ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH
ISO 14025:2006 AND **EN 15804:2012+A2:2019/AC:2021** FOR

PRO-BW® PLUS

FROM

Proteus WATERPROOFING

Declaration number: **S-P-07416**

First publication date: 2024/04/09
Latest revision date: 2025/07/21
Valid until: 2029/04/08

Programme: The International EPD® System
www.environdec.com

Programme operator: EPD International AB

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

This Environmental Product Declaration has been verified by an independent third party.

EPD®
THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM
EPD
VERIFIED

INTRODUCTION

This EPD provides environmental performance indicators for Proteus Waterproofing's Pro-BW® Plus waterproofing membrane. It is a single-product EPD, and a cradle-to-gate with modules A4, A5, C1–C4 & D EPD in accordance with the requirements of EN 15804:2012+A2:2019/AC:2021and PCR 2019:14 v 1.3.2

The EPD is based on a life cycle assessment (LCA) study which used production data for a 12-month period between 1 April 2021 and 31 March 2022, from manufacturing facilities in the UK. Background data were taken from the ecoinvent database (v3.8, cut-off allocation model).

The EPD presents details of the LCA, a description of the product life cycle it covers, values for the environmental indicators specified by EN 15804 and a brief explanation of those results.

Programme Information	
EPD programme	The International EPD® System
EPD programme operator	EPD International AB - Box 210 60 - SE 100 31 Stockholm - Sweden www.environdec.com | info@environdec.com
Accountabilities for PCR, LCA and independent, third-party verification	
EPD based on Product Category Rules	The CEN standard EN 15804 serves as the core PCR
	The International EPD® System's PCR 2019:14 Construction products (EN 15804:A2) V1.3.2 2023-12-08
PCR review conducted by	The Technical Committee of the International EPD® System contact via info@environdec.com
LCA conducted by	EuGeos srl, Belgium | www.eugeos.eu
LCA software	openLCA
Background database	ecoinvent v3.8
EPD verification	Independent verification of this EPD and data, according to ISO 14025:2006: ☐ EPD process certification ■ EPD verification
Third party verifier	Matt Fishwick, Fishwick Environmental Ltd, UK, Recognized Individual Verifier
Approved by	The International EPD® System
Procedure for data follow-up during EPD validity	Involves third party Verifier: ☐ Yes ■ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

COMPANY PROFILE

Proteus Waterproofing, established in 2010 and based in Essex, UK, is a leading provider of waterproofing and insulation systems for both new build and refurbishment projects. The company offers a comprehensive range of solutions, including hot and cold applied liquid membrane technologies, reinforced bitumen membrane systems, and innovative green and blue roof systems. The company is committed to quality, evidenced by rigorous testing and BBA accreditation, and provides extensive technical support and training for contractors. Proteus Waterproofing's mission is to deliver high-quality, innovative waterproofing solutions with excellent customer service, aiming for minimal environmental impact and long-lasting performance. Proteus Waterproofing's management systems are certified to ISO 9001 and ISO14001.

CONTACT

Proteus Waterproofing Limited
21a Sirdar Road
Brook Road Industrial Estate
Rayleigh
Essex SS6 7XF, United Kingdom

website: www.proteuswaterproofing.co.uk
email: enquiries@proteuswaterproofing.co.uk
phone: +44 (0)1268 777871

PRODUCT INFORMATION

This EPD applies to Proteus Waterproofing's Pro-BW® Plus waterproofing system produced in the UK, using raw materials sourced from Europe.

Proteus Waterproofing's Pro-BW® Plus is a liquid hybrid-polymer cold-applied rapid-curing waterproofing system that provides a protective, colourfast, UV-stable and skid-inhibiting surface for flat roofs, balconies and walkways. It is suitable for a range of substrates, including concrete, timber and asphalt.

Proteus Pro-BW® Plus system is covered by **BBA 22/6183**. The system will achieve an initial life expectancy, for an exposed roof, of **at least 25 years**. When fully protected and subjected to normal service conditions in an inverted roof specification with an open covering (e.g. aggregate pavers), the system can provide an effective barrier to the transmission of liquid water and water vapour **for the design life of the roof** in which it is incorporated.

PRODUCT DESCRIPTION

Proteus Waterproofing's Pro-BW® Plus system comprises 3 components:

- **resin** (Pro-BW® Plus Resin)
- **catalyst** (Pro-BW® Catalyst)
- **glass fibre reinforcement mat** (Pro-Force 450)

A resin base coat is first mixed with catalyst and applied to the surface. Whilst still wet, it is reinforced with a glass fibre reinforcement mat. After curing, a further resin coat (top coat), also mixed with catalyst, is applied to achieve the required overall dry film thickness for the system. Both base and top coats are made from the same resin material and require catalyst.

A primer is applied to some substrates before the base coat, while aggregate and an additional sealer can be applied after the top coat on roofs or terrace areas that will be exposed to pedestrian traffic, or where additional protection and skid-inhibiting properties are required.

Proteus Waterproofing's Pro-BW® Plus is classified CPC 3695 (*Builders' ware of plastics n.e.c*) under the UN CPC classification system v2.1.

MANUFACTURING

In the manufacture of Pro-BW® Plus, raw materials are mixed under high-shear to form the resin. The resin mix is filtered then packed in steel containers. The catalyst and glass fibre chopped strand matting are packed separately and shipped with the resin, to be introduced at installation.

PACKAGING & TRANSPORTATION

The resin is packed in steel pails, the glass fibre mat rolled on cardboard cores then protected with plastic film, and the catalyst is supplied in plastic bags. All the components are shipped on reconditioned wood pallets, restrained with plastic wrapping.

INSTALLATION

Proteus Pro-BW® Plus is a cold-applied waterproofing system. Immediately prior to installation, the catalyst is mixed into the resin. The resin base coat is applied by roller, then the glass fibre mat applied to the wet resin. The resin top coat is applied by roller once the base coat has cured. The full instructions in Proteus Pro-BW® Plus Application Guide must be followed, respecting the limitations and safety measures on site specified in that Guide.

PRODUCT USE AND MAINTENANCE

Standard maintenance procedure applies. For detailed Proteus Pro-BW® Plus maintenance guidance, please refer to relevant supporting documentation made available by Proteus Waterproofing.

Under normal service conditions, the system will provide a durable waterproof covering with a service life of at least 25 years when exposed.

END-OF-LIFE

It is very likely that the Pro-BW® Plus waterproofing system will be in place until the building is demolished as it can be easily overlaid when no longer serviceable. At the point of demolition, separate removal is considered unlikely. The substrate and waterproofing layer may therefore be recovered for use as aggregate, or disposed as mixed material.

European Waste Catalogue (EWC) code17 09 04 applies to Pro-BW® Plus waterproofing when removed from the building.

RESIDUAL RISKS AND EMERGENCIES

There are no residual risks associated with the normal day-to-day use of Pro-BW® Plus.

Care must be taken to select materials in accordance with their declared properties, follow the full instructions in the Proteus Pro-BW® Plus Application Guide and any comply with other associated regulations.

FURTHER PRODUCT INFORMATION

Detailed product information can be found:

- Proteus website: www.proteuswaterproofing.co.uk
- NBS Source: Proteus NBS Source
- or by contacting: enquiries@proteuswaterproofing.co.uk
  +44 (0)1268 777871

LCA INFORMATION

This section of the EPD records key features of the LCA on which it is based. The LCA was carried out by EuGeos using openLCA software and production data for 2021/04/01 to 2022/03/31 from the manufacturing facility in the UK. Background data were taken from the ecoinvent database (v3.8).

DECLARED UNIT

The declared unit is one square metre (1m^2) of standard Pro-BW® Plus waterproofing system, installed for a typical application.

This involves recommended application rates of base coat (1.5 l/m^2 resin), glass fibre reinforcement (450 g/m^2), top coat (0.5 l/m^2 resin) and 4% catalyst per litre of resin (the maximum dose recommended for any application).

CONTENT INFORMATION

The material composition for the declared unit (DU) of Pro-BW® Plus waterproofing system, including delivery packaging, is shown below:

Components/Materials	Weight (kg/DU)	Post-consumer material, weight (%)	Biogenic material (weight-% and kg C/DU)
Polymeric resin	1 - 1.1	0	0
Additives	1.5 - 1.7	0	0
of which dicyclohexyl phthalate*	0.03 - 0.05	0	0
Glass fibre	0.45 - 0.55	0	0
Monomer	0.03 - 0.15	0	0
Others	0.05 - 0.15	0	0
TOTAL	**3.3**	**0**	**0**
Packaging	**Weight (kg/DU)**	**Weight (versus the product) (%)**	**Weight biogenic material, (kg C/DU)**
Steel container	0.25	10	0
Plastic wrapping	<0.05	<1	0
Cardboard	<0.01	<1	<0.01
Pallet (wood)	0.08	2	0.04
TOTAL	**0.4**	**12**	**0.04**

* Dicyclohexyl phthalate (CAS N0. 84-61-7) is included in the Candidate List of Substances of Very High Concern for authorization under the REACH Regulations

LCA SCOPE

This EPD covers the production stage (modules A1-A3), construction stage (modules A4 & A5) and end-of-life management (C & D). Module D provides an estimate of the potential benefits that would accrue to a different product system were the product constituents recycled or recovered at current rates and using current technologies after the product's removal from the building.

Product stage			Construction process stage		Use stage							End of life stage				Benefits & loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste treatment	Disposal	Reuse- recovery- recycling- potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared																
X	**X**	**X**	**X**	**X**	ND	ND	ND	ND	ND	ND	ND	**X**	**X**	**X**	**X**	**X**
Geography																
GLO	**GLO**	**GB**	**GB**	**GB**	-	-	-	-	-	-	-	**GB**	**GB**	**GB**	**GB**	**GB**
Specific data used*																
<10%			**-**	**-**	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products																
n/a			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites																
n/a			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X included in LCA
ND module not declared
GLO Global
GB Great Britain
* the share of the GWP-GHG indicator derived from specific data, as defined in the PCR

GEOGRAPHICAL SCOPE

Modules A1 - A3 represent production at the manufacturing facilities in the UK from raw materials sourced from European suppliers and global supply-chains of basic commodities; modules A4 & A5 delivery and installation in the UK, modules C & D end-of-life scenarios in the UK.

SYSTEM BOUNDARIES

The system boundary of the EPD is defined using the modular approach set out in EN 15804.

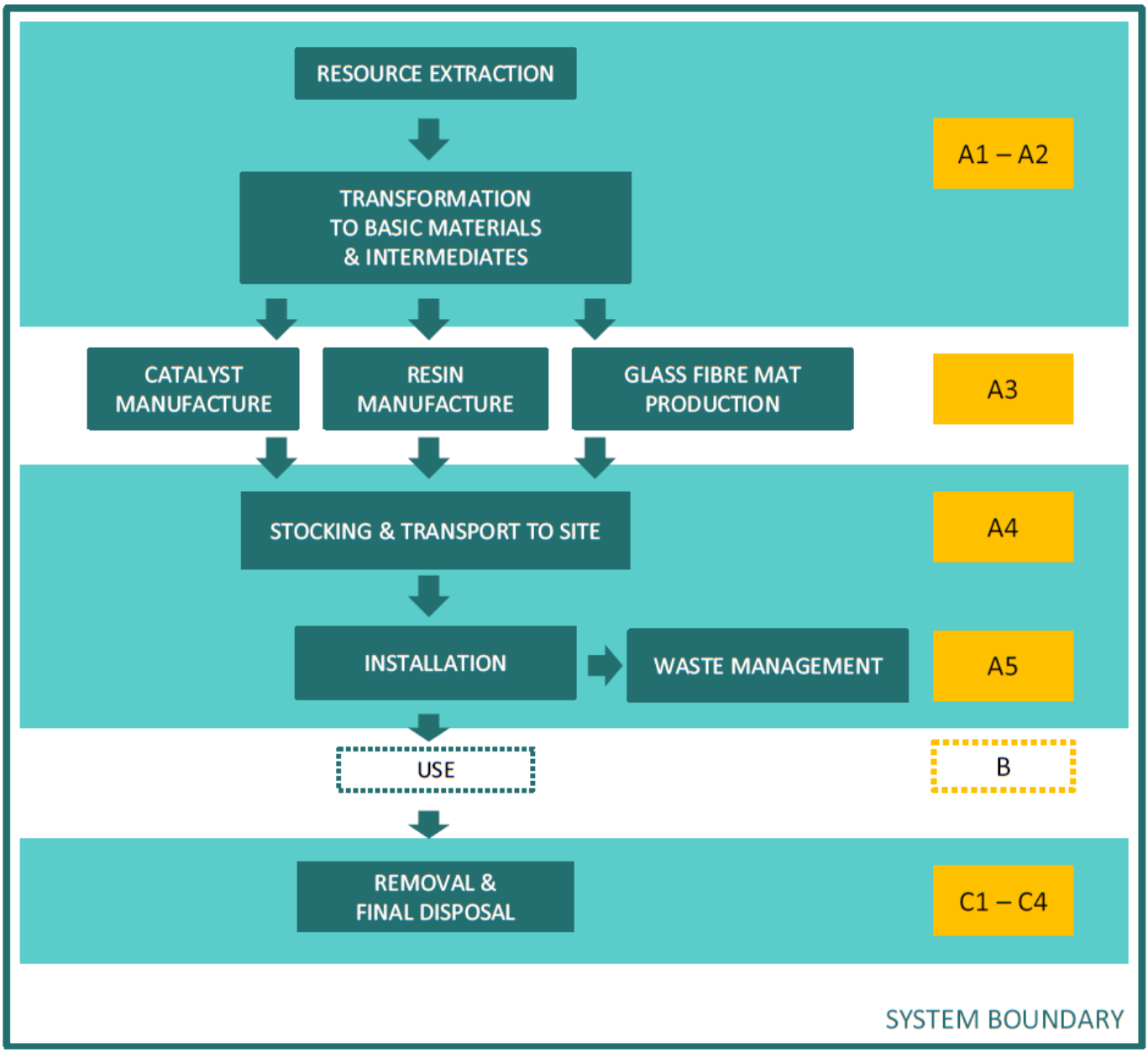
Modules A1, A2 and A3 comprise the product stage and are declared as one aggregated module A1 – A3, as required by the PCR. This stage includes the extraction and manufacture of raw materials, intermediate products and energy, as well as waste processing up to the end-of-waste state (i.e. no longer considered a waste material) or disposal of final residues arising during the product stage.

Modules C1 - C4 cover the end-of-life stage.

Module D provides an estimate of the benefits (and/or environmental load) that would accrue to a different product system were the product be recycled after use at current recycling rates and using current technologies.

All upstream resource extraction and manufacturing processes are included in the system. All energy used in manufacturing is included. Capital equipment and its maintenance are excluded from the modelling of Proteus' activities, those of its supplier, and installation. Capital equipment is included in background datasets.

The product life cycle covered by this EPD is illustrated below.



DATA SOURCES AND DATA QUALITY

PRIMARY DATA

Data characterising core processes (see above figure) were collected for a continuous 12-month period between 2021/04/01 and 2022/03/31. The data have therefore been updated within the last 5 years.

The collected data encompassed all raw materials used for Proteus Waterproofing's Pro-BW® Plus, packaging materials and process aids, as well as associated transport to the manufacturing site.

These data were checked to ensure that sufficient materials and water are included within the inputs to account for all products, wastes and emissions.

BACKGROUND DATA

Background (generic) data were taken from the ecoinvent database (v3.8); this fulfils the EN 15804 requirement that generic data used in the LCA have been updated within the last 10 years.

The quality of generic data has been reviewed; where necessary, data in the core ecoinvent database has been adjusted to better reflect the information provided about specific inputs.

CUT-OFF CRITERIA

Process energy and direct production wastes are included within the data.

According to EN 15804 and the PCR, flows can be omitted (cut off) from a core process in the LCA up to a maximum of 1% of the total mass of material inputs or 1% of the total energy content of fuels and energy carriers, up to a cumulative total of 5%; some ancillary materials used in small quantities within the process and amounting, in combination, to <0.5% of total input materials were omitted from the LCA underpinning this EPD.

ALLOCATION

In the background data, the ecoinvent default allocation is applied to all processes except those in which secondary materials are used, where the "cut-off" allocation is applied. This ensures that secondary materials are free of upstream burdens that arise prior to their reaching the "end of waste" state, in accordance with Section 6.3.4.2 of EN 15804.

In the foreground system, where allocation cannot be avoided, it is carried out on a mass basis.

ASSUMPTIONS AND ESTIMATES

Inputs to and outputs from the system are accounted for over a 100-year time period; long-term emissions are therefore omitted from the impact assessment part of the LCA, except for biogenic carbon-containing flows, which are accounted for on an indefinite timeframe.

The "primary energy used as material" indicators (PERM; PENRM) are calculated using - as characterisation factors - published values for constituent materials which can yield energy on combustion, where available, and from published calorific values where PE(N)RM values are not available. In this study, calculations of PERM and PENRM are based on NCV of 14MJ/kg for wood, 16MJ for cardboard, 27MJ/kg for the polymer in Pro-BW® Plus resin, 50MJ/kg for polyethylene and polypropylene. "Primary energy as fuel" indicators (PENRE, PERE) are calculated as the total primary energy demand minus primary energy used as material.

SCENARIOS

Transport to customers, waste processing, waste treatment and final disposal are modelled using scenarios.

MODULE A4

Module A4 uses primary data from Proteus for its own activities as a distributor, together with a scenario for transport from Proteus warehouse to the construction site. The parameters applied in this scenario are set out in the table below.

Scenario parameters – Transport Module A4	
Parameter	**Quantity & unit** (per declared unit)
Vehicle type	lorry 7.5 - 16 metric ton, EURO5
Fuel type and consumption	diesel / 0.1 l/km
Capacity utilisation (including empty returns)	c.30% / 1t average load
Distance travelled	100 km road
Bulk density of transported products	1300 kg/m-^{3}

MODULE A5

Installation of the Proteus' Pro-BW® Plus waterproofing system is modelled for the standard version, comprising only of base coat (1.5 l/m^2 resin), glass fibre reinforcement (450 g/m^2), top coat (0.5 l/m^2 resin) and catalyst at 4% per litre of resin (the maximum dose recommended for any application).

The catalyst is mixed into the resin using an electric mixer. A 1500W mixer and 3 minutes of mixing per each 5l container of Pro-BW® Plus Resin are assumed, equivalent to electricity use of 30 Wh/m^2.

Pro-BW® Plus Resin is then applied by hand using a brush or roller.

The product constituents included to allow for wastage are assumed to be disposed to landfill, as are empty containers and the catalyst spoon. This disposal is included in module A5. Pallets are assumed to stay with the product to installation, following which 90% of pallets are assumed to be re-used (and counted as materials for recycling) while 10% are disposed by incineration. Module A5 includes a release of biogenic CO_2 to balance all CO_2 absorbed into the wood used for pallets in Module A1.

MODULES C

The end-of-life modules are based on the assumption that the waterproofing membrane will be managed with the substrate onto which it is applied; it could therefore either be recovered for use as aggregate or disposed as mixed material. As a conservative approach, it is assumed that 100% of the product is landfilled.

If the membrane is removed wholly or partially, it is expected that it will be scraped off manually; if it is not removed, then the energy attributed to deconstructing the membrane compared to the overall demolition will be effectively negligible. Therefore no impacts are attributed to module C1.

Because it is assumed that the product is disposed to landfill, it is also assumed that it undergoes no treatment. Therefore no impacts are attributed to module C3.

The main assumptions applied in Modules C1-C4 are summarised in the table below, including details of the scenario for Module C2.

Processes	Quantity & unit (per declared unit of product)
Collection process (by type)	0 kg collected separately
	3.3 kg collected with mixed construction waste
Recovery	0 kg recovered
Disposal	3.3 kg for final deposition in landfill
Assumptions for waste transport scenario development (C2)	Vehicle type: lorry Fuel type and consumption: diesel, 0.1 l/km Distance: 50 km Bulk density of transported products: 1300 kg/m^3

MODULE D

Because there is no recycled content in the product, and 100% disposal to landfill is assumed, no secondary material or energy crosses the system boundary. Therefore there are no potential benefits or loads to report in Module D.

ELECTRICITY MODELLING

Electricity is modelled as the residual mix for the UK from 2021 as reported by the Association of Issuing Bodies (2022). Overall, the fuel mix used in electricity generation is 0.8% oil, 2.7% biomass, 2.1% solar, 2.5% lignite, 24.2% nuclear, 67.8% natural gas. The carbon footprint of the delivered electricity (GWP-GHG) is 0.44 kg CO_2e/kWh. Electricity consumed in Module A3 accounts for approximately 1% of the A1-A3 GW-GHG indicator and is of very low significance in this LCA.

ENVIRONMENTAL INDICATORS

This EPD contains environmental information about Proteus Waterproofing's Pro-BW® Plus system in the form of quantitative indicator values for a number of parameters, which encompass calculated environmental impact potentials, resource and energy use, waste generation and material and energy outputs from the product system that may be reused, recycled or recovered into other, unspecified product life cycles.

Environmental impact potentials are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Environmental indicator results for all declared modules are shown in tables on the following pages for the declared unit of 1m^2 of Proteus Waterproofing's Pro-BW® Plus system; the EN 15804 reference package based on EF 3.0 was applied. A1 - A3 modules are shown on an aggregated basis as mandated by PCR 2019:14 §5.4.5; results for modules A1 - A3 should not be used without considering the results of module C.

INTERPRETATION OF THE LCA RESULTS

The environmental indicator results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

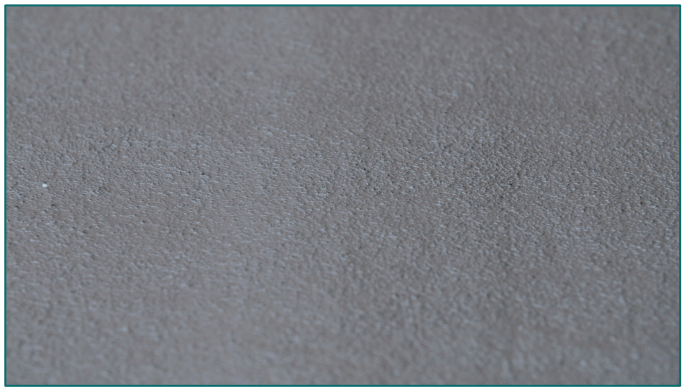
Indicator values obtained for resource depletion (ADPMM, ADPFF), stratospheric ozone depletion (ODP) and water deprivation (WDP) potential should be used with caution; all are subject to uncertainties in data or method which limit the scope for their use as the basis for comparisons.

Upstream activities contribute strongly to the environmental indicator values obtained. Evaluation of the available data representing these activities identified various sources of uncertainty which influence the indicator values reported in this EPD. The uncertainty in those indicator values is considered to be at least +/- 10% for the climate change category, and is likely higher for other categories.

No untreated wastes leave the modelled system, which includes waste treatment activities as required by EN 15804. The waste indicators HWD, NHWD and TRWD presented in this EPD therefore represent waste flows *within* the modelled system.

PRODUCT PHOTOS






ENVIRONMENTAL IMPACTS EN 15804 + A2 (MANDATORY)		Unit	A1 - A3	A4	A5	C1	C2	C3	C4	D
Climate change – GWP fossil	GWP-fossil	kg CO_2 eq	1.23E+01	4.02E-01	2.76E-02	0.00E+00	3.43E-02	0.00E+00	3.44E-01	0.00E+00
Climate change – GWP biogenic	GWP-biogenic	kg CO_2 eq	2.08E-02	5.47E-03	1.19E-02	0.00E+00	1.55E-05	0.00E+00	3.20E-04	0.00E+00
Climate change – GWP land transformation	GWP-luluc	kg CO_2 eq	8.04E-03	1.80E-04	3.76E-06	0.00E+00	1.59E-05	0.00E+00	6.34E-05	0.00E+00
Climate change – GWP total	GWP-total	kg CO_2 eq	**1.23E+01**	**4.08E-01**	**3.95E-02**	**0.00E+00**	**3.43E-02**	**0.00E+00**	**3.45E-01**	**0.00E+00**
Ozone depletion	ODP	kg CFC-11 eq`	1.37E-06	8.54E-08	1.45E-09	0.00E+00	7.71E-09	0.00E+00	1.08E-08	0.00E+00
Acidification potential	AP	mol H^+ eq	6.46E-02	1.52E-03	4.41E-05	0.00E+00	1.40E-04	0.00E+00	4.00E-04	0.00E+00
Eutrophication – freshwater	EP-freshwater	kg P eq	3.13E-03	3.93E-05	6.90E-06	0.00E+00	2.57E-06	0.00E+00	1.14E-05	0.00E+00
Eutrophication – marine	EP-marine	kg N eq	1.09E-02	4.60E-04	1.76E-03	0.00E+00	3.97E-05	0.00E+00	5.76E-02	0.00E+00
Eutrophication – terrestrial	EP-terrestrial	mol N eq	1.13E-01	4.85E-03	1.60E-04	0.00E+00	4.30E-04	0.00E+00	1.42E-03	0.00E+00
Photochemical ozone formation	POFP	kg NMVOC eq	4.26E-02	1.48E-03	4.78E-05	0.00E+00	1.30E-04	0.00E+00	4.50E-04	0.00E+00
Depletion of abiotic resources - minerals & metals *	ADPMM	kg Sb eq	1.70E-04	1.74E-06	3.13E-08	0.00E+00	1.56E-07	0.00E+00	1.76E-07	0.00E+00
Depletion of abiotic resources - fossil fuels *	ADPFF	MJ, ncv	2.26E+02	6.21E+00	3.48E-01	0.00E+00	5.25E-01	0.00E+00	1.06E+00	0.00E+00
Water (user) deprivation potential *	WDP	m^3 world-eq deprived	8.34E+00	3.67E-02	3.39E-03	0.00E+00	2.61E-03	0.00E+00	4.00E-02	0.00E+00
ENVIRONMENTAL IMPACT (ADDITIONAL)		**Unit**	**A1 - A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Climate change - GWP-GHG **	GWP-GHG	kg CO_2 eq	1.21E+01	4.07E-01	3.95E-02	0.00E+00	3.43E-02	0.00E+00	3.44E-01	0.00E+00

* The results of this environmental impact indicator shall be used with care because either the uncertainties associated with the results are high or there is limited experience with the indicator

** GWP-GHG includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013

RESOURCE USE		Unit	A1 - A3	A4	A5	C1	C2	C3	C4	D
Renewable primary energy as energy carrier	PERE	MJ	1.29E+01	1.15E-01	1.42E-02	0.00E+00	8.64E-03	0.00E+00	3.74E-02	0.00E+00
Renewable primary energy resources as material utilisation	PERM	MJ	1.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total renewable primary energy use	PERT	MJ	**1.41E+01**	**1.15E-01**	**1.42E-02**	**0.00E+00**	**8.64E-03**	**0.00E+00**	**3.74E-02**	**0.00E+00**
Non-renewable primary energy as energy carrier	PENRE	MJ	1.51E+02	6.21E+00	3.48E-01	0.00E+00	5.25E-01	0.00E+00	1.06E+00	0.00E+00
Non-renewable primary energy resources as material utilisation	PENRM	MJ	7.51E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total non-renewable primary energy use	PENRT	MJ	**2.26E+02**	**6.21E+00**	**3.48E-01**	**0.00E+00**	**5.25E-01**	**0.00E+00**	**1.06E+00**	**0.00E+00**
Use of secondary material	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	1.48E-01	2.11E-03	2.65E-05	0.00E+00	1.90E-04	0.00E+00	3.90E-04	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	FW	m^3	2.00E-01	9.30E-04	8.17E-05	0.00E+00	6.61E-05	0.00E+00	9.80E-04	0.00E+00

WASTES		Unit	A1 - A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	1.71E+01	1.99E-01	3.34E-02	0.00E+00	1.35E-02	0.00E+00	5.77E-02	0.00E+00
Non-hazardous waste disposed	NHWaDa	kg	1.46E+00	2.54E-01	1.24E-01	0.00E+00	2.14E-02	0.00E+00	3.23E+00	0.00E+00
Radioactive waste disposed	TRWD	kg	8.36E-03	2.30E-04	6.73E-05	0.00E+00	1.15E-05	0.00E+00	3.46E-05	0.00E+00
OUTPUT FLOWS		**Unit**	**A1 - A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	3.50E-01	0.00E+00	6.96E-05	0.00E+00	0.00E+00	0.00E+00	9.30E-04	0.00E+00
Materials for energy recovery	MER	kg	7.81E-02	0.00E+00	2.24E-05	0.00E+00	0.00E+00	0.00E+00	2.40E-04	0.00E+00
Exported energy - electrical	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

For information, indicator values calculated using the methods prescribed in the earlier version of EN 15804 (EN 15804+A1:2013) are provided in the table below for the declared unit of 1m^2 of Proteus Waterproofing's Pro-BW® Plus system; modules A1 - A3 are shown on an aggregated basis.

ENVIRONMENTAL IMPACTS EN 15804 + A1		Unit	A1 - A3	A4	A5	C1	C2	C3	C4	D
Global warming potential	GWP	kg CO_2-eq	1.18E+01	4.01E-01	3.02E-02	0.00E+00	3.40E-02	0.00E+00	2.50E-01	0.00E+00
Depletion potential of the stratospheric ozone layer	ODP	kg CFC11-eq	1.37E-06	8.54E-08	1.45E-09	0.00E+00	7.71E-09	0.00E+00	1.08E-08	0.00E+00
Acidification potential of land and water	AP	kg SO_2-eq	5.75E-02	1.21E-03	4.04E-05	0.00E+00	1.10E-04	0.00E+00	4.10E-04	0.00E+00
Eutrophication potential	EP	kg PO_4^{3-}-eq	1.56E-02	3.20E-04	1.21E-03	0.00E+00	2.40E-05	0.00E+00	3.52E-02	0.00E+00
Formation potential of tropospheric ozone photochemical oxidants	POCP	kg ethene-eq	3.81E-03	5.13E-05	5.10E-06	0.00E+00	4.48E-06	0.00E+00	5.17E-05	0.00E+00
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb-eq	1.70E-04	1.74E-06	3.13E-08	0.00E+00	1.56E-07	0.00E+00	1.76E-07	0.00E+00
Abiotic depletion potential for fossil resources	ADPF	MJ	2.26E+02	6.21E+00	3.48E-01	0.00E+00	5.25E-01	0.00E+00	1.06E+00	0.00E+00

REFERENCES

European Residual Mixes 2021, Version 1.0, 2022-05-31 - Association of Issuing Bodies, 2022

ecoinvent database (v3.8) - www.ecoinvent.ch

EN 15804:2012 + A1:2013 and EN 15804:2012 + A2:2019 - Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products

General Program Instructions, V4.0, 2021-03-29 - The International EPD® System - EPD International AB

ISO 9001:2015 - Quality management systems - Requirements

ISO 14001:2015 - Environmental management systems – Requirements with guidance for use

Pro-BW® Plus BBA: 22/6183

ISO 14025:2009-11 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures

Pro-BW® Plus Waterproofing LCA (2024) - Report for Proteus Waterproofing Ltd. | EuGeos srl

PCR 2019:14 Construction products (EN 15804:A2) V1.3.2 2023-12-08 - The International EPD® System - EPD International AB

GLOSSARY

The International EPD® System: a programme for Type III environmental declarations, maintaining a system to verify and register EPDs as well as keeping a library of EPDs and PCRs in accordance with ISO 14025 (www.environdec.com).

Life cycle assessment (LCA): LCA studies the environmental aspects and quantifies the potential impacts (positive or negative) of a product (or service) throughout its entire life. ISO standards ISO 14040 and ISO 14044 set out conventions for conducting LCA.

REACH Regulation: REACH is the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force in 2007, replacing the former legislative framework for chemicals in the EU.

VERSIONS

2024/04/09	Original version
2025/07/21	Pro-BW® Plus BBA certificate number was updated from 18/5574 to 22/6183 (page 3 and 16)

Proteus Waterproofing Limited
21a Sirdar Road
Brook Road Industrial Estate
Rayleigh
Essex SS6 7XF
UK

www.proteuswaterproofing.co.uk
enquiries@proteuswaterproofing.co.uk
+44 (0)1268 777871