

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Nanten PU Flex Bio

Fescon Oy



EPD HUB, HUB-2190

Published on 17.11.2024, last updated on 17.11.2024, valid until 17.11.2029

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Fescon Oy
Address	Hämeenkatu 9A, 05800 Hyvinkää, Finland
Contact details	fescon@fescon.fi, nanten@fescon.fi
Website	www.fescon.fi

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Pirjo Isosaari, Fescon Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Nanten PU Flex Bio
Additional labels	Nanten PU Flex Bio A-osa (Part A) - color Nanten 257 /color Nanten 241 /other colors, Nanten PU Flex Bio B-osa (Part B)
Product reference	15210, 15211, 15212, 15296, 15297
Place of production	Tuusula, Finland
Period for data	Calendar year 2023
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	3,15E+00
GWP-total, A1-A3 (kgCO ₂ e)	3,29E+00
Secondary material, inputs (%)	2,59
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	15,7
Net freshwater use, A1-A3 (m ³)	0,66

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Fescon is Finland's largest developer and manufacturer of mortar, sand, and coating products and a solution provider for the construction industry.

PRODUCT DESCRIPTION

Nanten PU Flex Bio is a two-component, elastic floor coating based on polyurethane. Nanten PU Flex Bio is used as a protective industrial and architectural coating on concrete floors. It is also suitable for asphalt and plywood surfaces. Nanten PU Flex Bio can be used as a single coat or as a part of Nanten Decofloor Comfort Plus coating systems and Nanten PU Flex Bio waterproofing system.

Part A (resin) of Nanten PU Flex Bio is a reactive polymer component based on polyether and polyester polyols. Part B (curing agent /hardener) is a crosslinking component based on isocyanates.

PRODUCT APPLICATION

Nanten PU Flex Bio can be applied on new and old concrete floors or other substrates that are cleaned and pre-conditioned according to the manufacturer's instructions. The components A and B are mixed at a ratio of 3:1 (by volume). The mixture is poured on the floor and leveled with an adjustable squeegee or serrated trowel. The coating is allowed to cure and harden before use.

TECHNICAL INFORMATION

Components: 1 kg of the product consists of ca. 0,75 kg of Part A and 0,25 kg of Part B

Consumption: 1 liter/m² (appr. 1,25 kg/m³) at a film thickness of 1 mm

Film thickness: 1-2 mm

Density: 1,24...1,26 kg/l

Solids content: 100%

Abrasion resistance: < 3000 mg

Capillary absorption and permeability to water: $w < 0,1 \text{ kg/m}^2 \times \text{h}^{0,5}$

Impact resistance: Class III: $\geq 20 \text{ Nm}$

Adhesion strength by pull-off test: $\leq 1,5 \text{ N/mm}^2$

Resistance to severe chemical attack: Class II

Crack-bridging ability: Class A1 (23 °C)

Reaction to fire: Class Cfl – s1

VOC content: $\leq 5 \text{ g/l}$ (EU Decopaint Directive, 2004/42/EC)

PRODUCT STANDARDS

Nanten PU Flex Bio is a CE-marked construction product that complies with the principles defined in EN 1504-2 Products and systems for the protection and repair of concrete structures. Essential characteristics are notified on the Declaration of Performance of the product.

Nanten PU Flex Bio has low indoor air emissions, as proven by the Finnish M1 Emission Classification of Building Materials.

Nanten PU Flex Bio -vedeneristysjärjestelmä has a waterproofing product certificate assigned by Eurofins Expert Services.

DELIVERY STATUS

Part A of Nanten PU Flex Bio is delivered in a tinplate bucket of 15 liters. Part B is delivered in a plastic jerry can of 5 liters or a steel drum of 184 liters. The product is available in standard colors Nanten 257 and 241. Other colors from Nanten and RAL color charts can be provided on request.

Further information can be found at www.fescon.fi.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	27	Europe
Fossil materials	59	Europe
Bio-based materials	14	Europe

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,089
Biogenic carbon content in packaging, kg C	0,006

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The main manufacturing processes of the product are mixing the ingredients in batch mode and packaging. The ingredients, which consist of polyether and polyester polyols, vegetable oil polyols, mineral powders, pigments, and additives are loaded into an industrial high-speed disperser. The disperser is

operated at different shear rates to obtain appropriate dispersing, milling, and mixing functions. Tinting pastes are dispersed into the batch before filling the mixture into sales containers. Optionally, an uncolored coating base is tinted to the desired color before delivery to the customer. Quality control tests are performed on each batch.

The finished Part A component is packed into a tinsplate bucket. Part B is either filled into a polyethylene jerry can or delivered in a steel drum. The containers are placed on a wooden pallet and wrapped in polyethylene film for transportation to the customer or building site.

The manufacturing processes comply with the quality standard ISO 9001:2015, environmental standard ISO 14001:2025, and occupational health and safety standard ISO 45001:2018. The provisions outlined in the relevant regulations are adhered to. Waste formed in the manufacture is sent to a licensed waste management provider.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The main delivery modes of the product to customers are shipping and self-pick-up. Products shipped to the customer (or directly to the building site) have a median transportation distance of 235 km. The transportation is provided by lorries of an external transportation company. The vehicles are assumed to be in full load. Products picked up by the customer from the factory's warehouse are assumed to be transported by a van to the installation site. Transportation distance is assumed to be 50 km.

Installation of the product takes place manually. Part A and B are mixed at 3:1 (by volume). The mixture is poured on the floor and leveled with an adjustable squeegee or serrated trowel. The coating is allowed to cure and harden before use. Installation loss of 1% is assumed to result from improper draining of the product from containers. As a worst-case scenario, the installation loss is assumed to be incinerated as hazardous waste, considering the material is not

properly hardened by mixing the components A and B. Empty, dried containers can be returned to recipients of packaging waste under the producer responsibility system.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

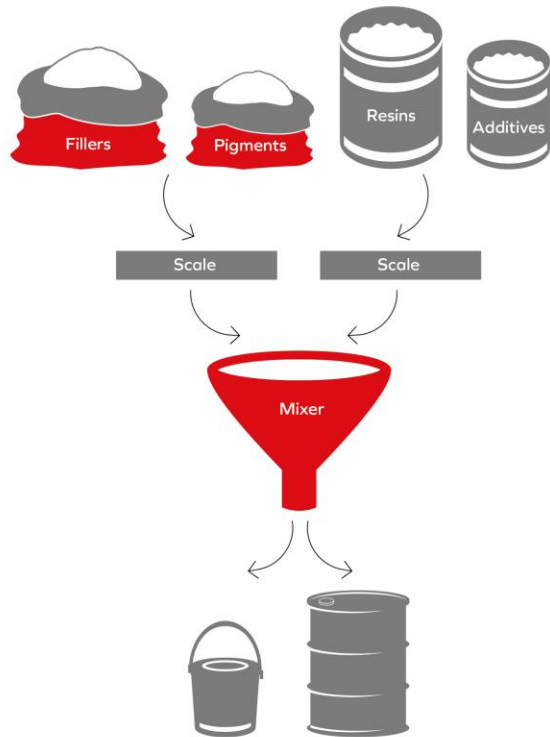
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

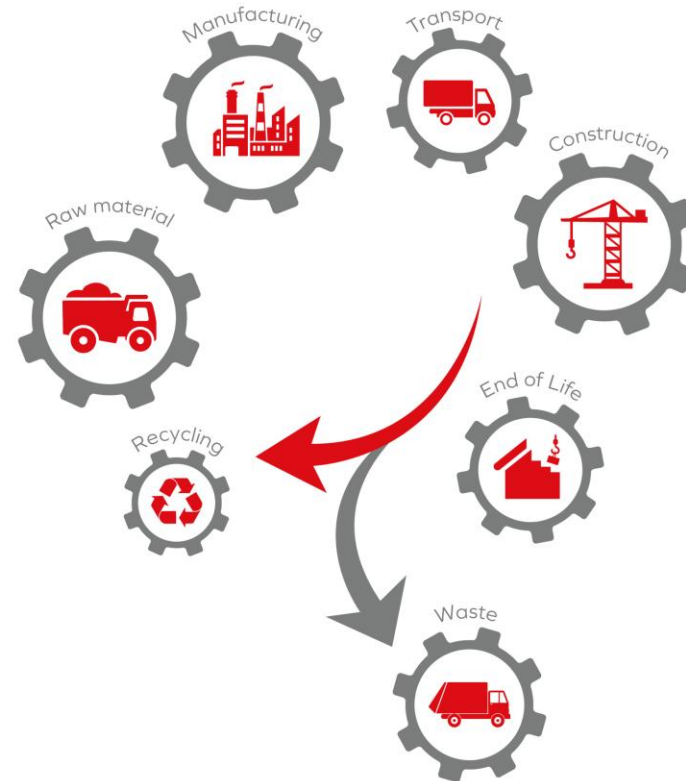
At the end of the product life cycle, the solid coating material of 1 kg is strongly attached to the substrate and cannot be separated without great effort. Hence, the product is assumed to be demolished and crushed with concrete. In principle, the product does not contain hazardous compounds that could leach from the material and prevent concrete recycling according to the national end of waste criteria (VNa 466/2020). As a conservative approach and to simplify the calculation, however, it is assumed that the coating material is landfilled as inert waste. Benefits included in Module D are obtained from recycling and incineration of the packaging materials.

MANUFACTURING PROCESS

Manufacturing process - Coating products



Product life-cycle



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging

This EPD is product and factory specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	2,54E+00	1,98E-01	5,54E-01	3,29E+00	2,39E-02	9,54E-02	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,69E-03	0,00E+00	3,31E-01	-1,15E-01
GWP – fossil	kg CO ₂ e	2,38E+00	1,98E-01	5,73E-01	3,15E+00	2,39E-02	6,77E-02	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,69E-03	0,00E+00	1,05E-02	-1,23E-01
GWP – biogenic	kg CO ₂ e	-3,24E-01	0,00E+00	-1,98E-02	-3,43E-01	0,00E+00	2,30E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	3,20E-01	7,86E-03
GWP – LULUC	kg CO ₂ e	4,77E-01	1,07E-04	5,12E-04	4,77E-01	9,95E-06	4,78E-03	MND	MND	MND	MND	MND	MND	MND	3,30E-07	1,73E-06	0,00E+00	1,07E-05	-3,95E-05
Ozone depletion pot.	kg CFC-11e	2,12E-07	4,19E-08	3,09E-08	2,85E-07	5,09E-09	6,20E-09	MND	MND	MND	MND	MND	MND	MND	7,07E-10	1,08E-09	0,00E+00	3,20E-09	-5,37E-09
Acidification potential	mol H ⁺ e	7,58E-03	4,24E-03	4,02E-03	1,58E-02	7,86E-05	2,21E-04	MND	MND	MND	MND	MND	MND	MND	3,44E-05	1,99E-05	0,00E+00	8,88E-05	-5,02E-04
EP-freshwater ²⁾	kg Pe	2,59E-03	1,03E-06	3,90E-05	2,63E-03	2,75E-07	2,69E-05	MND	MND	MND	MND	MND	MND	MND	1,10E-08	3,84E-08	0,00E+00	1,63E-07	-4,79E-06
EP-marine	kg Ne	3,16E-03	1,07E-03	5,42E-04	4,78E-03	1,43E-05	6,16E-05	MND	MND	MND	MND	MND	MND	MND	1,52E-05	5,90E-06	0,00E+00	3,03E-05	-1,01E-04
EP-terrestrial	mol Ne	1,90E-02	1,19E-02	9,41E-03	4,03E-02	1,61E-04	5,56E-04	MND	MND	MND	MND	MND	MND	MND	1,67E-04	6,51E-05	0,00E+00	3,33E-04	-1,18E-03
POCP (“smog”) ³⁾	kg NMVOce	6,05E-03	3,14E-03	1,92E-03	1,11E-02	6,69E-05	1,54E-04	MND	MND	MND	MND	MND	MND	MND	4,59E-05	2,08E-05	0,00E+00	9,64E-05	-5,87E-04
ADP-minerals & metals ⁴⁾	kg Sbe	1,73E-05	3,33E-07	1,77E-05	3,53E-05	2,09E-07	6,40E-07	MND	MND	MND	MND	MND	MND	MND	1,68E-09	1,10E-08	0,00E+00	3,54E-08	-2,14E-06
ADP-fossil resources	MJ	5,36E+01	2,68E+00	7,66E+00	6,39E+01	3,45E-01	7,93E-01	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	0,00E+00	2,43E-01	-1,26E+00
Water use ⁵⁾	m ³ e depr.	-2,61E+00	9,48E-03	3,74E-01	-2,23E+00	2,43E-03	-1,76E-02	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	0,00E+00	1,42E-03	-2,40E-02

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	6,96E-08	1,27E-08	4,58E-08	1,28E-07	1,86E-09	2,09E-09	MND	MND	MND	MND	MND	MND	MND	9,22E-10	5,41E-10	0,00E+00	1,78E-09	-7,82E-09
Ionizing radiation ⁶⁾	kBq 11235e	1,56E-01	1,26E-02	9,24E-02	2,61E-01	1,80E-03	3,69E-03	MND	MND	MND	MND	MND	MND	MND	2,05E-04	3,36E-04	0,00E+00	1,16E-03	1,46E-03
Ecotoxicity (freshwater)	CTUe	1,87E+02	1,99E+00	1,75E+01	2,06E+02	4,03E-01	2,65E+00	MND	MND	MND	MND	MND	MND	MND	2,68E-02	6,34E-02	0,00E+00	1,80E-01	-4,06E+00
Human toxicity, cancer	CTUh	2,27E-09	9,25E-11	9,16E-09	1,15E-08	1,49E-11	1,35E-10	MND	MND	MND	MND	MND	MND	MND	1,03E-12	1,56E-12	0,00E+00	7,59E-12	9,23E-10
Human tox. non-cancer	CTUh	9,43E-08	1,64E-09	1,30E-08	1,09E-07	3,14E-10	1,43E-09	MND	MND	MND	MND	MND	MND	MND	1,94E-11	6,27E-11	0,00E+00	1,20E-10	-2,73E-09
SQP ⁷⁾	-	3,75E+01	1,57E+00	4,40E+00	4,35E+01	2,78E-01	5,22E-01	MND	MND	MND	MND	MND	MND	MND	5,79E-03	8,12E-02	0,00E+00	5,93E-01	-9,59E-01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	7,49E+00	2,32E-02	1,53E+00	9,04E+00	7,02E-03	9,93E-02	MND	MND	MND	MND	MND	MND	MND	2,54E-04	7,94E-04	0,00E+00	4,22E-03	-1,40E-01
Renew. PER as material	MJ	4,06E+00	0,00E+00	1,61E-01	4,23E+00	0,00E+00	-2,01E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-4,02E+00	-3,98E-02
Total use of renew. PER	MJ	1,16E+01	2,32E-02	1,69E+00	1,33E+01	7,02E-03	-1,02E-01	MND	MND	MND	MND	MND	MND	MND	2,54E-04	7,94E-04	0,00E+00	-4,02E+00	-1,80E-01
Non-re. PER as energy	MJ	3,73E+01	2,68E+00	7,36E+00	4,73E+01	3,45E-01	6,27E-01	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	0,00E+00	2,43E-01	-1,16E+00
Non-re. PER as material	MJ	1,86E+01	0,00E+00	1,18E-01	1,87E+01	0,00E+00	-3,02E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-1,84E+01	-4,15E-03
Total use of non-re. PER	MJ	5,58E+01	2,68E+00	7,48E+00	6,60E+01	3,45E-01	3,25E-01	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	0,00E+00	-1,81E+01	-1,16E+00
Secondary materials	kg	2,59E-02	9,49E-04	4,80E-02	7,48E-02	2,23E-04	8,16E-04	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	0,00E+00	8,75E-05	6,56E-02
Renew. secondary fuels	MJ	9,62E-05	4,99E-06	7,02E-03	7,12E-03	1,88E-06	7,32E-05	MND	MND	MND	MND	MND	MND	MND	5,70E-08	1,97E-07	0,00E+00	3,37E-06	-2,13E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	6,54E-01	2,44E-04	6,94E-03	6,61E-01	6,32E-05	6,72E-03	MND	MND	MND	MND	MND	MND	MND	2,70E-06	9,13E-06	0,00E+00	2,62E-04	-3,61E-04

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,69E-01	3,42E-03	4,16E-01	7,88E-01	8,22E-04	1,81E-02	MND	MND	MND	MND	MND	MND	MND	5,96E-05	9,34E-05	0,00E+00	0,00E+00	-3,72E-02
Non-hazardous waste	kg	5,25E+00	4,08E-02	9,74E-01	6,26E+00	1,08E-02	9,29E-02	MND	MND	MND	MND	MND	MND	MND	4,19E-04	1,54E-03	0,00E+00	1,00E+00	-1,94E-01
Radioactive waste	kg	1,27E-04	1,86E-05	3,50E-05	1,81E-04	2,23E-06	2,03E-06	MND	MND	MND	MND	MND	MND	MND	3,13E-07	4,71E-07	0,00E+00	0,00E+00	-3,84E-07

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	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	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,45E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,45E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	2,82E+00	1,96E-01	5,65E-01	3,58E+00	2,36E-02	7,21E-02	MND	MND	MND	MND	MND	MND	MND	3,27E-03	4,64E-03	0,00E+00	1,03E-02	-1,17E-01
Ozone depletion Pot.	kg CFC ₁₁ e	2,06E-07	3,32E-08	2,70E-08	2,66E-07	4,05E-09	5,65E-09	MND	MND	MND	MND	MND	MND	MND	5,60E-10	8,55E-10	0,00E+00	2,54E-09	-5,72E-09
Acidification	kg SO ₂ e	6,16E-03	3,37E-03	3,12E-03	1,27E-02	6,50E-05	1,78E-04	MND	MND	MND	MND	MND	MND	MND	2,45E-05	1,54E-05	0,00E+00	6,73E-05	-4,07E-04
Eutrophication	kg PO ₄ ³ e	1,36E-02	4,10E-04	1,04E-03	1,51E-02	1,65E-05	2,10E-04	MND	MND	MND	MND	MND	MND	MND	5,69E-06	3,52E-06	0,00E+00	2,15E-05	-1,98E-04
POCP (“smog”)	kg C ₂ H ₄ e	1,04E-03	8,92E-05	1,48E-04	1,27E-03	4,37E-06	1,49E-05	MND	MND	MND	MND	MND	MND	MND	5,36E-07	6,03E-07	0,00E+00	2,74E-06	-6,60E-05
ADP-elements	kg Sbe	1,44E-05	3,25E-07	1,76E-05	3,24E-05	2,06E-07	5,81E-07	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	0,00E+00	3,42E-08	-2,14E-06
ADP-fossil	MJ	5,36E+01	2,68E+00	7,66E+00	6,39E+01	3,45E-01	7,93E-01	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	0,00E+00	2,43E-01	-1,25E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	2,38E+00	1,98E-01	5,73E-01	3,15E+00	2,39E-02	6,77E-02	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,69E-03	0,00E+00	1,05E-02	-1,23E-01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliance with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
15.11.2024

