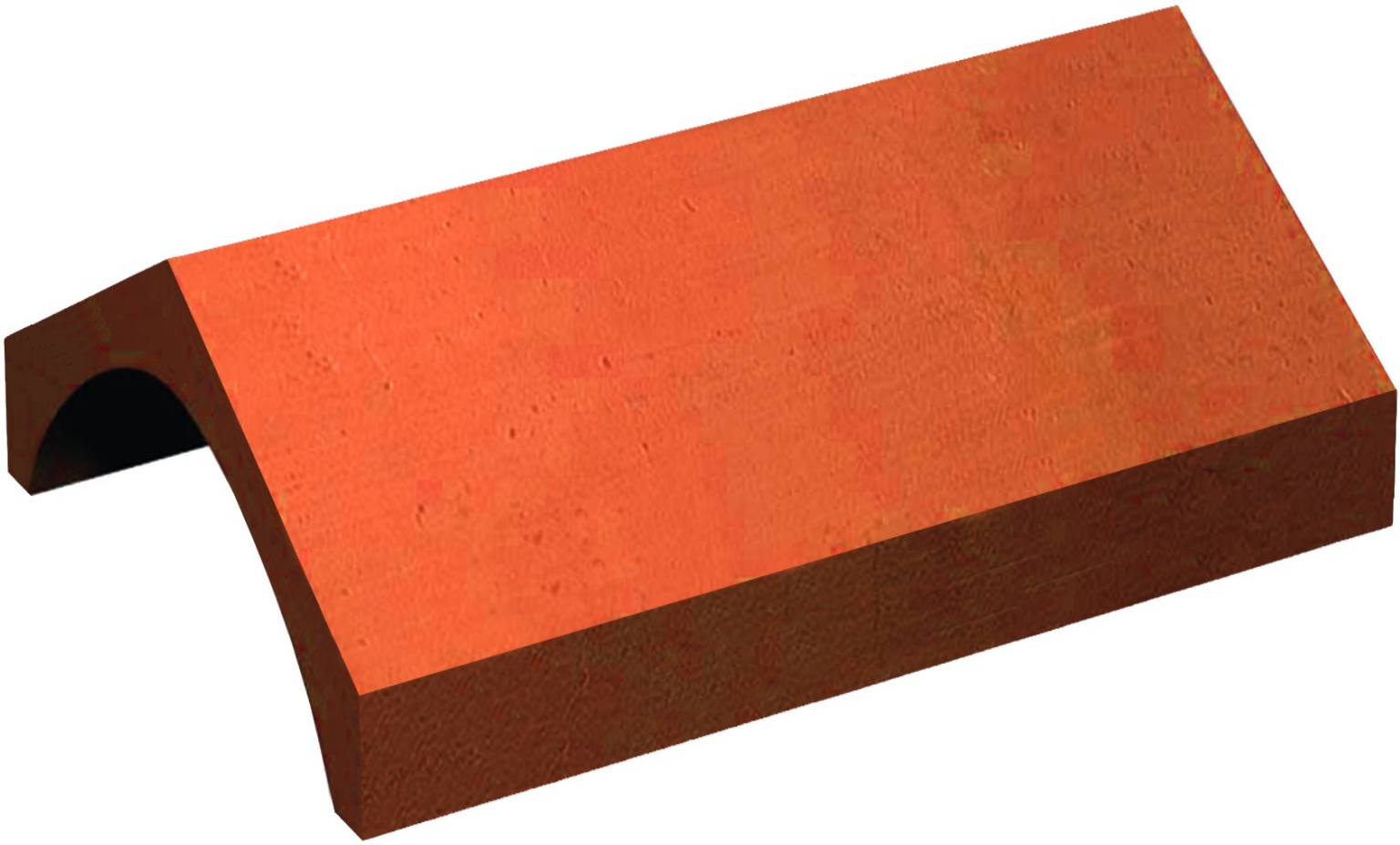
ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN15804+A2

Mannok UAR (universal angle ridge) Roof Tile



Owner of the declaration:
MANNOKBUILD

Product:
Mannok UAR (universal angle ridge) Roof Tile

Declared unit:
1 tonne

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
I.S. EN 16757:2022, PCR for concrete and concrete elements.

Program operator:
EPD Ireland - Irish Green Building Council

Declaration number:
EPDIE-24-144

Issue date:
25.07.2024

Valid to:
24.07.2029

General information

Product

Mannok UAR (universal angle ridge) Roof Tile

Owner of the declaration:

MANNOKBUILD
Contact person:
Phone: 08000 322 122
e-mail: info@mannokbuild.com

Program operator:

EPD Ireland - Irish Green Building Council
19 Mountjoy Square, Dublin D01 E8P5
Phone: +353 (01) 6815862
web: https://www.igbc.ie/epd-home/

Manufacturer:

MANNOKBUILD
187 Ballyconnell Road
BT92 9GP Derrylin, Enniskillen, Co. Fermanagh, Northern Ireland

Declaration number:

EPDIE-24-144

Place of production:

Mannok Roof Tiles
169 Ballyconnell Rd
BT92 9AQ Derrylin, Enniskillen, United Kingdom

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
I.S. EN 16757:2022, PCR for concrete and concrete elements.

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. The EPD Program operator shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Type of EPD

Specific product EPD

Issue date:

25.07.2024

Declared unit:

1 tonne Mannok UAR (universal angle ridge) Roof Tile

Valid to:

24.07.2029

Scope of the EPD:

A1-A3,A4,A5,B1,B2,B3,B4,B5,B6,B7,C1,C2,C3,C4,D

Year of study:

2023

Functional unit:

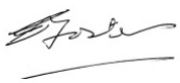
Comparability:

Environmental Product Declarations from different programmes may not be directly comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See clause 5.3 of EN 15804:2012+A2:2019

LCA consultant or person responsible for LCA: .
EcoReview, Peter Seymour

Verification:

Independent verification of the declaration and data, according to ISO14025:2010



Third party verifier:
Chris Foster, EuGeos SRL

Approved:

SIGNATURE OF PROGRAMME OPERATOR

Pat Barry, CEO - Irish Green Building Council

Product

Product description:

The concrete roof tiles are interlocking tiles used for roofing pitched rooves. For installation, the tiles are fixed on to wooden battens on the rooves with nails and or clips.

Product specification:

The concrete roof tiles are manufactured in accordance with E.N. 490: 2005 Concrete Roofing Tiles & Fittings. Further technical details at: https://mannokbuild.com/roof-tiles/.

Technical data:

The main material components of the concrete roof tiles are cement, coarse sand, fine sand, pigment, paint, admixtures and water. In addition, manufacturing consumables include aluminium molds and mold oil. The bulk density of the tiles is 2350 kg/m3.

Market/Geographical Area:

The main market for the Mannok Roof Tiles is housing and commercial buildings with pitched rooves. The Mannok roof tiles are not used on flat rooves. The roof tiles are supplied to the markets in Northern Ireland, Great Britain and the Republic of Ireland.

Reference service life, product

Mannok Roof Tiles provide a structural guarantee of the tiles of 30 years.

Reference service life, building or construction works

LCA: Calculation rules

Declared unit:

1 tonne Mannok UAR (universal angle ridge) Roof Tile

kg per Declared unit 1000

Cut-off criteria:

All relevant inputs and outputs - like emissions, energy and materials - have been taken into account in this LCA, and in accordance with EN15804+A2:2019. The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process. Long term emissions have been excluded from the study.

Allocation:

The measurement of environmental impacts in this EPD uses the LCIA methodologies recommended for PEF3,0. In this EPD, the waste processes are allocated in the relevant module. In the case of the use of secondary materials or energy recovered from secondary fuels, the system boundary between the system under study and the previous system (providing the secondary materials) is set where outputs of the previous system, e.g. materials, products, building elements or energy, reach the end-of-waste state. The modularity and the polluter payer principles have been followed.

Allocation of electricity types and amounts to the various manufacturing processes has been provided by the manufacturer, along with production waste and direct emissions; allocation of impacts to the products is based on the product composition mass.

Data quality:

The data Quality Levels, according to Table E.1 of EN 15804 +A2, Annex E, are:

Geographical representativeness: Very good: the production location of the tiles lies within the region for which the relevant Ecoinvent (version 3,8) environmental records have been selected.

Time representativeness: Very good: the data relating to the manufacturing of concrete roof tiles, and the data relating to the background processes for environmental impacts are recent (<2 years). The LCA dataset for the cement is from 2021 and is of the specific cement used in production,

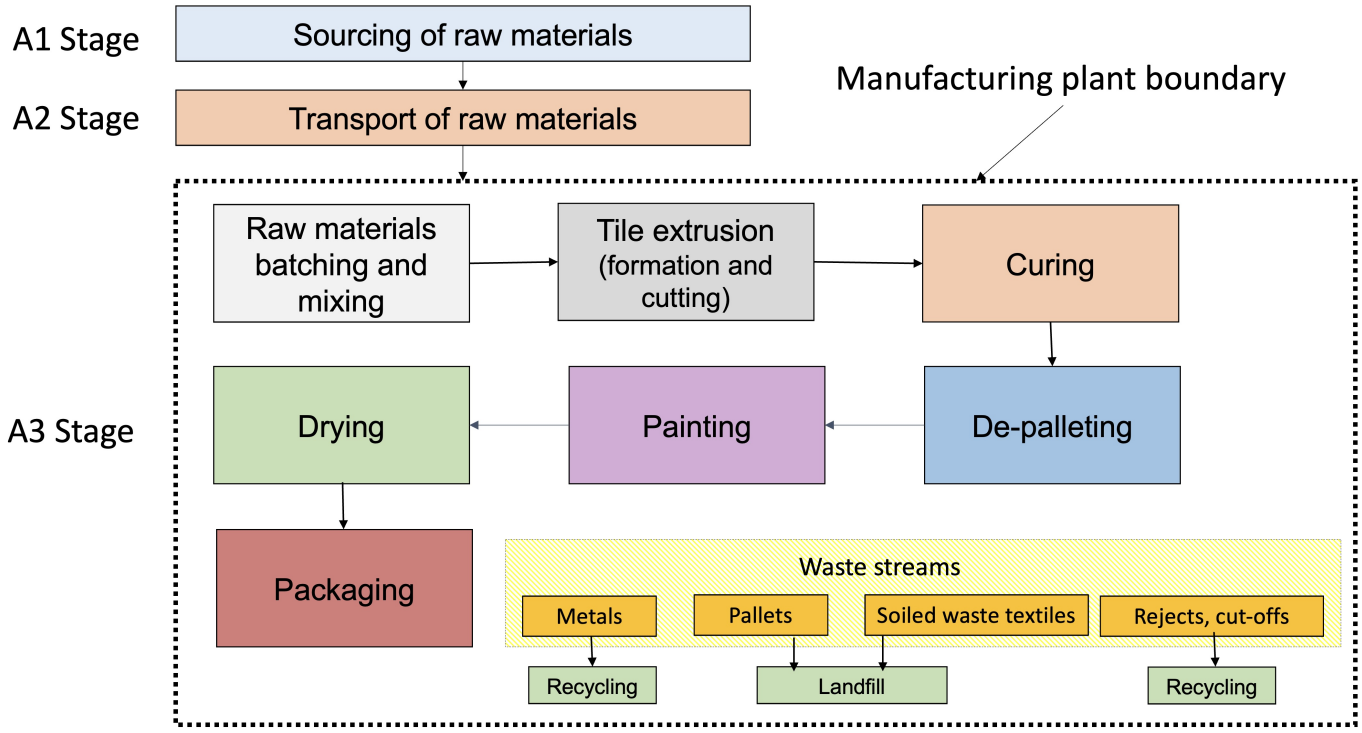
Technical representativeness: Very good: the processes and energies used in the process have been modelled exactly as described by Mannok Roof Tiles, and are based directly on the production data supplied by Mannok Roof Tiles.

Scope and type of EPD (X = Module declared; ND = Module not declared)

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

System boundary:

This LCA covers the Product (A1, A2 and A3), Transport to site (A4), Construction Process (A5), Use (B1 to B7), End of Life (C1 to C4) and Benefits/loads beyond the system boundary (D) Stages, as indicated above. This is termed: "Cradle to grave, and module D". Specific details of the Product Stage (A1 to A3) are illustrated in the flow diagram below.



Additional technical information:

Electricity modelling
The fuel mix for the electricity supplied is 37,6% natural gas, and 62,4% renewable (onshore wind). The CO2 intensities of these two types are:
Natural gas: 0.,59 kg CO2 per kWh
Renewable (onshore wind): 0,033 kg CO2 per kWh
from Ecoinvent v 3,8 values, market for electricity, wind (onshore)/natural gas, low voltage | Cutoff, U - RoW.
Thus the electricity used has a mean CO2 (GWPt) per kWh value of 0,23 kg CO2 per kWh.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

A4. Transport to customer
The product and data used in this EPD are based on the being manufactured in Co. Fermanagh, and transported to a location in Great Britain by a distance of 371 km by road, and 202 km by sea. This is the mean of 5 different routes used. The capacity utilisation of road freight is 46%. The bulk density of the transported goods is 2350 kg/m3.

A5. Installation
Installation losses are 5% of tile weight. Installation materials are aluminium clips and nails, and the mass of these per tonne of installed tiles is 0,26 grams.

B. Use Stage
In the Use Stage, carbonation is calculated, and assigned to module B1.
B1. Use
Carbonation is calculated at 16 kg CO2 per tonne of installed tile, according to Appendix G of IS EN16757:2022, section G.3.2.
The remaining Use Stage modules, B2 - B7, are considered to have no impacts, and their impact values are zero.

C. End of Life Scenarios, Module
It is assumed that 100% of the tiles are re-used, i.e. recovered and recycled. 50% are crushed on site for re-use ae general site infill, and 50% are salvaged and re-used.
C1. De-construction demolition
It is assumed that the tiles are removed manually from building, during demolition and deconstruction phase. Thus, no energy or other materials are required for deconstruction C1, and the impacts are assumed to be zero in C1.
C2. Transport
In the transport phase C2, it is assumed that the recovered tiles (50% of the tiles) travel 50km to the re-selling point of sale.
C3. Waste processing
The energy used for crushing on site of 0,5 tonne of tiles (applied to the declared unit of one tonne) is 0,045 litres of diesel.
C4. Disposal
These is no disposal of the tiles at end of life. C4 is zero.

D. Reuse – Recovery – Recycling potential
Benefits beyond the system boundary arise from 50% of the mass of the tiles replacing the production of virgin aggregates., and 50% of the mass of the tiles replacing the production of new tiles.

Biogenic Carbon
Biogenic carbon in the product system is effectively all contained in the wood pallets. The value of biogenic C per DU of tiles is 5,9 kg C per DU, at the factory gate.

Database used:
Ecoinvent v 3,8

LCA software used:
Ecochain Helix v 4.3.1

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact									
Indicator		Unit	A1-A3	A4	A5	B1	B2	B3	B4
	GWP-total	kg CO_2 -eq	2.12E+02	6.24E+01	1.22E+01	-1.60E+01	0.00E+00	0.00E+00	0.00E+00
	GWP-fossil	kg CO_2 -eq	2.33E+02	6.23E+01	1.06E+01	-1.60E+01	0.00E+00	0.00E+00	0.00E+00
	GWP-biogenic	kg CO_2 -eq	-2.13E+01	5.49E-02	1.57E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	GWP-luluc	kg CO_2 -eq	1.52E-01	2.55E-02	5.18E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ODP	kg CFC11 -eq	1.18E-05	1.44E-05	5.99E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	AP	mol H+ -eq	9.44E-01	2.33E-01	5.32E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EP-FreshWater	kg P -eq	3.69E-03	4.38E-04	2.55E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EP-Marine	kg N -eq	2.42E-01	4.93E-02	1.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EP-Terrestial	mol N -eq	2.72E+00	5.49E-01	1.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	POCP	kg NMVOC -eq	7.40E-01	1.90E-01	3.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ADP-minerals&metals[1]	kg Sb-eq	1.46E+03	9.40E+02	8.71E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ADP-fossil[1]	MJ	5.09E-04	2.17E-04	2.57E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	WDP[1]	m^3	6.20E+01	2.83E+00	2.62E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator		Unit	B5	B6	B7	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.34E+00	1.49E-01	0.00E+00	-1.30E+02
	GWP-fossil	kg CO_2 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.33E+00	1.49E-01	0.00E+00	-1.14E+02
	GWP-biogenic	kg CO_2 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.15E-03	5.59E-05	0.00E+00	-1.55E+01
	GWP-luluc	kg CO_2 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-03	1.49E-05	0.00E+00	-5.20E-02
	ODP	kg CFC11 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-06	3.18E-08	0.00E+00	-5.39E-06
	AP	mol H+ -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-02	1.55E-03	0.00E+00	-4.86E-01
	EP-FreshWater	kg P -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.36E-05	4.94E-07	0.00E+00	-1.59E-03
	EP-Marine	kg N -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-03	6.85E-04	0.00E+00	-1.24E-01
	EP-Terrestial	mol N -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.21E-02	7.51E-03	0.00E+00	-1.42E+00
	POCP	kg NMVOC -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-02	2.07E-03	0.00E+00	-3.69E-01
	ADP-minerals&metals[1]	kg Sb-eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.99E+01	2.04E+00	0.00E+00	-6.75E+02
	ADP-fossil[1]	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-05	7.66E-08	0.00E+00	-2.35E-04
	WDP[1]	m^3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-01	3.20E-03	0.00E+00	-3.05E+01

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

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

Remarks to environmental impacts

Additional environmental impact indicators

Indicator		Unit	A1-A3	A4	A5	B1	B2	B3	B4
	PM	Disease incidence	1.01E-05	4.91E-06	5.73E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	IRP[2]	kgBq U235 -eq	3.56E+00	4.08E+00	2.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETP-fw[1]	CTUe	2.42E+03	7.34E+02	1.72E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	HTP-c[1]	CTUh	7.66E-08	2.43E-08	9.86E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	HTP-nc[1]	CTUh	1.36E-06	7.36E-07	1.58E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	SQP[1]	dimensionless	2.40E+03	6.42E+02	7.90E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator		Unit	B5	B6	B7	C1	C2	C3	C4	D
	PM	Disease incidence	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E-07	4.15E-08	0.00E+00	-5.09E-06
	IRP[2]	kgBq U235 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.47E-01	8.70E-03	0.00E+00	-1.60E+00
	ETP-fw[1]	CTUe	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.52E+01	1.20E+00	0.00E+00	-2.31E+03
	HTP-c[1]	CTUh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-09	4.60E-11	0.00E+00	-6.56E-09
	HTP-nc[1]	CTUh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-08	8.67E-10	0.00E+00	-6.09E-07
	SQP[1]	dimensionless	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.72E+01	2.60E-01	0.00E+00	1.07E+03

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. 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.

Resource use

Indicator		Unit	A1-A3	A4	A5	B1	B2	B3	B4
	PERE	MJ	5.09E+02	1.33E+01	2.76E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	5.09E+02	1.33E+01	2.76E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRE	MJ	1.20E+03	9.98E+02	8.51E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRM	MJ	1.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	1.30E+03	9.98E+02	8.51E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m^3	1.58E+00	1.05E-01	1.17E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator		Unit	B5	B6	B7	C1	C2	C3	C4	D
	PERE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E+00	1.15E-02	0.00E+00	1.71E+02
	PERM	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
	PERT	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E+00	1.15E-02	0.00E+00	1.71E+02
	PENRE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.48E+01	2.17E+00	0.00E+00	-5.90E+02
	PENRM	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
	PENRT	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.48E+01	2.17E+00	0.00E+00	-5.90E+02
	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
	RSF	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
	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
	FW	m^3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-02	1.17E-04	0.00E+00	-7.61E-01

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1-A3	A4	A5	B1	B2	B3	B4
	HWD	kg	1.65E-03	2.41E-03	1.73E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NHWD	kg	3.43E+01	4.80E+01	1.92E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RWD	kg	7.47E-03	6.36E-03	3.83E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator		Unit	B5	B6	B7	C1	C2	C3	C4	D
	HWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-04	5.60E-06	0.00E+00	-7.10E-04
	NHWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.39E+00	2.73E-03	0.00E+00	-1.60E+01
	RWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.35E-04	1.41E-05	0.00E+00	-3.63E-03

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1-A3	A4	A5	B1	B2	B3	B4
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator		Unit	B5	B6	B7	C1	C2	C3	C4	D
	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
	MFR	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
	MER	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
	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
	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

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	5.90E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Dangerous substances

None of the substances contained in the product are listed in the “Candidate List of Substances of Very High Concern for authorisation”, or they do not exceed the limit for registration with the European Chemicals Agency.

Mandatory additional information on release of dangerous substances to indoor air, soil and water.

Bibliography

[1] EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products EN 15804:2012+A2:2019.

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[3] IS EN 16757:2022 Sustainability of construction works. Environmental product declarations. Product Category Rules for concrete and concrete elements.

[4] Ecochain Helix v 4.3.1, 2024, web: http://app.Ecochain.com

[5] Ecoinvent v 3.8

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