

Comparing EPD

ASBP Webinar 08/12/2021

EN 15804 – rules for comparison

Comparison of the environmental performance of construction products using the EPD information shall be based on the product's use in and its impacts on the building, and shall consider the complete life cycle.

Product comparison is possible if:

- ▶ the same functional requirements as defined by legislation or in the client's brief are met, and
- ▶ the environmental performance and technical performance of any assembled systems, components, or products excluded are the same, and
- ▶ the amounts of any material excluded are the same, and excluded processes, modules or life cycle stages are the same; and
- ▶ the influence of the product systems on the operational aspects and impacts of the construction works are taken into account;
- ▶ biogenic carbon content, the potential to carbonate, net calorific value and other inherent properties are considered completely and consistently

Environmental Indicators

Core Impacts

- Global Warming Potential
- Ozone Depletion
- Acidification
- Eutrophication
- POCP
- Abiotic Depletion Fossil and Elements
- Water Scarcity (+A2)

Additional Impacts (+A2)

- Particulate matter
- Ionizing radiation
- Eco-toxicity (freshwater)
- Human toxicity, cancer
- Human toxicity, non-cancer
- Land use/Soil quality

Inventory

- Renewable energy
- Non-renewable energy
- Secondary material
- Secondary fuels
- Freshwater consumption
- Waste
- Recovered outputs

Reporting Results

Actual Number	To 3 Significant Figures	Scientific Notation
0.13274	0.133	1.33E-01 1.33*10 ⁻¹
1343.23	1340	1.34E+03 1.34*10 ⁺³
1.3813	1.38	1.38E+00 1.38*10 ⁺⁰

AIRCRETE

- British Precast – Generic EPD for UK members of Aircrete Products Association
- Mannok – manufacturer specific, product specific EPD
- Forterra – manufacturer specific, average product EPD (expired)



Different formats, common content

ENVIRONMENTAL PRODUCT DECLARATION
as per ISO 14023 and EN 15804

Owner of the Declaration: British Precast Concrete Federation
Publisher: Insitu Beton and Unisek s.r.l. (IBU)
Declaration number: EPD-BPC-20170903-CCDF-EN
Issue date: 12/02/17
Valid to: 12/02/2022

UK Manufactured Precast Aerated Concrete Blocks as produced by members of the Aircrete Products Association (APA) a product group of British Precast

www.bre-epd.com / <https://epd-online.com>






ENVIRONMENTAL PRODUCT DECLARATION
as per ISO 14023 and EN 15804 + A1
Owner of the Declaration - MANNOK

Declaration number EPDIE-18-10
Issue date: 18th Sept 2018
Valid to 18th Sept 2023

EPD Programme - EPD Ireland
Programme Operator - Irish Green Building Council




MANNOK
Aircrete Blocks
Super
Standard
Seven



bre

Environmental Product Declaration
BREG EN EPD No.: 000001
ECO EPD Ref. No.: 000091
Issue: 05
This is to certify that this verified Environmental Product Declaration provided by Forterra Building Products Ltd is in accordance with the requirements of EN 15804:2012+A1:2013

This declaration is for:
Thermalite Autoclaved Aerated Concrete Block (470-770 kg/m³)

Company Address
5 Grange Park Court
Rohams Way
Northampton
NN4 5EA




Signed for BRE Global Ltd: Laura Collins, Director
Date of first issue: 24 February 2014
Date of last issue: 23 February 2019




This verified Environmental Product Declaration is issued subject to terms and conditions for which see www.epdonline.com/conditions. To check the validity of this pre please visit www.epdonline.com/terms or contact us: BRE Global Ltd, Garsington Road, Oxford, OX4 2DQ, UK. T: +44 (0)1865 206000 F: +44 (0)1865 828000 E: enquiries@epdglobal.com

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Let's look at the three EPD

Manufacturer	British Precast APA	Mannok Standard block	Forterra Thermalite
EPD Programme	IBU	EPD Ireland	BRE
Validity			
Verification	External	External	External
Data Collection	2014	2017	2011
Product			
Coverage	Members of British Precast Aircrete Products Association	1 product at 1 UK site	Production at 2 UK sites.

Let's look at the three EPD

Manufacturer	British Precast APA	Mannok Standard block	Forterra Thermalite
EPD Programme	IBU	EPD Ireland	BRE
Validity	To 25 July 2022	To 18 September 2023	To 23 February 2019
Verification	External	External	External
Data Collection	2014	2017	2011
Product	Average precast aerated concrete blocks, 460-760 kg/m ³	Mannok Standard aircrete block (650 kg/m ³) (2 other products have EPD data)	Thermalite Autoclaved Aerated Concrete Block (470-770 kg/m ³)
Coverage	Members of British Precast Aircrete Products Association	1 product at 1 UK site	Production at 2 UK sites.

Let's look at the three EPD

Manufacturer	British Precast APA	Mannok Standard block	Forterra Thermalite
Declared Unit			
Mass of declared unit			
Scaling factor	By product mass	Not applicable	By product mass
Content	Cement, lime, PFA, sand and water	Water, sand, cement, silt, lime, PFA, and aluminium	67-81% PFA, 8-24% cement, 5-11% quicklime, 0-8% sand, hardcore, anhydrite etc.
LCA Info	GaBi 2014	Ecochain tool with ecoinvent 3.4	ecoinvent 2.2

Let's look at the three EPD

Manufacturer	British Precast APA	Mannok Standard block	Forterra Thermalite
Declared Unit	1 m ³ generic aircrete, gross density 600 kg/m ³	1 kg Mannok Standard block	1 tonne Thermalite block
Mass of declared unit	600 kg	1 kg	1000 kg
Scaling factor	By product mass	Not applicable	By product mass
Content	Cement, lime, PFA, sand and water	Water, sand, cement, silt, lime, PFA, and aluminium	67-81% PFA, 8-24% cement, 5-11% quicklime, 0-8% sand, hardcore, anhydrite etc.
LCA Info	GaBi 2014	Ecochain tool with ecoinvent 3.4	ecoinvent 2.2

Let's look at the three EPD

Manufacturer	British Precast APA	Mannok Standard block	Forterra Thermalite
Modules Declared			
Transport to site	86 km, 50% capacity utilisation	n/a	n/a
Wastage	3%	n/a	n/a
RSL	150 years	n/a	n/a
End of life	90% recycling, 10% landfill	n/a	90% recycling, 10% landfill

Let's look at the three EPD

Manufacturer	British Precast APA	Mannok Standard block	Forterra Thermalite
Modules Declared	A1-A5, B1-B5, C1-C4	A1-A3	A1-A3, C4, Module D
Transport to site	86 km, 50% capacity utilisation	n/a	n/a
Wastage	3%	n/a	n/a
RSL	150 years	n/a	n/a
End of life	90% recycling, 10% landfill	n/a	90% recycling, 10% landfill

LCA Indicator results – per DU

	British Precast APA	Mannok Standard block	Forterra Thermalite
Declared unit	1 m ³ (600 kg)	1 kg	1000 kg
GWP A1-A3 (kgCO₂e)			
GWP A4 (kgCO ₂ e)	3.62	n/a	n/a
GWP A5 (kgCO ₂ e)	1.10	n/a	n/a
PERE A1-A3 (MJ)	192	0.797	84.8
PERM A1-A3 (MJ)	0	0	0
PENRE A1-A3 (MJ)	1290	2.44	2650
PENRM A1-A3 (MJ)	0	0	0
SM A1-A3 (kg)	395 kg	INA	211 kg
FW A1-A3 (m ³)	0.528	0.000436	1.66

LCA Indicator results – per DU

	British Precast APA	Mannok Standard block	Forterra Thermalite
Declared unit	1 m ³ (600 kg)	1 kg	1000 kg
GWP A1-A3 (kgCO₂e)	168	0.407	280
GWP A4 (kgCO ₂ e)	3.62	n/a	n/a
GWP A5 (kgCO ₂ e)	1.10	n/a	n/a
PERE A1-A3 (MJ)	192	0.797	84.8
PERM A1-A3 (MJ)	0	0	0
PENRE A1-A3 (MJ)	1290	2.44	2650
PENRM A1-A3 (MJ)	0	0	0
SM A1-A3 (kg)	395 kg	INA	211 kg
FW A1-A3 (m ³)	0.528	0.000436	1.66

Converting to a common declared unit

	British Precast APA	Mannok Standard block	Forterra Thermalite
Declared unit	1 m ³ (600 kg)	1 kg	1000 kg

Let's convert them all to 1 tonne

	British Precast APA	Mannok Standard block	Forterra Thermalite
Conversion factor to 1 tonne	$1000/600 = 1.666$	$1000/1 = 1000$	$1000/1000 = 1$

LCA Indicator results – per tonne

	British Precast APA	Mannok Standard block	Forterra Thermalite
Product	Average precast aerated concrete blocks, 460-760 kg/m ³	Mannok Standard aircrete block (650 kg/m ³) (2 other products have EPD data)	Thermalite Autoclaved Aerated Concrete Block (470-770 kg/m ³)
	1000 kg	1000 kg	1000 kg
GWP A1-A3 (kgCO ₂ e)	280	407	280
GWP A4 (kgCO ₂ e)	6.03 (86 km)	n/a	n/a
GWP A5 (kgCO ₂ e)	1.83	n/a	n/a
PERE A1-A3 (MJ)	320	797	84.8
PENRE A1-A3 (MJ)	2150	2440	2650
Total PE A1-A3 (MJ)	2470	3237	2735
SM A1-A3 (kg)	658	INA	211
FW A1-A3 (m ³)	0.880	0.436	1.66