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Environmental Product Declaration

In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021, and ISO 21930:2017

FENIX® NTM 12 mm black core

Arpa Industriale S.p.A.

By Nemho, center of excellence for innovation and technology for Broadview Holding B.V.

Programme	The International EPD® System www.environdec.com
Programme operator	EPD International AB
EPD registration number	S-P-09533
Publication date	2023-10-03
Revision date	2024-10-28 (Version 4)
Valid until	2028-10-02

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

EPD®

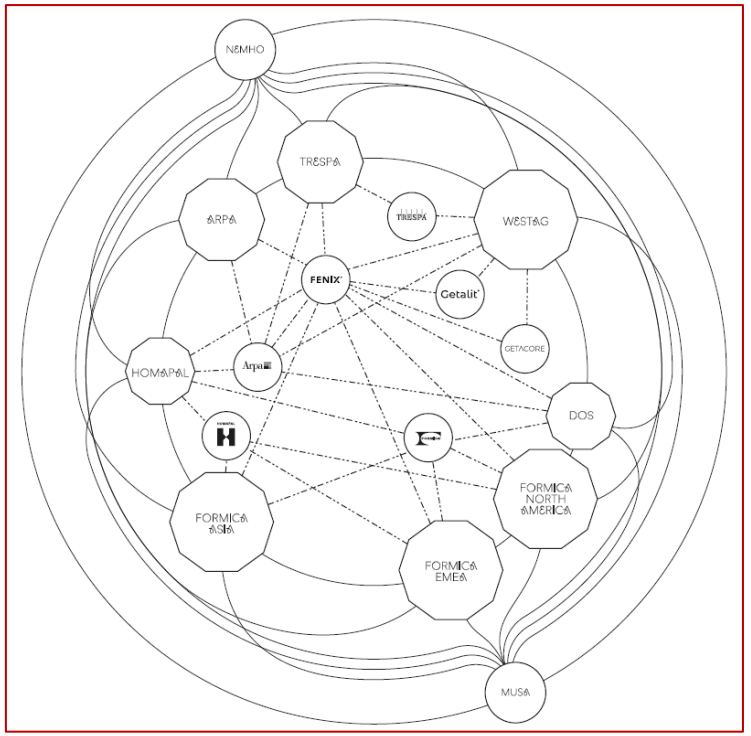
ECO PLATFORM EPD VERIFIED

NEMHO

Nemho is located in Weert in the Netherlands and it is the Innovation Centre of the material companies of the Broadview Holding, namely Arpa Industriale S.p.A. (will be referred to as Arpa from here on), Trespa International, Formica, Homapal, Westag and DOS. Nemho carries out all sustainability-related activities, including LCA studies, for the above-mentioned companies.

Nemho is the owner of this EPD.

Contact Person: Sara Corrado (s.corrado@nemho.com).



ARPA INDUSTRIALE S.P.A.

Since 1954, Arpa Industriale S.p.A. has been designing and manufacturing high-quality surface materials for a vast array of interior design uses. It offers a wide range of extremely diversified products, both in terms of structure and aesthetics. Arpa is also the creator of FENIX®, the innovative materials for interior design. Arpa Industriale S.p.A. decorative laminates are made in the 150,000 m^2 plant in Bra, Piedmont, and are the expression of the vivid and original Italian creativity. Over 65 years of investments in research, advanced technology, and personnel training have allowed Arpa to consolidate its reputation as a highly reliable player in the industry.

Arpa Industriale S.p.A. is, amongst other certification schemes, certified according to ISO 9001:2015, FSC, PEFC, and ISO 45001.

FENIX® NTM 12 MM BLACK CORE

FENIX® NTM 12 mm black core is made of paper (over 60%) and thermosetting resins (30 - 40%). The FENIX products are created by a pressing process in which heat and pressure are applied simultaneously in order to obtain a homogeneous non-porous product.

The core structure is composed of paper, impregnated with thermosetting resins. The outer colored surface is treated with next generation acrylic resins, which are hardened and fixed through an Electron Beam Curing process

Created with proprietary technologies, FENIX makes you experience unique features. At first glance, the surfaces strike for their super-matt appearance. By touching them, you feel how pleasantly soft they are, with the further surprise of leaving no fingerprints. Thermal healing of superficial micro-scratches is also possible.

FENIX NTM 12 mm black core is used for interior design horizontal and vertical applications.

PRODUCT IDENTIFICATION:

High pressure decorative thin and solid panels tested in accordance with the European standard EN 438 part 4 and solid panels partially CE marked according to EN 438 part 7.

UN CPC CODE

Not applicable.

LOW LIGHT REFLECTIVITY, EXTREMELY MATT SURFACE

SOFT TOUCH

ANTI-FINGERPRINT

THERMAL HEALING OF SUPERFICIAL MICRO-SCRATCHES

METHODOLOGY

This EPD has been developed based on the PCR for construction products 2019:14, Version 1.2.5.

DECLARED UNIT

The declared unit is 1 square meter of finished panel, 12 mm thick, weighing 17.5 kg, plus primary packaging. All the possible product décor layers, different for the color and for the finishing, are covered by this EPD.

FENIX NTM 12mm black core is produced by Arpa in the production plant located in Bra (Italy).

REFERENCE SERVICE LIFE

Not applicable.

TIME REPRESENTATIVENESS

Data used for the LCA calculation refer to the production year 2023.

DATA, DATABASE(S) AND LCA SOFTWARE

Activities under the direct control of the company are modelled using specific data.

The LCA study was performed with the support of the Simapro LCA software (version 9.5).

Generic data are taken from Ecoinvent 3.9.1 ad Carbon Minds database.

ELECTRICITY MODELLING

Electricity used at Arpa comes partially from the grid and partially is generated onsite through PV panels. The grid electricity mix is modelled based on guarantees of origin (GOs) purchased by Arpa in 2023 and includes the 100% of solar electricity.

ALLOCATION APPROACH

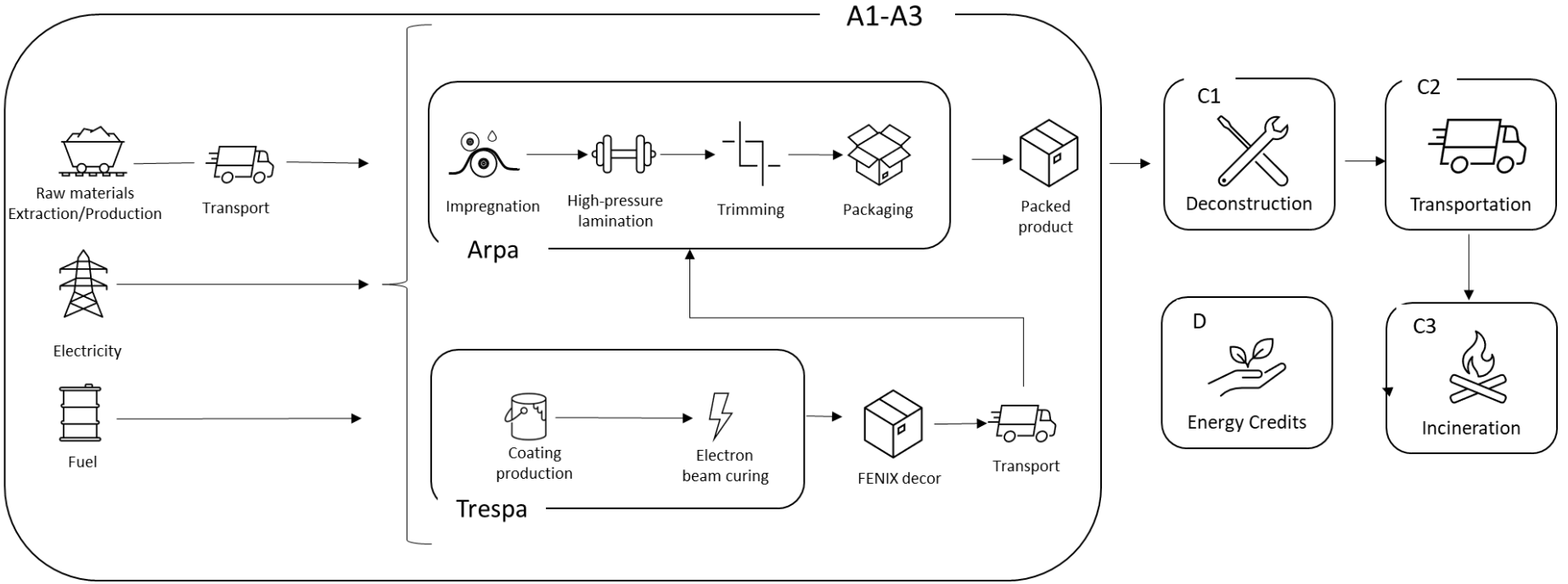
Environmental impacts of multi-output processes at the plant level are allocated to the outputs based on their mass.

SYSTEM BOUNDARIES

The system boundaries of this EPD are from cradle to gate with modules C1–C4 and module D (A1–A3 + C + D).

The product stage (modules A1-A3) includes the manufacturing process of FENIX NTM 12mm black core, carried out in the plants of Arpa located in Bra (Italy), the production of raw materials, electricity, and natural gas.

The deconstruction of FENIX NTM 12mm black core (module C1) is modelled according to Gervasio et al. (2018). The transport of the panels at the end of life (module C2) assumed an average transport distance equal to 100km. FENIX is commonly used as secondary material for energy recovery, therefore it is assumed that at the end of life is sent to incineration (module C3). Loads from material incineration and resulting energy credits (module D) are declared. Energy credits are calculated considering a lower heating value (LHV) of panels equal to 19 MJ/kg as showed by an incineration test run internally with the support of BioMassaKraftcentrale (Germany, Luhnen).



MODULES DECLARED, GEOGRAPHICAL SCOPE, SHARE OF SPECIFIC DATA (IN GWP-GHG INDICATOR) AND DATA VARIATION

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	ITA	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	n.a.			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: module declared, ND: module not declared, n.a: not applicable

CONTENT INFORMATION

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Paper/woodchips	11,233 ± 0,225	0%	64.1% ± 1.3% 0.262 ± 0.005
Phenolic resin	5,911 ± 0,118	0%	0% 0
Melamine resin	0,388 ± 0,008	0%	0% 0
TOTAL	**17,532 ± 0,351**	**0**%	**64,1% ± 1,3%** **0.262 ± 0.005**

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Plastic film	0.117	0.7%	0.0%
Cardboard	0.117	0.1%	3.6%
Ledorex	0.081	0.5%	17.5%
TOTAL	**0.214**	**1.2%**	**21.1%**

FENIX NTM 12mm black core does not contain substances listed on the candidate list of Substances of Very High Concern, as published on the ECHA website, in concentrations exceeding 0.1 percentage by mass.

ENVIRONMENTAL PERFORMANCE

POTENTIAL ENVIRONMENTAL IMPACT – MANDATORY INDICATORS ACCORDING TO EN 15804

Results per 1 m² FENIX NTM 12 mm black core							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Climate change – total	kg CO_2 eq.	3,30E+01	1,14E+00	1,86E-01	3,23E+01	0,00E+00	-1,25E+01
Climate change - fossil	kg CO_2 eq.	5,47E+01	1,14E+00	1,86E-01	1,06E+01	0,00E+00	-1,25E+01
Climate change – biogenic	kg CO_2 eq.	-2,17E+01	0,00E+00	0,00E+00	2,17E+01	0,00E+00	0,00E+00
Climate change – land use and land use change	kg CO_2 eq.	6,44E-02	2,31E-03	8,63E-05	9,02E-05	0,00E+00	-1,30E-02
Ozone depletion	kg CFC 11 eq.	8,19E-06	7,07E-09	3,98E-09	1,97E-08	0,00E+00	-4,14E-07
Acidification	mol H^+ eq.	1,75E-01	5,42E-03	7,51E-04	5,58E-03	0,00E+00	-2,99E-02
Eutrophication aquatic freshwater	kg P eq.	2,47E-02	5,03E-04	1,30E-05	7,89E-05	0,00E+00	-4,59E-03
Eutrophication aquatic marine	kg N eq.	5,11E-02	1,08E-03	2,85E-04	3,25E-03	0,00E+00	-6,11E-03
Eutrophication terrestrial	mol N eq.	4,87E-01	1,09E-02	3,04E-03	2,95E-02	0,00E+00	-5,75E-02
Photochemical ozone formation	kg NMVOC eq.	1,87E-01	3,22E-03	1,14E-03	7,57E-03	0,00E+00	-2,50E-02
Depletion of abiotic resources - minerals and metals*	kg Sb eq.	1,39E-04	1,01E-06	4,91E-07	5,64E-07	0,00E+00	-1,66E-05
Depletion of abiotic resources - fossil fuels*	MJ	8,84E+02	1,44E+01	2,66E+00	1,93E+00	0,00E+00	-2,16E+02
Water use*	m^3 eq.	1,34E+01	1,94E-01	1,29E-02	6,13E-02	0,00E+00	-1,30E+00

** The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

POTENTIAL ENVIRONMENTAL IMPACT – ADDITIONAL MANDATORY AND VOLUNTARY INDICATORS

Results per per 1 m² FENIX NTM 12 mm black core							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG**	kg CO2 eq.	5,38E+01	1,11E+00	1,81E-01	1,05E+01	0,00E+00	-1,23E+01

POTENTIAL ENVIRONMENTAL IMPACT – ADDITIONAL VOLUNTARY INDICATORS. RESULTS FOR NORTH AMERICA CALCULATED ACCORDING TO ISO 21930

Results per per 1 m² FENIX NTM 12 mm black core							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Climate change – GWP 100 (ISO 21930)	kg CO2 eq.	5,29E+01	1,10E+00	1,78E-01	1,05E+01	0,00E+00	-1,21E+01
Ozone depletion - ODP (ISO 21930)	kg CFC-11 eq.	8,24E-06	1,28E-08	4,30E-09	2,05E-08	0,00E+00	-4,37E-07
Eutrophication potential - EP (ISO 21930)	kg N eq	2,25E-01	3,88E-03	1,52E-04	1,14E-02	0,00E+00	-3,52E-02
Acidification potential - AP (ISO 21930)	kg SO2 eq	1,47E-01	4,65E-03	6,71E-04	5,07E-03	0,00E+00	-2,48E-02
Photochemical ozone formation potential – POCP (ISO 21930)	kg O3 eq.	2,48E+00	6,16E-02	1,75E-02	1,60E-01	0,00E+00	-3,17E-01

*.** The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.*

USE OF RESOURCES

Results per per 1 m² FENIX NTM 12 mm black core							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ	6,90E+01	1,51E+00	3,02E-02	9,12E-02	0,00E+00	-1,79E+01
Use of renewable primary energy resources used as raw materials (PERM)	MJ	5,25E+02	2,42E-01	8,74E-03	2,06E-02	0,00E+00	-3,35E+00
Total use of renewable primary energy resources (PERT)	MJ	5,94E+02	1,75E+00	3,90E-02	1,12E-01	0,00E+00	-2,13E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ	7,11E+02	1,44E+01	2,66E+00	1,93E+00	0,00E+00	-2,16E+02
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	1,73E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy re-sources (PENRT)	MJ	8,84E+02	1,44E+01	2,66E+00	1,93E+00	0,00E+00	-2,16E+02
Use of secondary material (SM)	kg	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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
Use of net fresh water (FW)	m^3	3,73E-01	7,68E-03	4,18E-04	7,12E-03	0,00E+00	-8,95E-02

WASTE PRODUCTION

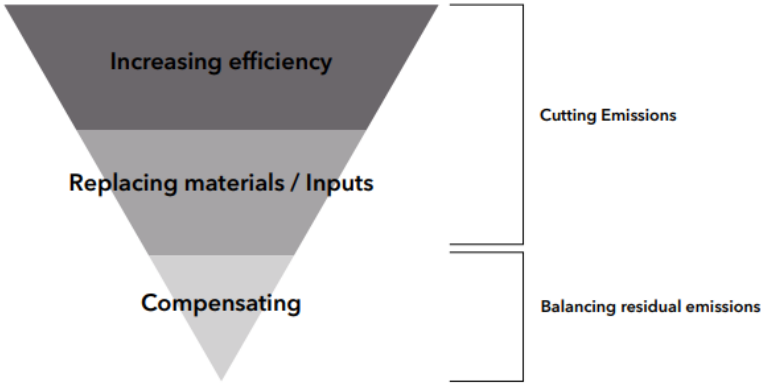
Results per per 1 m² FENIX NTM 12 mm black core							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,01E-01	4,52E-04	7,42E-05	6,70E-01	0,00E+00	-4,14E-03
Non-hazardous waste disposed	kg	6,89E+00	6,58E-02	2,33E-01	2,77E-01	0,00E+00	-4,75E-01
Radioactive waste disposed	kg	2,39E-03	3,87E-05	8,12E-07	1,94E-06	0,00E+00	-8,12E-04

OUTPUT FLOWS

Results per per 1 m² FENIX NTM 12 mm black core							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	9,08E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	4,81E-02	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	9,78E-02	0,00E+00	0,00E+00

ADDITIONAL INFORMATION

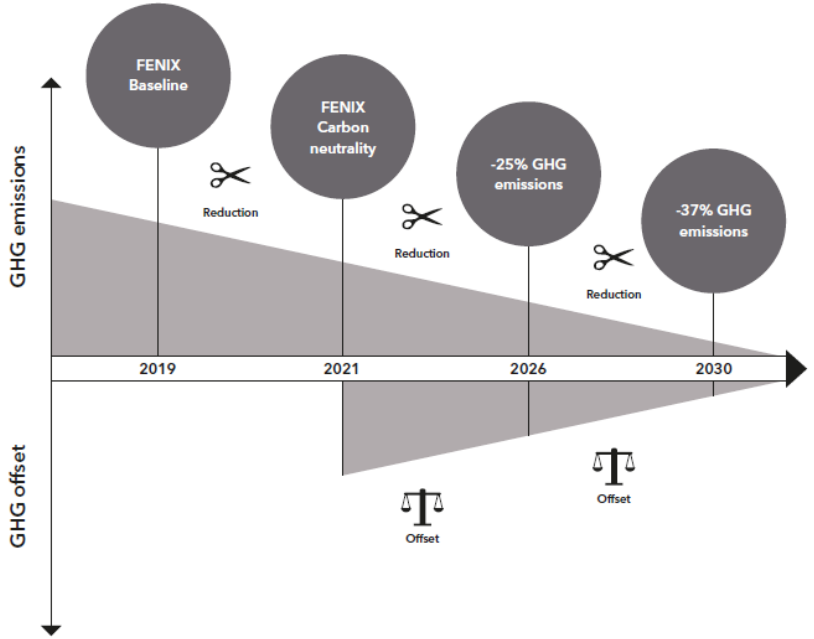
A credible carbon neutrality strategy is a long-term strategy. Companies should first invest in building a robust climate impact reduction strategy and compensate only what cannot be reasonably cut or reduced. In light of that, our strategy towards carbon neutrality is based on the following solutions' hierarchy:



FENIX was developed with this strategy in mind and is reflected in:

- How it is manufactured: FENIX panels are produced in a state-of-the-art plant
- The source of electricity: only renewable electricity is used in the manufacturing process, either from the solar panels installed on the factory's roof or from the grid; and
- Its composition: approximately 60% of FENIX is made of bio-based material.

Despite all the efforts, CO2 emissions cannot be completely eliminated, at least not in the short-term. Hard-to-abate emissions can be then compensated by an equivalent amount of removed CO_2. By doing so, a product can be declared carbon neutral. The emissions generated throughout the whole life cycle of our FENIX products have been calculated (and verified by a third party) and will be completely compensated via certified carbon offsets, making our products carbon neutral.



Further details can be found in the fenixforinteriors.com website. - Information on the product, its performance, testing and certification evidence can be found on www.fenixforinteriors.info website.

PROGRAM INFORMATION

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 CONSTRUCTION PRODUCTS VERSION 1.2.5:
PCR review was conducted by: the Technical Committee of the International EPD® System. Chair of the review is Claudia A. Peña. The review panel may be contacted via info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: Anandu Syrus, Nemho
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006 via: ☒ EPD verification by EPD Process Certification* Internal auditor: Irmak Akal, Nemho Third-party verification: SGS Italia S.p.A. Via Caldera 21, 20153 Milano.(www.it.sgs.com) is an approved certification body accountable for third-party verification Third-party verifier is accredited by: *Accredia, certificate n.0005VV* *For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI v.4, Section 7.5.
Procedure for follow-up of data 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; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

DIFFERENCES VS PREVIOUS VERSION

- 2024-10-28, Version 4
  Updated results with 2023 data.

REFERENCES

- General Programme instructions of the International EPD® System. Version 4.
- Gervasio, Dimova, Pinto (2018). Benchmarking the Life-Cycle Environmental Performance of Buildings. Sustainability.
- LCA background report for FENIX® NTM 12 mm black core
- PCR 2019:14 Construction products, Version 1.2.5