ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	SOLBET SP. Z O.O.
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-SOL-20230257-CBD1-EN
Issue date	24/10/2023
Valid to	23/10/2028

Autoclaved Aerated Concreate (AAC)

Solbet Sp. z o.o.

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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General Information

Solbet Sp. z o.o.

Programme holder

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

Declaration number

EPD-SOL-20230257-CBD1-EN

This declaration is based on the product category rules:

Aereated Concrete, 01/08/2021
(PCR checked and approved by the SVR)

Issue date

24/10/2023

Valid to

23/10/2028

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

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

Autoclaved Aerated Concreate (AAC)

Owner of the declaration

SOLBET SP. Z O.O.
Torunska 71
86-050 Solec Kujawski
Poland

Declared product / declared unit

1 m^3 of non-reinforced SOLBET autoclaved aerated concrete (AAC) with the average density per product with moisture content declared at factory gate is 663 kg/m^3. The average gross density (dry mass) of the declared product is 515 kg/m^3.

Scope:

The LCA is based on consideration on all SOLBET Group plants:

SOLBET Sp. z o.o.:

- Solec Kujawski plant,
- Podnieśno plant,
- Rurka plant,

SOLBET LUBARTÓW S.A.:

- Lubartów plant,

SOLBET KOLBUSZOWA S.A.:

- Głogów Małopolski plant,
- Lipie plant,

SOLBET STALOWA WOLA S.A.:

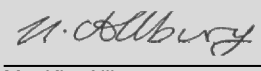
- Stalowa Wola plant,

and the data basis is 2021.
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 14025:2011
☐ internally ☒ externally



Mrs Kim Allbury,
(Independent verifier)

Product

Product description/Product definition

The subject of the declaration are non-reinforced aerated concrete masonry elements of various sizes and density classes, manufactured using the autoclaving process. SOLBET products are used to construct load-bearing and non-loadbearing masonry structures in all types of walls, including single leaf, cavity, partitions, retaining, basement and external walls with a covered facing surface. Elements of autoclaved aerated concrete should be classified as an lightweight concrete.

SOLBET autoclaved aerated concrete (AAC) elements are produced according to *EN 771-4:2011+A1:2015* - Specification for masonry units - Part 4: Autoclaved aerated concrete masonry units. All Autoclaved Aerated Concrete elements in SOLBET group are produced in system 2+ in Category I in accordance with *EN 771-4*. All AAC products produced in SOLBET group have DoP according to regulation 305/2011 and the CE market.

Autoclaved Aerated Concrete in SOLBET group is produced according to *EN 771-4:2011+A1:2015* definition: the AAC is "manufactured from hydraulic binders such as cement and/or lime, combined with siliceous based fine material, cell generating material and water and cured with high pressure steam in autoclaves".
For the placing on the market of the product in the European Union/European Free Trade Association (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 771-4:2011+A1:2015*, Specification for masonry units - Part 4: Autoclaved aerated concrete masonry unit and the CE-marking. For the application and use the respective national provisions
apply.

Application

Autoclaved aerated concrete elements are using in all kinds of construction and non-construction walls: single-layer wall, multi-layer wall, cavity wall, retaining wall and basements, and in all external elements with a protected face surface.

Technical Data

The basic functional properties of wall elements made of autoclaved aerated concrete, produced in the SOLBET capital group, are presented in the table below.

Constructional Data

Name	Value	Unit
Compressive strength (according to EN 772-1+A1:2015-10, p. 7.3.4. Tested on cubes 100 mm)	1.5 - 5	N/mm^2
Gross density (dry density, according to EN 772-13))	300 - 710	kg/m^3
Thermal conductivity (according to EN 1745)	0.08 - 0.18	W/(mK)
Water vapour diffusion resistance factor (according to EN 1745)	5	-
Shrinkage (according to EN 680. Reference value not higher than declared value)	0.4	mm/m

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 771-4:2011+A1:2015*, Specification for masonry units - Part 4: Autoclaved aerated concrete masonry unit.

Base materials/Ancillary materials

Name	Value	Unit
Sand	40 - 85	M, %
Water	40 - 80	M, %
Cement	10 - 50	M, %
Lime	5 - 45	M, %
Gypsum	0 - 10	M, %
Aluminium powder	0.01 - 0.15	M, %

Sand: sand is the basic raw material necessary for the reaction in the hydrothermal process. The sands used are of natural origin, mainly composed of quartz dioxide (SiO2).
Water: Water is essential for the chemical processes involved in the production of aerated concrete. Water is also used for grinding, and for obtaining steam in the autoclaving process.
Cement: in accordance with the standard *EN 197-1:2011*, Cement is used as a binder. It is formed as a result of burning natural rocks, e.g. marl and limestone.
Lime: in accordance with the standard *EN 459-1:2015*, Lime is used as a binder. It is formed as a result of burning natural limestone rocks.
Gypsum: Gypsum of natural origin or from flue gas desulfurization in power plants is used. It acts as a regulator of setting time and takes part in reactions in the hydrothermal process.
Aluminium powder: in accordance with the polish standard *PN-H-97021:1998* - polish version, Aluminum powder emitting hydrogen in an alkaline environment causes the formation of a porous structure of autoclaved aerated concrete.

1) This product / article / at least one partial article contains substances listed in the candidate list Candidate List of substances of very high concern exceeding 0.1 percentage by mass: No.
2) This product /article /at least one partial article contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: No.
3) Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): No.

Reference service life

Autoclaved aerated concrete (AAC) is a durable material. Walls constructed from the products will fulfill their intended function for the life of the building in which they have been installed. AAC is the most popular building material in Poland from many years. Tradition of using AAC in Poland has more than 70 years, and existing buildings still are using without any problems - without any plasters or other surface protect. Aerated concrete recarbonates naturally and thus absorbs atmospheric CO_2 during its service life. The essential properties such as thermal conductivity and strength of aerated concrete do not change as a result after leaving the autoclave.

The Reference Service Life (RSL) of AAC is connected with properties of AAC. The reference service life is 150 years based on Roadmap for AAC, conference paper from 7th ICAAC in Prague, and tests of existing buildings.

LCA: Calculation rules

Declared Unit

The declared unit is 1 m^3 of non-reinforced aerated concrete. The average density per product with moisture content declared at factory gate is 663 kg/m^3. The average density according to *EN 771-4:2011+A1:2015* in dry mass is 515 kg/m^3.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	m^3
Gross density	663	kg/m^3
Dry density (according to EN 772-13)	515	kg/m^3

As an estimate of the robustness of the LCA values, the weighted average density of the declared AAC product is calculated relative to the production volume shares of the seven production sites in scope located across Poland. The production process remains the same across all sites in scope. All background datasets relevant for the production of the declared of AAC product were mapped to technologically similar upstream processes from the Sphera LCA FE (GaBi ts) software and databases.

System boundary

Type of EPD according to *EN 15804*: cradle to gate with options, modules C1–C4, and module D.
The following modules are declared: A1–A3, C, D and additional modules: A4 + A5 +B1.

Production - Modules A1-A3

The product stage includes:

- Raw material supply (A1)
- Transport to the manufacturer (A2)
- Manufacturing (A3), including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state. Packaging is also considered in this module.

Construction stage - Modules A4-A5

The construction process stage includes:

- Transport to the construction site (A4): This module considers 100 km truck transport to the site. The transport distance can be modified project-specific if required by linear scaling.
- Thermal treatment of packaging material (A5) where the resulting credits are declared in module D.

Offcuts were not taken into account, as they strongly depend on the building context and can be estimated approximately via the declared values for the production stage.
The installation of the products themselves is usually done manually (load-free).

Use stage (B1)

Carbonation of reactive product components (e.g. CaO and MgO) are considered in this module. A carbonation rate of 98.97 % is assumed, *P. Walczak / SOLBET Research Center Department, 2022*.

End-of-life stage– Modules C1-C4

The end-of-life stage includes:

- Module C1: Mechanical dismantling (excavator).
- Module C2: Truck transport to EoL (50km). If necessary, transport distance can be adapted to building level.
- Module C3: Construction waste processing (shredding) and material recycling as filling material (incl. credits for substitution of gravel in Module D) assuming 5 % recycling losses are sent to landfill. The end of waste status is reached after shredding. This module also considers carbonation at the end of life.

Reuse, recovery or recycling potential beyond system boundary - Module D

This module considers material credits from saved expenditures through the substitution of gravel as backfill material (module C3).
It also includes the credits of the thermal and electrical energy generated in Module A5 due to the thermal treatment of packaging. Avoided burdens have been calculated by the inversion of residual grid mix and thermal energy from natural gas, using European datasets.

Geographic Representativeness

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

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.
Background database: *Sphera LCA FE (GaBi ts), CUP2022.1*

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

No biogenic carbon is reported in the product. The biogenic carbon content in the accompanying packaging for 1 m^3 of non-reinforced aerated concrete is declared below.

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	1.11	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

The following technical scenario information is required for the declared modules and optional for non-declared modules.
The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).
The values refer to the declared unit of 1 m^3 of non-reinforced aerated concrete.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	1.31	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%
Gross density of packed product transported	666	kg/m3

The transport distance can be modified to project-┐specific criteria if required by linear scaling.

Installation into the building (A5)

The thermal treatment of the packaging is considered in module A5. The following quantities are scaled per m^3 of non-reinforced aerated concrete.

Name	Value	Unit
Wooden pallet packaging to incineration (weighted average based on production volume shares)	2.96	kg
Polyethylene foil packaging to incineration (weighted average based on production volume shares)	0.45	kg

Use or application of the installed product (B1) see section 2.12 "Use"

Name	Value	Unit
Carbonation rate (P. Walczak, SOLBET Research Center Department, 2022)	98.97	%

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	150	a

End of life (C1-C4)

The values refer to the declared unit of 1 m^3 of non-reinforced aerated concrete.

Name	Value	Unit
Diesel consumption for mechanical dismantling via excavator (Module C1)	0.114	kg
Collected separately waste type waste type	663	kg
Recycling	630	kg
Landfilling	33	kg

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

Module D includes the material credits from saved expenditures through substitution of gravel as backfill material (module C3). It also includes the credits of the thermal and electrical energy generated in Module A5 due to the thermal treatment of packaging. Avoided burdens have been calculated by the inversion of residual grid mix and thermal energy from natural gas, using European datasets.
A waste incineration plant with R1-value > 0.6 is assumed.

LCA: Results

The following tables display the environmentally relevant results according to *EN 15804* for 1 m^3 of non-reinforced aerated concrete. The average density per product with moisture content declared at factory gate is 663 kg/m^3.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = 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	X	X	X	MND	MNR	MNR	MNR	MND	MND	X	X	X	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m3 non-reinforced AAC product

Parameter	Unit	A1-A3	A4	A5	B1	C1	C2	C3	D
GWP-total	kg CO_2 eq	1.66E+02	4.02E+00	5.93E+00	-7.52E+01	4.28E-01	2E+00	1.44E+00	-3.81E+00
GWP-fossil	kg CO_2 eq	1.7E+02	3.98E+00	1.49E+00	-7.52E+01	4.26E-01	1.98E+00	1.43E+00	-3.82E+00
GWP-biogenic	kg CO_2 eq	-4.35E+00	1.68E-02	4.44E+00	0	1.98E-10	8.37E-03	3.21E-04	2.13E-02
GWP-luluc	kg CO_2 eq	4.89E-02	2.22E-02	1.16E-05	0	2.27E-03	1.11E-02	8.85E-03	-3.51E-03
ODP	kg CFC11 eq	1.19E-10	2.39E-13	4.62E-13	0	2.44E-14	1.19E-13	3.71E-12	-1.96E-11
AP	mol H^+ eq	3.11E-01	3.8E-03	8.97E-04	0	2.02E-03	1.89E-03	1.24E-02	-9.07E-03
EP-freshwater	kg P eq	5.98E-05	1.19E-05	1.1E-07	0	1.22E-06	5.92E-06	5.76E-06	-6.41E-06
EP-marine	kg N eq	9.48E-02	1.18E-03	2.77E-04	0	9.5E-04	5.89E-04	4.94E-03	-3.07E-03
EP-terrestrial	mol N eq	1.04E+00	1.42E-02	4.26E-03	0	1.05E-02	7.07E-03	5.45E-02	-3.38E-02
POCP	kg NMVOC eq	2.74E-01	3.31E-03	7.6E-04	0	2.67E-03	1.65E-03	1.37E-02	-8.52E-03
ADPE	kg Sb eq	9.38E-06	3.34E-07	1.13E-08	0	3.41E-08	1.66E-07	1.95E-06	-4.3E-07
ADPF	MJ	1.07E+03	5.33E+01	1.27E+00	0	5.45E+00	2.65E+01	4E+01	-6.61E+01
WDP	m^3 world eq deprived	2.92E+00	3.58E-02	6.85E-01	0	3.65E-03	1.78E-02	3.85E-01	-2.42E-01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m3 non-reinforced AAC product

Parameter	Unit	A1-A3	A4	A5	B1	C1	C2	C3	D
PERE	MJ	1.11E+02	3.03E+00	4.4E+01	0	3.1E-01	1.51E+00	3.67E+00	-9.61E+00
PERM	MJ	4.37E+01	0	-4.37E+01	0	0	0	0	0
PERT	MJ	1.54E+02	3.03E+00	2.96E-01	0	3.1E-01	1.51E+00	3.67E+00	-9.61E+00
PENRE	MJ	1.05E+03	5.34E+01	2.2E+01	0	5.46E+00	2.66E+01	4.01E+01	-6.61E+01
PENRM	MJ	2.07E+01	0	-2.07E+01	0	0	0	0	0
PENRT	MJ	1.07E+03	5.34E+01	1.27E+00	0	5.46E+00	2.66E+01	4.01E+01	-6.61E+01
SM	kg	5.58E+00	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	1.53E-01	3.43E-03	1.61E-02	0	3.5E-04	1.71E-03	1.1E-02	-1.19E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m3 non-reinforced AAC product

Parameter	Unit	A1-A3	A4	A5	B1	C1	C2	C3	D
HWD	kg	2.28E-05	2.56E-10	1.23E-10	0	2.61E-11	1.27E-10	7.53E-10	-6.62E-09
NHWD	kg	1.7E+01	7.66E-03	4.41E-02	0	7.82E-04	3.81E-03	3.32E+01	-2.62E+01
RWD	kg	2.24E-02	6.58E-05	7.56E-05	0	6.72E-06	3.27E-05	5.15E-04	-5.68E-03
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	6.3E+02	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	1.08E+01	0	0	0	0	0

EET	MJ	0	0	1.93E+01	0	0	0	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m3 non-reinforced AAC product

Parameter	Unit	A1-A3	A4	A5	B1	C1	C2	C3	D
PM	Disease incidence	4.56E-06	2.3E-08	4.54E-09	0	2.28E-08	1.14E-08	2.11E-07	-4E-07
IR	kBq U235 eq	3.77E+00	9.65E-03	1.24E-02	0	9.85E-04	4.8E-03	8.04E-02	-8.58E-01
ETP-fw	CTUe	3.98E+02	3.7E+01	5.66E-01	0	3.78E+00	1.84E+01	2.6E+01	-1.9E+01
HTP-c	CTUh	1.99E-08	7.46E-10	4.23E-11	0	7.62E-11	3.71E-10	1.04E-09	-1.12E-09
HTP-nc	CTUh	1.86E-06	3.86E-08	1.44E-09	0	4.62E-09	1.92E-08	8.71E-08	-9.66E-08
SQP	SQP	7.83E+02	1.83E+01	3.78E-01	0	1.87E+00	9.13E+00	8.93E+00	-8.14E+00

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. 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 or 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 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

References

Standards

EN 197-1
EN 197-1:2011, Cement Composition, specifications and conformity criteria for common cements

EN 459-1
EN 459-1:2015, Building lime Definitions, specifications and conformity criteria

EN 680
EN 680:2005, Determination of the drying shrinkage of autoclaved aerated concrete

EN 772-1
EN 772-1:2011+A1:2015, Methods of test for masonry units - Part 1: Determination of compressive strength

EN 772-13
EN 772-13:2000, Methods of test for masonry units - Part 13: Determination of net and gross dry density of masonry units (except for natural stone)

EN 1745
EN 1745:2020, Masonry and masonry products. Methods for determining thermal properties

EN 15804
EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025
EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

PN-H-97021
PN-H-97021:1998, polish version, Aluminium -- Proszek płatkowy do produkcji betonu komórkowego

CPR
REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 2011. Laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

ECHA Candidate List
Candidate List of substances of very high concern for Authorisation(published in accordance with Article 59(10) of the REACH Regulation), https://echa.europa.eu/candidate-list-table, version 17.01.2023

REGULATION (EU) No 528/2012
REGULATION (EU) No 528/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 May 2012 concerning the making available on the market and use of biocidal products

Further References

IBU 2021
Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021
www.ibu-epd.com

O. Kreft, C. Fudge, P. Walczak, 2022
O. Kreft, C. Fudge, P. Walczak, 2022. Roadmap für eine treibhausgasneutrale Porenbetonindustrie in Europa, Mauerwerk, Volume 26, Issue 2, Pages 77-84. https://doi.org/10.1002/dama.202200004

P. Walczak
P. Walczak, AAC Life Cycle: how long can autoclaved aerated concrete buildings be used, 7th ICAAC, Prague, DOI: 10.1002/cepa.2095

PCR Part A
PCR - Part A: Calculation rules for the
Life Cycle Assessment and Requirements on the Background Report, version 1.3, Institut Bauen und Umwelt e.V., 2021.

PCR Part B
PCR – Part B: PCR – Part B: Requirements on the EPD for Aerated Concrete, v1., Institut Bauen und Umwelt e.V., www.bau-umwelt.com, 2023

Sphera LCA FE (GaBi ts)
GaBi ts dataset documentation for the software-system and databases, LBP, University of Stuttgart and thinkstep, Leinfelden-Echterdingen, 2023 (https://www.gabi-software.com/support/gabi).

Additional Documents

P. Walczak, SOLBET Research Center Department, 2022
P. Walczak, SOLBET Research Center Department, 2022. Report of Autoclaved Aerated Concrete Carbonation, Research Center Department - SOLBET, Solec Kujawski, Poland.

DoP of AAC are available on the websites:

www.solbet.pl
www.solbet-lubartow.pl
www.solbet-kolbuszowa.com.pl
www.solbet-stw.pl

Publisher

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Programme holder

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Author of the Life Cycle Assessment

Sphera Solutions GmbH
Hauptstraße 111- 113
70771 Leinfelden-Echterdingen
Germany

+49 711 341817-0
info@sphera.com
www.sphera.com

Owner of the Declaration

SOLBET SP. Z O.O.
Torunska 71
86-050 Solec Kujawski
Poland

+48 52 387 41 00
sekretariat@solbet.pl
www.solbet.pl