ENVIRONMENTAL PRODUCT DECLARATION

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

Kitchen cabinet
Nobia Ab

EPD HUB, HUB-0926

Published on 12.01.2024, last updated on 19.01.2024, valid until 12.01.2029.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Nobia Ab
Address	Blekholmstorget 30 E7, SE-111 64 Stockholm
Contact details	info@nobia.com
Website	www.nobia.com

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 1.0, 1 Feb 2022
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	Anna Hokkanen, Nobia Ab
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	#VERIFIER#

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	Kitchen cabinet
Additional labels	HTH, Invita, Marbodal, Novart, Sigdal, Uno Form
Product reference	
Place of production	Ølgod Denmark, Tidaholm Sweden, Eggedal Norway and Nastola Finland
Period for data	Calendar year 2022
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3	10 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit, (standard cabinet with two sides, two shelves and a top; 600 mm x 565 mm x 700 mm
Declared unit mass	18 kg
GWP-fossil, A1-A3 (kgCO2e)	2,42E+01
GWP-total, A1-A3 (kgCO2e)	-8,09E+00
Secondary material, inputs (%)	1.96
Secondary material, outputs (%)	99.7
Total energy use, A1-A3 (kWh)	204.0
Total water use, A1-A3 (m3e)	6,38E-01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Nobia Ab is a leading kitchen furniture specialist in Europe and one of the largest in the world.

The Science Based Targets initiative (SBTi) has approved Nobia Abs reduction targets for both direct and indirect CO2 emissions (Scope 1 and 2. The endorsement by the CDP, the UN Global Compact, the World Resources Institute (WRI) and the World Wildlife Fund (WWF) means that our targets are science-based and in line with the Paris Climate Agreement.

PRODUCT DESCRIPTION

This EPD represents a cabinet - the structure in which the doors and drawers can be installed. The core of the cabinet is made of melamine faced particleboard with plastic edge banding and HDF. The standard cabinet has two sides, two shelves and a top. Shelf support pegs are metal.

The service life for cabinet when used and maintained according to instructions is expected to be 25 years

Further information can be found at www.nobia.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0.1	EU
Minerals	0	EU
Fossil materials	4.3	EU
Bio-based materials	95.6	EU

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	6.84
Biogenic carbon content in packaging, kg C	0.425

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit, (standard cabinet with two sides, two shelves and a top; 600 mm x 565 mm x 700 mm
Mass per declared unit	18 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) from the list updated 14.6.2023.

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	Deconstr./demol.	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.

Manufacturing of the cabinets is done at the factories in Ølgod Denmark, Tidaholm Sweden, Eggedal Norway and Nastola Finland. Manufacturing includes processing of wood-based boards by sawing and drilling, edge banding sides and assembling the cabinet with pegs and glue. No water is used in the process. Cabinet parts are not painted at the factory. Cabinet parts and assembled cabinets are moved with forklifts and pallet jacks inside the factory.

Manufacturing waste is from wood processing (from cutting, drilling, and milling), plastic from edge band trimming and packaging (plastic, cardboard and wood pallets). Majority of wood waste is considered to go to energy use, but some is recycled for new particle boards.

The energy used and production waste have been calculated from the annual production of manufacturing sites and then allocated to one product based on annual board use and production volumes of different production sites.

All Nobia production sites have certified green electricity. Heating type varies by each location from district heating, wood and oil to biogas.

The finished cabinet is packed in plastic film, cardboard and on wood pallets before it is loaded into a truck for delivery to the customer.

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.

A4: Average transportation distance of 100 km is used for calculation, which presents well the actual market situation in all Nordic markets. Cabinet mass (all components) together with packaging mass represents the transported quantity.

A5: Installation is done with some metal screws and handheld tools containing rechargeable battery. Installation waste that is considered in module A5 includes packaging plastic, cardboard and waste from the wood pallets. Plastic is recycled and rest is considered to go to incineration with energy recovery to the closest (100km) facility.

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)

C1: Energy and resources consumed for de-construction/demolition of one kitchen cabinet are negligible. Cabinet is removed manually with the help of electrical hand tools containing rechargeable batteries.

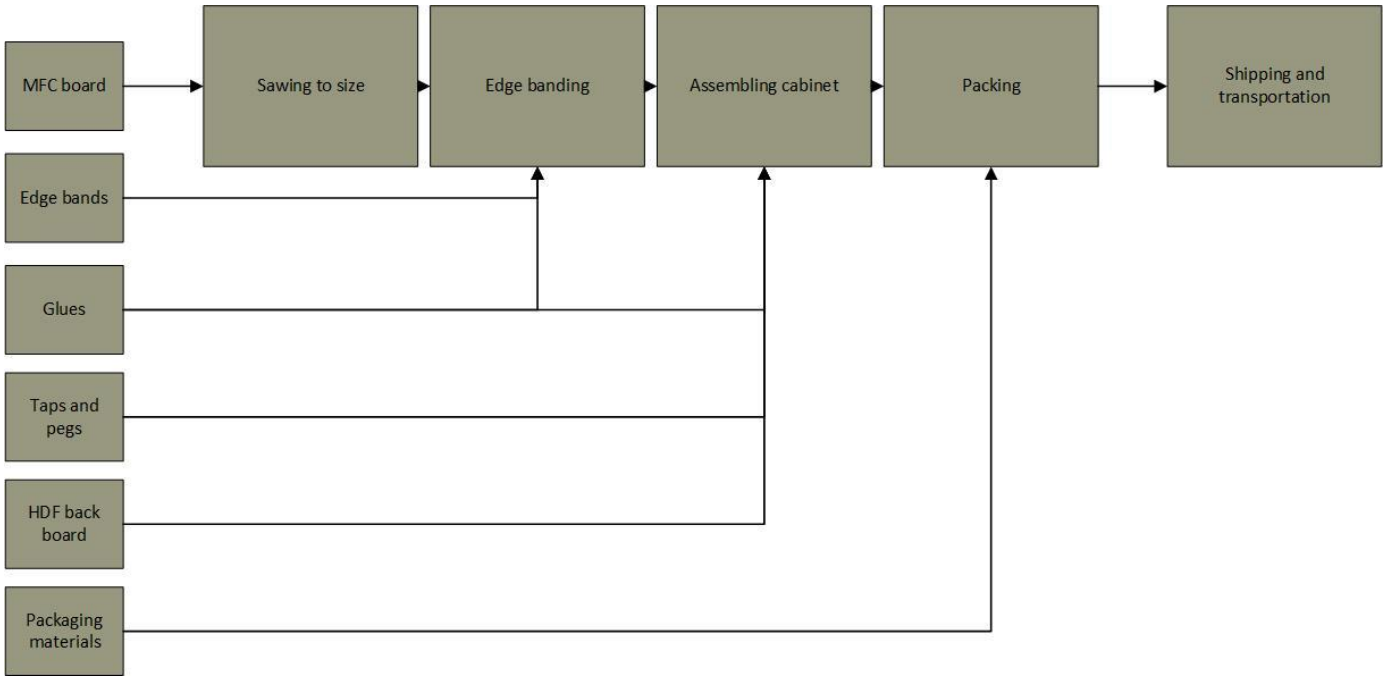
C2: Cabinet is transported together with other furniture waste to the closest waste treatment facility, where it can be sorted into relevant waste material streams. 100km is considered to be distance. The figure is based on the average distance and the estimate of the dispersion in the distances of the sorting points.

C3: Even cabinet materials are fully recyclable, in this study wood boards (melamine faced, MDF and HDF) are considered to be incinerated with energy recovery. Plastic and glue components of the cabinet are incinerated 100% with energy recovery. Steel waste is considered to be recycled 100%. Packaging plastic is recycled 100%, but other packaging (pallets and cardboard) is considered to be incinerated with energy recovery.

C4: Paint is considered to be incinerated without energy recovery.

D: Benefits and loads are accounted for all materials where applicable (all except paint waste as it is modelled in C4 because the effieciency of its incineration is considered to be lower then 60%).
Recycling of wood and metal waste is modelled with accounting the loads due to recycling process and benefits related to the avoided products of corresponding raw materials.
In the similar way - incineration loads are due to incineration process and benefits are calculated as produced electricity and heat - using the heating values of corresponding materials.
The used efficiency of the CHP plant in the calculation was approximately 73% as a whole, of which the efficiency for electricity is 11% and for heat production 62%.Source: (Eriksson, O & Finnveden, G. 2017).

MANUFACTURING PROCESS



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 materials	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	Multiple factories
Averaging method	Averaged by shares of total volume
Variation in GWP-fossil for A1-A3	10 %

Data represents the average values when the same Nobia base cabinet is produced in four Nobia production locations in Ølgod Denmark, Tidaholm Sweden, Eggedal Norway and Nastola Finland.

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. Ecoinvent v3.8 and One Click LCA databases were used 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_2e	-9,03E+00	1,89E-01	7,49E-01	-8,09E+00	1,73E-01	3,12E+00	MND	MND	MND	MND	MND	MND	MND	1,60E-03	0,00E+00	3,02E+01	1,25E-01	-4,91E+00
GWP – fossil	kg CO_2e	2,30E+01	1,89E-01	9,62E-01	2,42E+01	1,73E-01	6,04E-02	MND	MND	MND	MND	MND	MND	MND	1,59E-03	0,00E+00	8,58E-01	1,25E-01	-5,05E+00
GWP – biogenic	kg CO_2e	-3,22E+01	0,00E+00	-2,17E-01	-3,24E+01	0,00E+00	3,06E+00	MND	MND	MND	MND	MND	MND	MND	9,97E-06	0,00E+00	2,93E+01	4,85E-05	1,46E-01
GWP – LULUC	kg CO_2e	1,25E-01	7,18E-05	4,16E-03	1,29E-01	6,23E-05	5,17E-05	MND	MND	MND	MND	MND	MND	MND	3,71E-06	0,00E+00	1,95E-04	2,46E-05	-6,29E-03
Ozone depletion pot.	kg CFC_{-11}e	2,47E-06	4,46E-08	1,05E-07	2,61E-06	4,14E-08	6,65E-09	MND	MND	MND	MND	MND	MND	MND	7,93E-11	0,00E+00	7,78E-08	1,81E-08	-2,63E-07
Acidification potential	mol H^+e	1,52E-01	1,12E-03	6,23E-03	1,60E-01	7,24E-04	2,30E-04	MND	MND	MND	MND	MND	MND	MND	8,60E-06	0,00E+00	4,28E-03	2,46E-04	-3,45E-02
EP-freshwater[2)]	kg Pe	1,15E-03	1,26E-06	5,94E-05	1,21E-03	1,19E-06	2,01E-06	MND	MND	MND	MND	MND	MND	MND	1,69E-07	0,00E+00	5,59E-06	7,79E-07	-3,67E-04
EP-marine	kg Ne	3,76E-02	3,19E-04	1,88E-03	3,98E-02	2,19E-04	5,69E-05	MND	MND	MND	MND	MND	MND	MND	1,17E-06	0,00E+00	1,89E-03	4,17E-05	-4,18E-03
EP-terrestrial	mol Ne	4,29E-01	3,52E-03	1,97E-02	4,52E-01	2,41E-03	5,98E-04	MND	MND	MND	MND	MND	MND	MND	1,33E-05	0,00E+00	2,00E-02	4,70E-04	-4,83E-02
POCP ("smog")[3)]	kg NMVOCe	1,25E-01	1,06E-03	6,18E-03	1,32E-01	7,77E-04	2,03E-04	MND	MND	MND	MND	MND	MND	MND	3,62E-06	0,00E+00	5,19E-03	1,41E-04	-1,36E-02
ADP-minerals & metals[4)]	kg Sbe	2,28E-04	4,46E-07	6,52E-06	2,35E-04	4,07E-07	3,15E-07	MND	MND	MND	MND	MND	MND	MND	3,76E-09	0,00E+00	1,62E-06	4,41E-07	-7,33E-06
ADP-fossil resources	MJ	4,13E+02	2,85E+00	1,66E+01	4,32E+02	2,65E+00	7,45E-01	MND	MND	MND	MND	MND	MND	MND	3,38E-02	0,00E+00	6,12E+00	9,25E-01	-7,80E+01
Water use[5)]	m^3e depr.	2,48E+01	1,29E-02	9,47E-01	2,58E+01	1,22E-02	1,44E-02	MND	MND	MND	MND	MND	MND	MND	8,71E-04	0,00E+00	1,15E+00	1,34E-02	-1,63E+00

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.

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	2,89E+02	3,62E-02	2,71E+01	3,16E+02	3,44E-02	6,00E-02	MND	MND	MND	MND	MND	MND	MND	5,77E-03	0,00E+00	1,13E-01	2,14E-02	-1,42E+01
Renew. PER as material	MJ	3,07E+02	0,00E+00	-6,13E-02	3,07E+02	0,00E+00	-2,77E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-2,79E+02	-3,02E-01	0,00E+00
Total use of renew. PER	MJ	5,96E+02	3,62E-02	2,70E+01	6,23E+02	3,44E-02	-2,76E+01	MND	MND	MND	MND	MND	MND	MND	5,77E-03	0,00E+00	-2,79E+02	-2,81E-01	-1,42E+01
Non-re. PER as energy	MJ	3,71E+02	2,85E+00	1,29E+01	3,86E+02	2,65E+00	7,44E-01	MND	MND	MND	MND	MND	MND	MND	3,37E-02	0,00E+00	6,12E+00	9,25E-01	-7,55E+01
Non-re. PER as material	MJ	4,21E+01	0,00E+00	-1,38E-01	4,20E+01	0,00E+00	-3,65E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-3,81E+01	-2,13E-01	-2,38E+00

Total use of non-re. PER	MJ	4,13E+02	2,85E+00	1,27E+01	4,28E+02	2,65E+00	-2,90E+00	MND	MND	MND	MND	MND	MND	MND	3,37E-02	0,00E+00	-3,20E+01	7,12E-01	-7,79E+01
Secondary materials	kg	3,53E-01	8,34E-04	2,45E-01	5,99E-01	7,48E-04	2,08E-03	MND	MND	MND	MND	MND	MND	MND	2,57E-06	0,00E+00	6,65E-03	1,44E-03	-6,28E-03
Renew. secondary fuels	MJ	3,14E+01	7,13E-06	1,28E+00	3,27E+01	6,60E-06	7,80E-06	MND	MND	MND	MND	MND	MND	MND	1,34E-08	0,00E+00	2,90E-05	1,93E-06	-3,71E-05
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	6,23E-01	3,67E-04	1,42E-02	6,38E-01	3,52E-04	3,73E-04	MND	MND	MND	MND	MND	MND	MND	2,79E-05	0,00E+00	-2,78E-03	3,45E-04	-6,43E-02

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	1,71E+00	3,10E-03	1,34E-01	1,85E+00	2,85E-03	5,38E-03	MND	MND	MND	MND	MND	MND	MND	1,18E-04	0,00E+00	9,91E-02	5,00E-02	-3,77E-01
Non-hazardous waste	kg	4,00E+01	5,23E-02	1,24E+01	5,24E+01	4,95E-02	9,44E-02	MND	MND	MND	MND	MND	MND	MND	7,68E-03	0,00E+00	1,78E+01	0,00E+00	-2,11E+01
Radioactive waste	kg	9,01E-04	1,97E-05	5,16E-05	9,72E-04	1,83E-05	4,43E-06	MND	MND	MND	MND	MND	MND	MND	2,45E-07	0,00E+00	2,98E-05	0,00E+00	-4,34E-04

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	6,36E-01	6,36E-01	0,00E+00	4,40E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,50E-02	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	1,15E-01	0,00E+00	0,00E+00
Exported energy	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	3,64E+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_2e	2,31E+01	1,87E-01	9,61E-01	2,42E+01	1,72E-01	6,26E-02	MND	MND	MND	MND	MND	MND	MND	1,57E-03	0,00E+00	9,08E-01	1,25E-01	-4,98E+00
Ozone depletion Pot.	kg CFC_{-11}e	2,11E-06	3,53E-08	8,84E-08	2,23E-06	3,28E-08	5,48E-09	MND	MND	MND	MND	MND	MND	MND	6,86E-11	0,00E+00	6,30E-08	1,54E-08	-2,19E-07
Acidification	kg SO_2e	1,18E-01	8,77E-04	4,62E-03	1,24E-01	5,61E-04	1,84E-04	MND	MND	MND	MND	MND	MND	MND	7,28E-06	0,00E+00	3,07E-03	2,05E-04	-2,94E-02
Eutrophication	kg PO_4^3e	7,18E-02	1,62E-04	4,50E-03	7,65E-02	1,25E-04	1,35E-04	MND	MND	MND	MND	MND	MND	MND	5,88E-06	0,00E+00	5,34E-03	5,38E-05	-1,29E-02
POCP (“smog”)	kg C_2H_4e	1,06E-02	3,03E-05	5,06E-04	1,11E-02	2,21E-05	1,47E-05	MND	MND	MND	MND	MND	MND	MND	2,97E-07	0,00E+00	1,38E-04	8,15E-06	-1,31E-03
ADP-elements	kg Sbe	2,27E-04	4,34E-07	6,31E-06	2,34E-04	3,96E-07	3,11E-07	MND	MND	MND	MND	MND	MND	MND	3,75E-09	0,00E+00	1,51E-06	3,33E-07	-7,31E-06
ADP-fossil	MJ	4,13E+02	2,85E+00	1,66E+01	4,32E+02	2,65E+00	7,43E-01	MND	MND	MND	MND	MND	MND	MND	3,37E-02	0,00E+00	6,12E+00	9,24E-01	-7,79E+01

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_2e	2,30E+01	1,89E-01	9,62E-01	2,42E+01	1,73E-01	6,04E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,05E+00

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 compliancy 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

12.01.2024

VERIFIED ISO 14025