

# ENVIRONMENTAL PRODUCT DECLARATION

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

Kährs Infinity  
Kährs Group



**EPD HUB, HUB-2325**

Published on 10.01.2025, last updated on 10.01.2025, valid until 09.01.2030

## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Kährs Group
Address	Ångbåtsbron 1, , 211 20, Malmö, , SE
Contact details	info@kahrs.com
Website	www.kahrs.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 1.1, 5 Dec 2023 EN 16810 Product category rules for resilient, textile and laminate floor coverings
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	HUB-1229
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Tomi Tehomaa
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	Imane Uald Lamkaddam as an authorized verifier for EPD Hub

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	Kährs Infinity
Additional labels	
Product reference	10540000 - 10549999
Place of production	Puntunlahdenkatu, 39500 Ikaalinen, Finland
Period for data	01.03.2022 - 28.02.2023 (12 months)
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m <sup>2</sup>
Declared unit mass	3.03 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	3,66E+00
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	3,53E+00
Secondary material, inputs (%)	0.15
Secondary material, outputs (%)	30.6
Total energy use, A1-A3 (kWh)	20.2
Net freshwater use, A1-A3 (m <sup>3</sup> )	0.04

# PRODUCT AND MANUFACTURER

## ABOUT THE MANUFACTURER

Kährs Group is a world-leading flooring manufacturer in hardwood and resilient flooring with a number of strong brands in its product portfolio. The company is dedicated to providing the market with innovative new flooring solution. Kährs Group, which delivers products to more than 70 countries, is the market leader in Sweden and Finland and holds a strong position in other key markets, such as Norway, the UK, US, Germany, and Switzerland.

## PRODUCT DESCRIPTION

This applies to Infinity product range manufactured by Kährs. Products are based upon synthetic thermoplastic polymers according to /EN14565/ and are supplied typically in roll form. Infinity floor coverings do not include any PVC and plasticizers. For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland)/Regulation (EU) No. 305/2011 (CPR)/ applies. The product needs a declaration of performance taking into consideration /EN 14041:2004/: Resilient, textile, laminate and modular multilayer floor coverings -Essential characteristics/ and the CE-marking. For application and use the respective national provisions apply. This EPD follows the rules according standard EN 16810 Product category rules for resilient, textile and laminate floor coverings.

Kährs Infinity has high ability for using recycled materials. Beside of normal pre-consumer waste it is possible to use post-consumer waste up to 50% of total weight.

Recycled material content of Kährs Infinity can vary till 50 w-% to 90 w-%. Maximum recycle content is 90%, where post-consumer waste can be up to 50%. Pre-consumer waste, which is collected from production of other Enomer products, can be used to reach total recycling content of 90%.

This EPD has two designs are expressed: 1) No post-consumer waste. 2) Post consumer waste of 50% (Infinity 90).

Further information can be found at [www.kahrs.com](http://www.kahrs.com).

## PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals		
Minerals	63	Finland, EU
Fossil materials	37	EU, Japan
Bio-based materials	0	

## BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	
Biogenic carbon content in packaging, kg C	0.035

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m <sup>2</sup>
Mass per declared unit	3.03 kg
Functional unit	
Reference service life	40

### 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	X	X	X	X	X	X	X	X	X	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 product considered in this EPD is made in the Kährs manufacturing plant in Ikaalinen, Finland. Data is collected at 12 months period from 1/3/2022 - 28/2/2023.

Raw materials are transported from suppliers. At first step of production raw materials are mixed and compounded to granules. Second step is scattering and melting granules to sheet form. At the end surface treatment has been applied on top of the sheet.

Products are rolled around cardboard tube and packed into craft paper with cardboard end plates. Rolls are placed into pallets wrapped with plastic films.

## 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.

Kährs Infinity is made in Finland, where it is transported into different markets. The estimated average distribution distance between the factory and the installation site is 500 km. This is presenting typical average delivery distance at north Europe. The distribution is made by truck.

Product is installed manually by using water based acrylic dispersion adhesive about 200 g/m<sup>2</sup>. Material lost during installation is 5%. This installation waste is handled by recycling, incineration or landfill. A taking back program has been started to be able to re-use installation waste. European waste classification EWC 17 02 03.

### PRODUCT USE AND MAINTENANCE (B1-B7)

In this scenario product is cleaned once a week by scrubber dryer and twice a week by manual mopping.

Scrubber drier causes water and electricity consumption. Manual mopping causes water, electricity and detergent consumption as mops are washed after every use.

As a summary:

Electricity 0,0468 kWh/year/m<sup>2</sup>

Water: 2,6 kg/year/m<sup>2</sup>

Detergent 0,00364 kg/year/m<sup>2</sup>:

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

### PRODUCT END OF LIFE (C1-C4, D)

It should be noted that service life RSL of floor covering may vary depending the amount and nature of traffic on the floor. Manufacturer has stated service life on basis of wear resistance tests and experience.

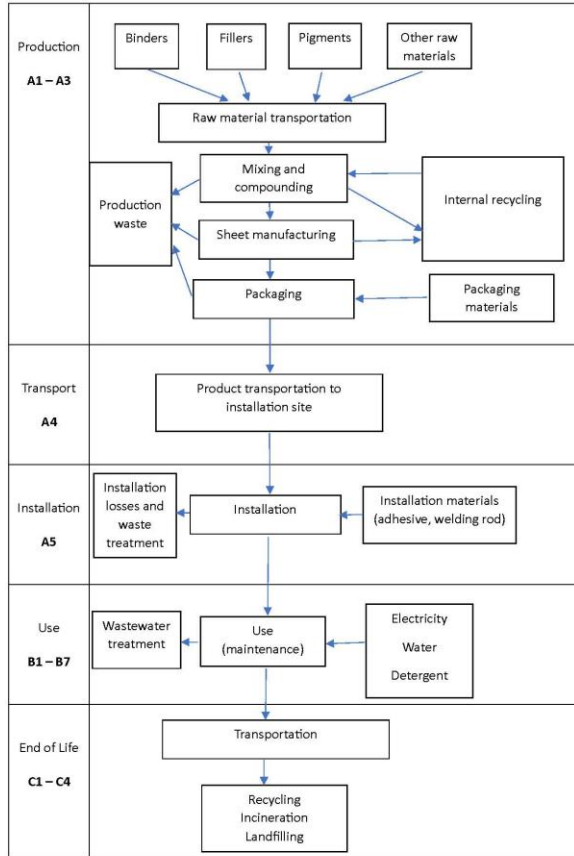
End of Life Waste scenario is based to EU statistic (2018), where:

Incineration 42,6%

Recycling 32,5%

Landfill 24,9%

# 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 material	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

### AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	%

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 <sup>1)</sup>	kg CO <sub>2</sub> e	2,63E+00	3,64E-01	5,43E-01	3,53E+00	2,04E-01	8,32E-01	MND	5,55E-01	MND	MND	MND	MND	MND	0,00E+00	3,04E-02	1,96E+00	1,43E+00	-1,85E+00
GWP – fossil	kg CO <sub>2</sub> e	2,62E+00	3,64E-01	6,67E-01	3,66E+00	2,04E-01	7,07E-01	MND	5,45E-01	MND	MND	MND	MND	MND	0,00E+00	3,04E-02	1,96E+00	1,43E+00	-1,86E+00
GWP – biogenic	kg CO <sub>2</sub> e	0,00E+00	0,00E+00	-1,25E-01	-1,25E-01	0,00E+00	1,25E-01	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,89E-02
GWP – LULUC	kg CO <sub>2</sub> e	1,06E-03	1,63E-04	5,49E-04	1,77E-03	8,30E-05	2,05E-04	MND	9,91E-03	MND	MND	MND	MND	MND	0,00E+00	1,12E-05	1,13E-04	1,64E-05	-2,04E-03
Ozone depletion pot.	kg CFC-11e	3,58E-07	8,22E-08	8,23E-08	5,23E-07	4,79E-08	3,27E-08	MND	4,39E-08	MND	MND	MND	MND	MND	0,00E+00	6,99E-09	5,04E-09	5,52E-09	-1,59E-07
Acidification potential	mol H <sup>+</sup> e	1,13E-02	3,55E-03	5,40E-03	2,03E-02	1,16E-03	2,23E-03	MND	4,24E-03	MND	MND	MND	MND	MND	0,00E+00	1,29E-04	5,22E-04	3,15E-04	-4,53E-03
EP-freshwater <sup>2)</sup>	kg Pe	5,09E-05	2,33E-06	2,18E-05	7,51E-05	1,50E-06	9,77E-06	MND	2,14E-04	MND	MND	MND	MND	MND	0,00E+00	2,49E-07	2,48E-06	4,04E-07	-2,12E-05
EP-marine	kg Ne	1,93E-03	9,40E-04	9,59E-04	3,83E-03	4,16E-04	4,75E-04	MND	4,83E-03	MND	MND	MND	MND	MND	0,00E+00	3,82E-05	1,94E-04	1,40E-04	-8,62E-04
EP-terrestrial	mol Ne	2,12E-02	1,04E-02	1,19E-02	4,35E-02	4,58E-03	5,40E-03	MND	8,83E-03	MND	MND	MND	MND	MND	0,00E+00	4,22E-04	2,07E-03	1,44E-03	-9,95E-03
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	9,15E-03	2,90E-03	2,93E-03	1,50E-02	1,31E-03	1,71E-03	MND	2,23E-03	MND	MND	MND	MND	MND	0,00E+00	1,35E-04	5,55E-04	4,36E-04	-4,00E-03
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,72E-05	1,01E-06	5,04E-06	2,33E-05	6,98E-07	1,61E-06	MND	1,50E-05	MND	MND	MND	MND	MND	0,00E+00	7,12E-08	1,09E-06	1,11E-07	-5,78E-06
ADP-fossil resources	MJ	8,36E+01	5,27E+00	7,28E+00	9,62E+01	3,08E+00	1,25E+01	MND	2,82E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	6,90E-01	4,47E-01	-4,79E+01
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	1,45E+00	2,27E-02	4,50E-01	1,92E+00	1,48E-02	2,13E-01	MND	1,81E+00	MND	MND	MND	MND	MND	0,00E+00	2,04E-03	7,44E-02	6,95E-02	-4,96E-01

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	1,19E-07	3,04E-08	5,07E-08	2,00E-07	2,26E-08	1,38E-08	MND	5,30E-08	MND	MND	MND	MND	MND	0,00E+00	3,50E-09	8,88E-09	7,45E-09	-3,38E-08
Ionizing radiation <sup>6)</sup>	kBq 11235e	1,16E-01	2,67E-02	5,83E-02	2,01E-01	1,62E-02	1,36E-02	MND	1,35E+00	MND	MND	MND	MND	MND	0,00E+00	2,17E-03	5,94E-03	1,80E-03	-3,44E-01
Ecotoxicity (freshwater)	CTUe	3,32E+01	4,23E+00	1,12E+01	4,87E+01	2,60E+00	3,11E+00	MND	9,92E+01	MND	MND	MND	MND	MND	0,00E+00	4,10E-01	1,99E+00	1,72E+00	-1,29E+01
Human toxicity, cancer	CTUh	1,43E-09	1,49E-10	1,13E-09	2,71E-09	9,90E-11	1,72E-10	MND	1,86E-09	MND	MND	MND	MND	MND	0,00E+00	1,01E-11	3,01E-10	2,45E-10	-3,86E-10
Human tox. non-cancer	CTUh	2,97E-08	4,10E-09	2,39E-08	5,78E-08	2,89E-09	3,80E-09	MND	4,14E-08	MND	MND	MND	MND	MND	0,00E+00	4,06E-10	4,34E-09	2,91E-09	-7,71E-09
SQP <sup>7)</sup>	-	7,44E+00	3,86E+00	1,45E+01	2,58E+01	2,68E+00	1,74E+00	MND	6,90E+00	MND	MND	MND	MND	MND	0,00E+00	5,26E-01	1,06E+00	5,16E-01	-2,83E+00

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 <sup>8)</sup>	MJ	1,32E+00	6,57E-02	1,96E+01	2,10E+01	4,51E-02	2,00E+00	MND	8,03E+00	MND	MND	MND	MND	MND	0,00E+00	5,14E-03	6,62E-02	8,54E-03	-1,83E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,17E+00	1,17E+00	0,00E+00	-1,17E+00	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,13E-02
Total use of renew. PER	MJ	1,32E+00	6,57E-02	2,08E+01	2,22E+01	4,51E-02	8,34E-01	MND	8,03E+00	MND	MND	MND	MND	MND	0,00E+00	5,14E-03	6,62E-02	8,54E-03	-1,79E+00
Non-re. PER as energy	MJ	3,93E+01	5,27E+00	7,24E+00	5,19E+01	3,08E+00	6,88E+00	MND	2,39E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	6,90E-01	4,47E-01	-3,13E+01
Non-re. PER as material	MJ	4,43E+01	0,00E+00	-1,66E+00	4,26E+01	0,00E+00	-3,82E-02	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-3,20E+01	-1,06E+01	4,90E+01
Total use of non-re. PER	MJ	8,36E+01	5,27E+00	5,58E+00	9,45E+01	3,08E+00	6,84E+00	MND	2,39E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	-3,13E+01	-1,01E+01	1,77E+01
Secondary materials	kg	4,67E-03	1,79E-03	2,19E-02	2,83E-02	1,04E-03	1,78E-03	MND	1,09E-02	MND	MND	MND	MND	MND	0,00E+00	1,27E-04	3,74E-03	5,19E-04	4,12E-01
Renew. secondary fuels	MJ	2,88E-04	1,56E-05	1,93E-02	1,96E-02	1,08E-05	9,83E-04	MND	5,05E-05	MND	MND	MND	MND	MND	0,00E+00	1,28E-06	2,96E-05	6,15E-06	-4,93E-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	0,00E+00	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 <sup>3</sup>	3,67E-02	6,14E-04	4,74E-03	4,20E-02	4,11E-04	4,97E-03	MND	4,38E-02	MND	MND	MND	MND	MND	0,00E+00	5,91E-05	7,28E-04	-2,94E-05	-1,48E-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	1,50E-01	6,17E-03	2,04E-01	3,60E-01	3,57E-03	1,97E-02	MND	5,42E-02	MND	MND	MND	MND	MND	0,00E+00	6,05E-04	1,14E-02	9,69E-03	-4,18E-02
Non-hazardous waste	kg	5,42E+00	9,66E-02	1,41E+00	6,93E+00	6,32E-02	5,08E-01	MND	1,11E+00	MND	MND	MND	MND	MND	0,00E+00	9,94E-03	7,54E-01	1,47E+00	-8,48E-01
Radioactive waste	kg	5,57E-05	3,63E-05	3,96E-05	1,32E-04	2,12E-05	1,41E-04	MND	2,97E-04	MND	MND	MND	MND	MND	0,00E+00	3,05E-06	2,39E-06	1,38E-06	-8,52E-05

### 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	0,00E+00	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	9,30E-02	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,05E+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	6,75E-02	MND	0,00E+00	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	1,12E+00	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,02E+01	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 <sub>2</sub> e	2,51E+00	3,60E-01	7,01E-01	3,57E+00	2,02E-01	1,08E+00	MND	5,43E-01	MND	MND	MND	MND	MND	0,00E+00	3,01E-02	1,96E+00	1,41E+00	-1,79E+00
Ozone depletion Pot.	kg CFC <sub>11</sub> e	2,59E-07	6,51E-08	6,75E-08	3,92E-07	3,79E-08	2,48E-08	MND	4,10E-08	MND	MND	MND	MND	MND	0,00E+00	5,53E-09	4,37E-09	4,48E-09	-1,40E-07
Acidification	kg SO <sub>2</sub> e	9,43E-03	2,81E-03	4,32E-03	1,66E-02	8,67E-04	6,21E-03	MND	3,41E-03	MND	MND	MND	MND	MND	0,00E+00	9,99E-05	3,88E-04	2,27E-04	-3,72E-03
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	5,13E-03	4,21E-04	8,94E-02	9,49E-02	2,03E-04	5,60E-03	MND	3,70E-03	MND	MND	MND	MND	MND	0,00E+00	2,28E-05	7,34E-04	4,19E-03	-9,10E-04
POCP (“smog”)	kg C <sub>2</sub> H <sub>4</sub> e	7,71E-04	8,57E-05	2,75E-04	1,13E-03	2,82E-05	2,52E-04	MND	1,62E-04	MND	MND	MND	MND	MND	0,00E+00	3,90E-06	2,06E-05	4,42E-05	-3,19E-04
ADP-elements	kg Sbe	1,70E-05	9,91E-07	4,83E-06	2,28E-05	6,81E-07	1,45E-06	MND	1,46E-05	MND	MND	MND	MND	MND	0,00E+00	6,90E-08	1,07E-06	1,02E-07	-5,75E-06
ADP-fossil	MJ	8,36E+01	5,27E+00	7,28E+00	9,61E+01	3,08E+00	1,74E+01	MND	2,81E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	6,89E-01	4,47E-01	-4,75E+01

# ENVIRONMENTAL IMPACT DATA (INFINITY 90)

## CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF (INFINITY 90)

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total <sup>1)</sup>	kg CO <sub>2</sub> e	1,58E+00	3,28E-01	5,43E-01	2,45E+00	2,04E-01	7,78E-01	MND	5,55E-01	MND	MND	MND	MND	MND	0,00E+00	3,04E-02	1,96E+00	1,43E+00	-1,85E+00
GWP – fossil	kg CO <sub>2</sub> e	1,58E+00	3,28E-01	6,67E-01	2,57E+00	2,04E-01	6,53E-01	MND	5,45E-01	MND	MND	MND	MND	MND	0,00E+00	3,04E-02	1,96E+00	1,43E+00	-1,86E+00
GWP – biogenic	kg CO <sub>2</sub> e	0,00E+00	0,00E+00	-1,25E-01	-1,25E-01	0,00E+00	1,25E-01	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,89E-02
GWP – LULUC	kg CO <sub>2</sub> e	6,91E-04	1,43E-04	5,49E-04	1,38E-03	8,30E-05	1,85E-04	MND	9,91E-03	MND	MND	MND	MND	MND	0,00E+00	1,12E-05	1,13E-04	1,64E-05	-2,04E-03
Ozone depletion pot.	kg CFC-11e	1,85E-07	7,40E-08	8,23E-08	3,41E-07	4,79E-08	2,36E-08	MND	4,39E-08	MND	MND	MND	MND	MND	0,00E+00	6,99E-09	5,04E-09	5,52E-09	-1,59E-07
Acidification potential	mol H <sup>+</sup> e	6,10E-03	3,14E-03	5,40E-03	1,46E-02	1,16E-03	1,95E-03	MND	4,24E-03	MND	MND	MND	MND	MND	0,00E+00	1,29E-04	5,22E-04	3,15E-04	-4,53E-03
EP-freshwater <sup>2)</sup>	kg Pe	2,89E-05	2,24E-06	2,18E-05	5,30E-05	1,50E-06	8,67E-06	MND	2,14E-04	MND	MND	MND	MND	MND	0,00E+00	2,49E-07	2,48E-06	4,04E-07	-2,12E-05
EP-marine	kg Ne	1,09E-03	8,35E-04	9,59E-04	2,89E-03	4,16E-04	4,28E-04	MND	4,83E-03	MND	MND	MND	MND	MND	0,00E+00	3,82E-05	1,94E-04	1,40E-04	-8,62E-04
EP-terrestrial	mol Ne	1,19E-02	9,26E-03	1,19E-02	3,30E-02	4,58E-03	4,88E-03	MND	8,83E-03	MND	MND	MND	MND	MND	0,00E+00	4,22E-04	2,07E-03	1,44E-03	-9,95E-03
POCP (“smog”) <sup>3)</sup>	kg NMVOce	4,98E-03	2,60E-03	2,93E-03	1,05E-02	1,31E-03	1,49E-03	MND	2,23E-03	MND	MND	MND	MND	MND	0,00E+00	1,35E-04	5,55E-04	4,36E-04	-4,00E-03
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,02E-05	8,23E-07	5,04E-06	1,60E-05	6,98E-07	1,25E-06	MND	1,50E-05	MND	MND	MND	MND	MND	0,00E+00	7,12E-08	1,09E-06	1,11E-07	-5,78E-06
ADP-fossil resources	MJ	4,26E+01	4,77E+00	7,28E+00	5,46E+01	3,08E+00	1,04E+01	MND	2,82E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	6,90E-01	4,47E-01	-4,79E+01
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	7,59E-01	2,04E-02	4,50E-01	1,23E+00	1,48E-02	1,78E-01	MND	1,81E+00	MND	MND	MND	MND	MND	0,00E+00	2,04E-03	7,44E-02	6,95E-02	-4,96E-01

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 (INFINITY 90)

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	7,14E-08	2,98E-08	5,07E-08	1,52E-07	2,26E-08	1,14E-08	MND	5,30E-08	MND	MND	MND	MND	MND	0,00E+00	3,50E-09	8,88E-09	7,45E-09	-3,38E-08
Ionizing radiation <sup>6)</sup>	kBq	6,65E-02	2,34E-02	5,83E-02	1,48E-01	1,62E-02	1,10E-02	MND	1,35E+00	MND	MND	MND	MND	MND	0,00E+00	2,17E-03	5,94E-03	1,80E-03	-3,44E-01
Ecotoxicity (freshwater)	CTUe	1,89E+01	3,94E+00	1,12E+01	3,41E+01	2,60E+00	2,38E+00	MND	9,92E+01	MND	MND	MND	MND	MND	0,00E+00	4,10E-01	1,99E+00	1,72E+00	-1,29E+01
Human toxicity, cancer	CTUh	1,07E-09	1,29E-10	1,13E-09	2,33E-09	9,90E-11	1,53E-10	MND	1,86E-09	MND	MND	MND	MND	MND	0,00E+00	1,01E-11	3,01E-10	2,45E-10	-3,86E-10
Human tox. non-cancer	CTUh	1,78E-08	3,79E-09	2,39E-08	4,55E-08	2,89E-09	3,19E-09	MND	4,14E-08	MND	MND	MND	MND	MND	0,00E+00	4,06E-10	4,34E-09	2,91E-09	-7,71E-09
SQP <sup>7)</sup>	-	5,24E+00	4,05E+00	1,45E+01	2,38E+01	2,68E+00	1,64E+00	MND	6,90E+00	MND	MND	MND	MND	MND	0,00E+00	5,26E-01	1,06E+00	5,16E-01	-2,83E+00

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 (INFINITY 90)

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 <sup>8)</sup>	MJ	7,56E-01	5,53E-02	1,96E+01	2,04E+01	4,51E-02	1,98E+00	MND	8,03E+00	MND	MND	MND	MND	MND	0,00E+00	5,14E-03	6,62E-02	8,54E-03	-1,83E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,17E+00	1,17E+00	0,00E+00	-1,17E+00	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,13E-02
Total use of renew. PER	MJ	7,56E-01	5,53E-02	2,08E+01	2,16E+01	4,51E-02	8,05E-01	MND	8,03E+00	MND	MND	MND	MND	MND	0,00E+00	5,14E-03	6,62E-02	8,54E-03	-1,79E+00
Non-re. PER as energy	MJ	2,05E+01	4,77E+00	7,24E+00	3,25E+01	3,08E+00	5,91E+00	MND	2,39E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	6,90E-01	4,47E-01	-3,13E+01
Non-re. PER as material	MJ	2,21E+01	0,00E+00	-8,13E-01	2,13E+01	0,00E+00	-3,82E-02	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,60E+01	-5,30E+00	4,90E+01
Total use of non-re. PER	MJ	4,26E+01	4,77E+00	6,43E+00	5,38E+01	3,08E+00	5,87E+00	MND	2,39E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	-1,53E+01	-4,85E+00	1,77E+01
Secondary materials	kg	7,58E-03	1,53E-03	2,19E-02	3,10E-02	1,04E-03	1,91E-03	MND	1,09E-02	MND	MND	MND	MND	MND	0,00E+00	1,27E-04	3,74E-03	5,19E-04	4,12E-01
Renew. secondary fuels	MJ	1,87E-04	1,33E-05	1,93E-02	1,95E-02	1,08E-05	9,77E-04	MND	5,05E-05	MND	MND	MND	MND	MND	0,00E+00	1,28E-06	2,96E-05	6,15E-06	-4,93E-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	0,00E+00	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 <sup>3</sup>	1,92E-02	5,61E-04	4,74E-03	2,45E-02	4,11E-04	4,09E-03	MND	4,38E-02	MND	MND	MND	MND	MND	0,00E+00	5,91E-05	7,28E-04	-2,94E-05	-1,48E-02

8) PER = Primary energy resources.

### END OF LIFE – WASTE (INFINITY 90)

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	9,21E-02	5,90E-03	2,04E-01	3,02E-01	3,57E-03	1,68E-02	MND	5,42E-02	MND	MND	MND	MND	MND	0,00E+00	6,05E-04	1,14E-02	9,69E-03	-4,18E-02
Non-hazardous waste	kg	2,96E+00	9,11E-02	1,41E+00	4,46E+00	6,32E-02	3,85E-01	MND	1,11E+00	MND	MND	MND	MND	MND	0,00E+00	9,94E-03	7,54E-01	1,47E+00	-8,48E-01
Radioactive waste	kg	3,15E-05	3,26E-05	3,96E-05	1,04E-04	2,12E-05	1,39E-04	MND	2,97E-04	MND	MND	MND	MND	MND	0,00E+00	3,05E-06	2,39E-06	1,38E-06	-8,52E-05

### END OF LIFE – OUTPUT FLOWS (INFINITY 90)

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	0,00E+00	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	9,30E-02	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,05E+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	6,75E-02	MND	0,00E+00	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	1,12E+00	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,02E+01	0,00E+00	0,00E+00

### ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930 (INFINITY 90)

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 <sub>2</sub> e	1,52E+00	3,25E-01	7,01E-01	2,54E+00	2,02E-01	1,03E+00	MND	5,43E-01	MND	MND	MND	MND	MND	0,00E+00	3,01E-02	1,96E+00	1,41E+00	-1,79E+00
Ozone depletion Pot.	kg CFC <sub>11</sub> e	1,34E-07	5,86E-08	6,75E-08	2,60E-07	3,79E-08	1,83E-08	MND	4,10E-08	MND	MND	MND	MND	MND	0,00E+00	5,53E-09	4,37E-09	4,48E-09	-1,40E-07
Acidification	kg SO <sub>2</sub> e	5,05E-03	2,49E-03	4,32E-03	1,19E-02	8,67E-04	5,98E-03	MND	3,41E-03	MND	MND	MND	MND	MND	0,00E+00	9,99E-05	3,88E-04	2,27E-04	-3,72E-03
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	3,45E-03	3,78E-04	8,94E-02	9,32E-02	2,03E-04	5,52E-03	MND	3,70E-03	MND	MND	MND	MND	MND	0,00E+00	2,28E-05	7,34E-04	4,19E-03	-9,10E-04
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	4,13E-04	7,56E-05	2,75E-04	7,63E-04	2,82E-05	2,34E-04	MND	1,62E-04	MND	MND	MND	MND	MND	0,00E+00	3,90E-06	2,06E-05	4,42E-05	-3,19E-04
ADP-elements	kg Sbe	1,00E-05	8,01E-07	4,83E-06	1,57E-05	6,81E-07	1,10E-06	MND	1,46E-05	MND	MND	MND	MND	MND	0,00E+00	6,90E-08	1,07E-06	1,02E-07	-5,75E-06
ADP-fossil	MJ	4,26E+01	4,77E+00	7,28E+00	5,46E+01	3,08E+00	1,53E+01	MND	2,81E+01	MND	MND	MND	MND	MND	0,00E+00	4,56E-01	6,89E-01	4,47E-01	-4,75E+01

## 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.

Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited  
10.01.2025

