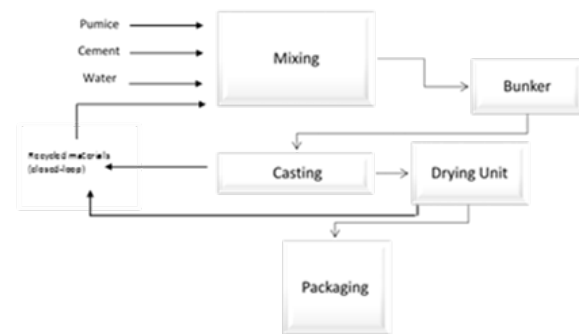
Additionally, very little amount of production losses is recycled into the same block and filler-block formulation. Closed-loop recycling was applied in this study.

There are no products and raw materials used in the formulation that are included in “Candidate List of Substances of Very High Concern for Authorisation”.

### Manufacture

PonceBloc Block and Filler-Block production is executed by an automated system. Pumice and cement are mixed with water naturally contained in pumice itself. Mixed slurry is then transferred to the bunker and poured into the casting moulds. After that, it is transferred to block machine bunkers via an aerial line. The produced block and filler-block come to the holding shelf. According to the initial set of concrete, the PonceBloc block and the filler-block are kept several days on the shelves and are then brought to the packaging elevator. In conclusion, the final products come to the taping machine after the packaging elevator and after the taping processes are put into the storing area.

The manufacturing process is shown in below:



### Packaging

The final products are put onto pallets and then covered with Low-Density Polyethylene (LDPE) film.

For packaging, wooden pallet, LDPE film, etiquette, plastic angle bar and plastic rope are used.

### Reference service life

Since this EPD covers the stages from cradle-to-gate, the declaration of the reference service life is not mandatory.

## LCA: Calculation rules

### Declared Unit

The declared unit for the EPD is 1m<sup>3</sup> of PonceBloc block and filler-block leaving the factory gate.

This declaration is classified as an average product as calculated from one plant of one manufacturer according to section 1c in PCR Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report (version 1.4, 18.03.2016).

It is prepared as a weighted average EPD for the PonceBloc block and filler-block product group based on annual production figure (93% Block, 7% Filler-Block).

### Declared unit

Name	Value	Unit
Declared unit	1	m <sup>3</sup>
Density (Weighted average value in 2015)	360.41	kg/m <sup>3</sup>
Conversion factor to 1 kg	0.00277 5	-

### System boundary

Type of EPD: cradle-to-gate

The system boundary covers the stages from extraction of raw material to the production of finished packaged product at the factory gate.

The life cycle impact assessment results are disclosed separately for A1 (Extraction, processing, production of

raw materials), A2 Transport to the manufacturer and internal transport) and A3 (Manufacturing).

### Background data

Background datasets were taken from Ecoinvent database (version3.01) within SimaPro software.

### 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 used background database has to be mentioned.

### Further information

For further information, please contact PONSBLÖK Madencilik ve Yapı Elemanları San. Ve Tic. A.Ş. through its website at <http://www.poncebloc.com.tr/>

## LCA: Scenarios and additional technical information

In this LCA study, A4-A5, B1-B7, C1-C4 and D are not considered. There are no scenarios related to these phases.

### FDES (*Fiche de Déclaration Environnementale et Sanitaire-Environmental and Health Declaration Sheet*)

In 2010, PonceBloc plant located in Monaco, France has a FDES certificate that presents the Environmental and Health characteristics of products in accordance with /NF P01-010/.



## LCA: Results

The results are presented according to the impact categories defined in /EN 15804/. These impact categories include environmental impacts, use of resources and waste disposal.

The impact estimate results are relative expressions and do not predict impacts on category endpoints or the transgression of thresholds, safety margins or risks.

### DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: Block and Filler-Block/1m3

Parameter	Unit	A1	A2	A3
Global warming potential	[kg CO <sub>2</sub> -Eq.]	8.24E+1	4.06E+0	3.86E+0
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	3.95E-6	2.79E-7	9.37E-8
Acidification potential of land and water	[kg SO <sub>2</sub> -Eq.]	2.14E-1	1.73E-2	2.25E-2
Eutrophication potential	[kg (PO <sub>4</sub> ) <sup>3-</sup> -Eq.]	2.77E-2	4.81E-3	1.26E-2
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	1.61E-2	6.14E-4	9.06E-4
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	1.05E-5	1.20E-5	7.70E-7
Abiotic depletion potential for fossil resources	[MJ]	9.70E+1	6.21E+1	5.73E+1

### RESULTS OF THE LCA - RESOURCE USE: Block and Filler-Block/1m3

Parameter	Unit	A1	A2	A3
Renewable primary energy as energy carrier	[MJ]	1.14E+1	0.00E+0	0.00E+0
Renewable primary energy resources as material utilization	[MJ]	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	1.14E+1	0.00E+0	0.00E+0
Non-renewable primary energy as energy carrier	[MJ]	4.44E+2	6.68E+1	5.23E+1
Non-renewable primary energy as material utilization	[MJ]	0.00E+0	0.00E+0	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	4.44E+2	6.68E+1	5.23E+1
Use of secondary material	[kg]	-	-	-
Use of renewable secondary fuels	[MJ]	-	-	-
Use of non-renewable secondary fuels	[MJ]	-	-	-
Use of net fresh water	[m <sup>3</sup> ]	3.45E-2	1.37E-3	4.23E-2

### RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES:

#### Block and Filler-Block/1m3

Parameter	Unit	A1	A2	A3
Hazardous waste disposed	[kg]	1.75E-4	7.40E-5	3.31E-5
Non-hazardous waste disposed	[kg]	6.98E-1	4.65E+0	2.58E-1
Radioactive waste disposed	[kg]	1.51E-4	3.41E-4	5.44E-5
Components for re-use	[kg]	-	-	-
Materials for recycling	[kg]	-	-	-
Materials for energy recovery	[kg]	-	-	-
Exported electrical energy	[MJ]	-	-	-
Exported thermal energy	[MJ]	-	-	-

MND: Module Not Declared

IND: Indicator Not Declared

## References

### Institut Bauen und Umwelt

Institut Bauen und Umwelt e.V., Berlin(pub.):  
Generation of Environmental Product Declarations (EPDs);  
[www.ibu-epd.de](http://www.ibu-epd.de)

### ISO 14025

DIN EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

### EN 15804

EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

### PCR Part A

*Institut Bauen und Umwelt e.V., Berlin (pub.):* Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut

Bauen und Umwelt (IBU). Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report (version 1.4), 18.03.2016; [www.bau-umwelt.de](http://www.bau-umwelt.de)

**PCR Part B**

*Institut Bauen und Umwelt e.V.*, Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU). Part B: Requirements on the EPD for Lightweight Concrete (version 1.4) 26.09.2016; [www.bau-umwelt.de](http://www.bau-umwelt.de)

**ISO 14040-44**

DIN EN ISO 14040:2006: Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006) and Requirements and guidelines (ISO 14044:2006)

**Ecoinvent (Version 3.01)**

Ecoinvent Centre, [www.ecoinvent.org](http://www.ecoinvent.org)

**ELCD**

The European Reference Life Cycle Database, [www.eplca.jrc.ec.europa](http://www.eplca.jrc.ec.europa)

**SimaPro (Version 8.1.0.60)**

SimaPro LCA Package, Pré Consultants, the Netherlands,

[www.pre-sustainability.com](http://www.pre-sustainability.com)

**TS EN 771-3:2011+A1**

Specification for masonry units - Part 3: Aggregate concrete masonry units (Dense and lightweight aggregates)

**TS EN ISO 12572:2001**

Hydrothermal performance of building materials and products - Determination of water vapour transmission properties

**TS EN 772-13:2002**

Methods of test for masonry units- Part 13: Determination of net and gross dry density of masonry units (except for natural stone)

**TS EN ISO 1745:2012**

Masonry and masonry products - Methods for determining thermal properties

**NF P01-010**

Environmental quality of construction products—environmental and health declaration of construction products



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