



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Katukivi 80

Lakka Rakennustuotteet Oy



EPD HUB, HUB-6336

Published on 16.05.2026, last updated on 16.05.2026, valid until 16.05.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.



Created with One Click LCA

Lakka[®]

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Lakka Rakennustuotteet Oy
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Website	www.lakka.fi

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025 EN 16757 Product Category Rules for concrete and concrete elements
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Jussi Kakkonen Lakka Rakennustuotteet 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	Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. 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	Katukivi 80
Additional labels	Katukivi 80 (many colours/finishes). Annex gives A1–A3 scaling for other paving stones produced on the same line.
Product reference	-
Place(s) of raw material origin	EU
Place of production	Joensuu, Finland; Jalasjärvi, Finland; Loppi, Finland
Place(s) of installation and use	Finland
Period for data	1.1.2024 - 31.12.2024
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3 (%)	+15% / -21%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	91

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 ton of Paving Stone (Katukivi 80)
Declared unit mass	1000 kg
Mass of packaging	14,82 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	110
GWP-total, A1-A3 (kgCO ₂ e)	88
Secondary material, inputs (%)	2,44
Secondary material, outputs (%)	70
Total energy use, A1-A3 (kWh)	383
Net freshwater use, A1-A3 (m ³)	1,39

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Lakka Group is a family-owned concrete construction company founded in 1965. The subsidiaries of Lakka Group are Lakka Building Products Ltd and Lakka Element and Precast Concrete Ltd. The company has production facilities in Joensuu, Loppi, Jalasjärvi and Varkaus. The product groups manufactured by Lakka Group include paving stones, dry mixes, blocks, ready-mixed concrete, concrete elements, and stone houses. The operations have a Key Flag mark. The company values are based on the idea of responsibility towards the environment, personnel and customers.

PRODUCT DESCRIPTION

The reference product is a non-reinforced, vibro-pressed concrete paving block Katukivi 80. The product is manufactured in Finland on comparable vibro-press lines at factories located in Jalasjärvi, Joensuu and Loppi. Katukivi 80 is intended for exterior pavements and yard/paving applications; the 80 mm thickness is suitable also for repeated heavy-traffic areas. Product group variations are primarily related to appearance (colour and surface finish) while the intended function, core materials and manufacturing process remain the same. The declared results are reported as a production-weighted average across the included plants (weighting factors: Loppi 9.78%, Joensuu 40.74%, Jalasjärvi 49.48%).

Technical specifications:

Size: 278 × 138 × 80 mm

Weight kg/pcs: ≈ 7.2 kg/pc (≈ 185 kg/m²; 26 pcs/m²)

Packaging: LDPE film on EUR pallets; typical pallet content 7.5 m² (Joensuu, Loppi) / 7.7 m² (Jalasjärvi); pallet weight ≈ 1410–1440 kg. Variants include Katukivi 80 Patina (black-white); standard colours grey, black with additional colours on request; chamferless option available.

Annex 1 provides a scaling/conversion table (product-specific masses and

calculation rules) to present A1–A3 results per m² consistently for the paving stone variants included in this EPD, based on the same multi-plant LCA model.

Further information can be found at: www.lakka.fi

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	100%	EU
Fossil materials	0	-
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,00
Biogenic carbon content in packaging, kg C	5,95

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 ton of Paving Stone (Katukivi 80)
Mass per declared unit	1000 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	ND	ND	ND	ND	ND	ND	ND	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

Not declared = ND.

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.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The product is made of earth-moist concrete consisting of aggregates (sand and gravel), cement and water. Other raw materials such as admixtures (and optional pigments) account for <1%. Raw materials (A1) are manufactured in the EU and transported to the plants (A2) by truck (>32 t) or by sea where applicable; an occupancy rate of 50% is assumed for road haulage and 100% for sea freight.

In the manufacturing process (A3), the aggregate is delivered to the silos and dispensed on a conveyor to be weighed with a balance. Cement is added and the material is mixed dry, after which water and additives (superplasticizer, optional pigments) are added. The earth-moist mix is filled into paving-stone molds and vibrated to the target shape and density. The paving stones are then taken to the dryer where the product acquires its final shape and density. Products are packed in plastic on wooden pallets and stored outside. Ancillary materials used in small amounts include mold/hydraulic oils and process water (parts of which do not remain in the final product). Manufacturing requires energy for electricity and heating of production facilities. Molds, machinery and equipment are counted as capital goods and are not taken into consideration in the calculation. Waste generated at the production facility is sorted. Production loss is collected and sold as recycled aggregate for backfilling/earthworks (average transport to treatment 20 km). Wastewater is discharged to the municipal sewer and treated at a public WWTP (0 km truck transport). Hazardous waste mineral oil is delivered to a licensed operator for energy recovery/incineration (~8 km). Untreated wood waste (e.g., broken pallets) is sent to recycling/energy recovery (~8 km).

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

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.

Product is transported to the construction site with truck (>32 t). The average distance from the production facility to the construction is 93 km (A4), and possibly empty return trips are considered by using a 50% occupancy rate for road transports. Transportation losses are assessed as insignificant.

At the site, paving stones are laid manually on a prepared base and compacted. Project-specific installation materials (e.g., bedding and jointing sand, base layers, edge restraints) and any site energy use are outside the scope of this product EPD. Module A5 covers packaging waste and 2% product wastage (cuts/damage). Packaging waste is modelled with One Click LCA EU waste treatment groups as follows: LDPE shrink wrap: 40% recycling, 37% incineration with energy recovery and 23% landfill; wooden pallets: 32% recycling, 30% incineration with energy recovery and 38% landfill. The transport distance to treatment for packaging waste is 50 km by 16–32 t lorry. Concrete cut-offs from installation are crushed and used as backfilling to replace virgin aggregates; the transport distance to treatment for installation waste is 20 km by lorry. Benefits from material substitution are reported in Module D.

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 assessed.

Carbonation during 100 years of use has been estimated according to EN

16757 Annex G to be $-2.20 \text{ kg CO}_2/\text{m}^2$ (one exposed face), but it is not included in the calculation results.

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 life cycle, the paving stones are dismantled (C1). Materials added at installation are included in module C. Demolition energy is modelled as diesel use in building machines, assumed as 0.01 kWh/kg of concrete (i.e., 10 kWh per 1 t declared unit). The dismantled waste material is transported to the closest facility for recycling or final disposal (C2); an average transport distance of 50 km by $16\text{--}32 \text{ t}$ lorry is assumed.

Based on the applied scenario (JRC Technical report; Gervasio & Dimova, 2018), 70% of the concrete waste is crushed and recycled to replace virgin gravel/aggregates in soil construction (C3), and 30% is disposed of to landfill (C4). (The waste handling scenario is based on JRC Technical report (Gervasio & Dimova, 2018).)

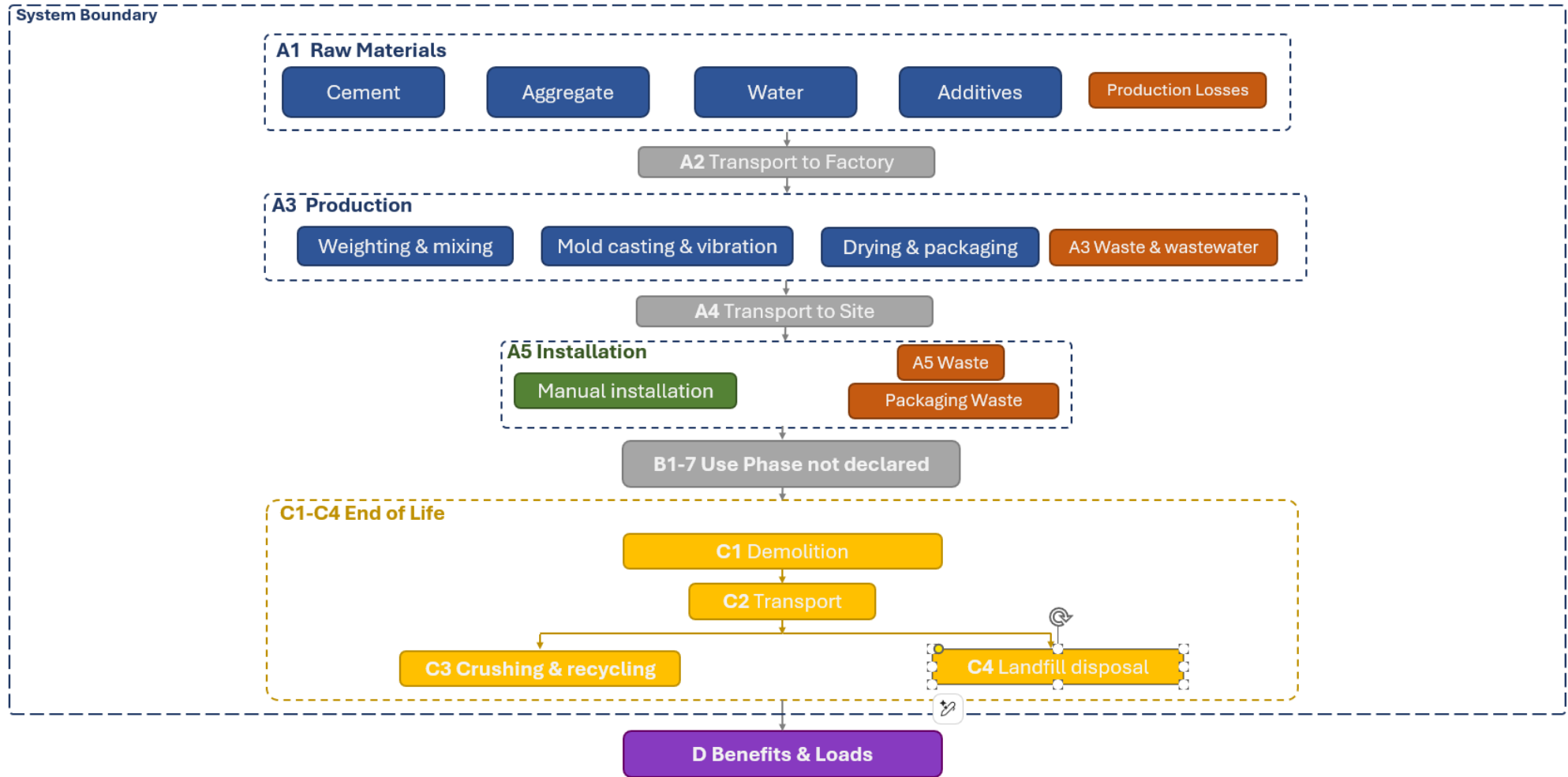
As the End-of-Life conditions of concrete cannot be precisely defined and the knowledge of the rate of CO_2 uptake in different underground conditions and real particle size distributions is limited, carbonation is estimated using the simplified method described in EN 16757.

The benefits of replacing virgin aggregates with crushed concrete, as well as benefits and loads from packaging waste treatment/energy recovery, are considered in Module D. Substituted processes and key assumptions (including reference year) follow the One Click LCA EU ready-made waste treatment groups and are reported in the dataset/datapoint documentation and comments.

End-of-life scenarios (C1–C4 and D) are modelled using EU-level waste treatment datasets / ready-made groups in One Click LCA, representing

scenarios currently used across Europe. As the product is used in Finland, the EU-level scenario is applied as a proxy assumption for Finland in this EPD.

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.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

This LCA study includes the provision of all materials, transportation, energy and emission flows, and end of life processing of product. All industrial processes from raw material acquisition and pre-processing, production, product distribution and installation and end-of-life management are included. Due to lack of data, some materials are excluded but they do not exceed the 1% cut-off criteria. These include materials which are used in the product only in very small amounts and have a negligible impact on the emissions of the product.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product’s manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

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

All estimations and assumptions are given below.

Proxy data is used for certain materials due to their unavailability in the database.

- Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. It may vary but as the role of transportation emission in total results is small, the variety in load is assumed to be

negligible. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints.

- Module A4: Transportation does not cause losses as products are packaged properly. Also, volume capacity utilization factor is assumed to be 1 for the nested packaged products. Additionally, transportation distances are assumed based on a particular scenario of customer’s premises in 93 km and a lorry is the assumed vehicle type used.
- Module A5: Packaging waste is declared as installation waste.
- Module C2: Transportation distance to waste handling facility is estimated as 50 km and the transportation method is assumed as lorry.
- Module C3, C4, D: 70% of concrete is sent for recycling while the remaining 30% is assumed to be landfilled. Module D Benefits and loads of wooden pallets incineration after 1 time use is calculated. The packaging materials incinerated for energy recovery displace electricity and heat production, while recycled materials displace the need for virgin material production.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple factories
Grouping method	Based on average results of product group - by total volume
Variation in GWP-fossil for A1-A3, %	+15% / -21%

The data used in the EPD is a production-weighted average of the plant-specific LCA models for three manufacturing sites in Finland (Joensuu, Loppi, Jalasjärvi). On a factory level, allocation to the product is based on annual production volume (incl. production losses/scrap), and the “average product” results are calculated using annual production volumes as

weighting factors. The weighting factors applied in the averaging are: Loppi 9.78%, Joensuu 40.74% and Jalasjärvi 49.48%.

Relative to the production-weighted average, the plant-specific deviations in GWP (A1–A3) are: Jalasjärvi –21% (lowest), Loppi +11%, and Joensuu +15% (highest). The variation is mainly driven by differences in raw material transport distances and supplier logistics, minor differences in locally sourced aggregates and cementitious constituents, and small recipe variations between plants. In Jalasjärvi, lower-carbon binders have been partially introduced, contributing to the lower GWP compared to the other plants.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2’.

Bozdağ, Ö. & Seçer, M. (2007). Reference used for conservative demolition/deconstruction energy assumption (0.01 kWh/kg building material) in Module C1 (as per One Click LCA Recommended Scenarios (EU) guidance).

Gervasio, H. & Dimova, S. (2018). JRC Technical Report: Model for Life Cycle Assessment (LCA) of buildings. European Commission, Joint Research Centre (JRC).

Zero Waste Europe. (2023). Debunking Efficient Recovery: The Performance of EU Incineration Facilities.

Eurostat. Packaging waste statistics / waste treatment shares used for packaging EoL scenarios (tables used in model):
https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519242/default/table?lang=en
https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519174/default/table?lang=en

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	9,11E+01	8,71E+00	-1,18E+01	8,80E+01	1,09E+01	2,52E+01	ND	ND	ND	ND	ND	ND	ND	3,61E+00	9,68E+00	3,06E+00	1,87E+00	-1,61E+01
GWP – fossil	kg CO ₂ e	9,10E+01	8,70E+00	9,96E+00	1,10E+02	1,09E+01	3,39E+00	ND	ND	ND	ND	ND	ND	ND	3,60E+00	9,67E+00	3,06E+00	1,87E+00	-9,41E+00
GWP – biogenic	kg CO ₂ e	9,56E-02	1,92E-03	-2,18E+01	-2,17E+01	2,29E-03	2,18E+01	ND	ND	ND	ND	ND	ND	ND	3,68E-04	1,92E-03	-3,13E-04	-5,96E-04	-6,68E+00
GWP – LULUC	kg CO ₂ e	1,60E-02	4,01E-03	2,27E-02	4,27E-02	4,09E-03	1,74E-03	ND	ND	ND	ND	ND	ND	ND	3,69E-04	3,42E-03	3,14E-04	1,07E-03	-9,72E-03
Ozone depletion pot.	kg CFC ₋₁₁ e	1,91E-06	1,28E-07	2,79E-07	2,32E-06	2,19E-07	5,99E-08	ND	ND	ND	ND	ND	ND	ND	5,52E-08	1,92E-07	4,69E-08	5,42E-08	-9,51E-08
Acidification potential	mol H ⁺ e	2,67E-01	4,20E-02	3,95E-02	3,48E-01	3,51E-02	1,07E-02	ND	ND	ND	ND	ND	ND	ND	3,25E-02	3,02E-02	2,76E-02	1,33E-02	-5,69E-02
EP-freshwater ²⁾	kg Pe	2,16E-03	6,56E-04	2,01E-03	4,83E-03	7,33E-04	2,54E-04	ND	ND	ND	ND	ND	ND	ND	1,04E-04	6,41E-04	8,84E-05	1,54E-04	-3,48E-03
EP-marine	kg Ne	9,85E-02	1,24E-02	1,19E-02	1,23E-01	1,19E-02	5,76E-03	ND	ND	ND	ND	ND	ND	ND	1,51E-02	1,02E-02	1,28E-02	5,06E-03	-1,23E-02
EP-terrestrial	mol Ne	1,11E+00	1,35E-01	1,20E-01	1,37E+00	1,30E-01	4,21E-02	ND	ND	ND	ND	ND	ND	ND	1,65E-01	1,11E-01	1,40E-01	5,53E-02	-1,44E-01
POCP (“smog”) ³⁾	kg NMVOCe	2,75E-01	5,10E-02	5,51E-02	3,81E-01	5,72E-02	1,28E-02	ND	ND	ND	ND	ND	ND	ND	4,93E-02	4,74E-02	4,19E-02	1,98E-02	-4,21E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,60E-04	2,34E-05	3,63E-05	2,20E-04	3,00E-05	6,58E-06	ND	ND	ND	ND	ND	ND	ND	1,29E-06	3,16E-05	1,10E-06	2,98E-06	-4,28E-05
ADP-fossil resources	MJ	2,72E+02	1,25E+02	4,36E+02	8,33E+02	1,57E+02	2,78E+01	ND	ND	ND	ND	ND	ND	ND	4,72E+01	1,36E+02	4,01E+01	4,60E+01	-1,29E+02
Water use ⁵⁾	m ³ e depr.	8,69E+03	6,07E-01	6,14E+00	8,70E+03	8,07E-01	1,74E+02	ND	ND	ND	ND	ND	ND	ND	1,18E-01	6,67E-01	1,00E-01	1,33E-01	-1,12E+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, EF 3.1

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	1,67E-06	8,33E-07	6,90E-07	3,19E-06	1,08E-06	1,40E-07	ND	ND	ND	ND	ND	ND	ND	9,25E-07	7,60E-07	5,99E-06	3,02E-07	-7,69E-07
Ionizing radiation ⁶⁾	kBq 11235e	3,84E+02	1,07E-01	1,52E+01	3,99E+02	1,90E-01	8,01E+00	ND	ND	ND	ND	ND	ND	ND	2,09E-02	1,73E-01	1,78E-02	2,89E-02	-1,27E+00
Ecotoxicity (freshwater)	CTUe	2,52E+02	1,73E+01	1,17E+02	3,86E+02	1,86E+01	1,07E+01	ND	ND	ND	ND	ND	ND	ND	2,60E+00	1,78E+01	2,21E+00	3,86E+00	-2,49E+01
Human toxicity, cancer	CTUh	1,89E-08	1,47E-09	2,56E-08	4,60E-08	1,79E-09	1,23E-09	ND	ND	ND	ND	ND	ND	ND	3,71E-10	1,65E-09	3,15E-10	3,45E-10	-2,37E-09
Human tox. non-cancer	CTUh	2,50E-07	7,84E-08	7,24E-08	4,01E-07	1,02E-07	2,47E-08	ND	ND	ND	ND	ND	ND	ND	5,87E-09	8,53E-08	4,99E-09	7,93E-09	-7,47E-08
SQP ⁷⁾	-	2,26E+02	1,20E+02	2,01E+03	2,36E+03	1,59E+02	5,77E+01	ND	ND	ND	ND	ND	ND	ND	3,30E+00	8,08E+01	2,81E+00	9,05E+01	-9,19E+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	4,99E+01	1,68E+00	1,45E+02	1,97E+02	2,56E+00	-2,09E+02	ND	ND	ND	ND	ND	ND	ND	2,99E-01	2,35E+00	2,54E-01	4,44E-01	3,14E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	2,17E+02	2,17E+02	0,00E+00	-2,17E+02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,84E+01
Total use of renew. PER	MJ	4,99E+01	1,68E+00	3,62E+02	4,14E+02	2,56E+00	-4,26E+02	ND	ND	ND	ND	ND	ND	ND	2,99E-01	2,35E+00	2,54E-01	4,44E-01	8,98E+01
Non-re. PER as energy	MJ	2,79E+02	1,25E+02	3,99E+02	8,04E+02	1,57E+02	1,30E+01	ND	ND	ND	ND	ND	ND	ND	4,72E+01	1,36E+02	4,01E+01	4,60E+01	-1,29E+02
Non-re. PER as material	MJ	0,00E+00	0,00E+00	2,92E+01	2,92E+01	0,00E+00	-2,92E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,86E+00
Total use of non-re. PER	MJ	2,79E+02	1,25E+02	4,29E+02	8,33E+02	1,57E+02	-1,62E+01	ND	ND	ND	ND	ND	ND	ND	4,72E+01	1,36E+02	4,01E+01	4,60E+01	-1,19E+02
Secondary materials	kg	2,44E+01	5,42E-02	8,53E-01	2,53E+01	6,81E-02	5,13E-01	ND	ND	ND	ND	ND	ND	ND	1,96E-02	6,22E-02	1,66E-02	1,16E-02	4,83E-02
Renew. secondary fuels	MJ	5,25E+01	6,49E-04	7,54E+00	6,01E+01	8,60E-04	1,20E+00	ND	ND	ND	ND	ND	ND	ND	5,12E-05	7,85E-04	4,35E-05	2,39E-04	-6,88E-04
Non-ren. secondary fuels	MJ	3,18E+02	0,00E+00	0,00E+00	3,18E+02	0,00E+00	6,37E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	1,23E+00	1,80E-02	1,42E-01	1,39E+00	2,33E-02	9,98E-03	ND	ND	ND	ND	ND	ND	ND	3,12E-03	1,83E-02	2,65E-03	4,78E-02	-2,77E-01

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	3,57E-01	2,11E-01	5,50E-01	1,12E+00	2,28E-01	7,76E-02	ND	ND	ND	ND	ND	ND	ND	5,25E-02	1,95E-01	4,46E-02	5,08E-02	-8,17E-01
Non-hazardous waste	kg	8,58E+00	3,85E+00	2,26E+01	3,50E+01	4,56E+00	3,37E+01	ND	ND	ND	ND	ND	ND	ND	7,15E-01	4,11E+00	6,08E-01	1,16E+00	-2,11E+01
Radioactive waste	kg	7,88E-04	2,61E-05	3,63E-03	4,44E-03	4,70E-05	9,55E-05	ND	ND	ND	ND	ND	ND	ND	5,12E-06	4,30E-05	4,35E-06	7,04E-06	-3,16E-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	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	8,07E-04	0,00E+00	2,01E+01	2,01E+01	0,00E+00	2,52E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,00E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	1,53E-03	0,00E+00	0,00E+00	1,53E-03	0,00E+00	3,05E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	3,51E-04	0,00E+00	0,00E+00	3,51E-04	0,00E+00	2,52E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,06E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,46E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	9,60E+01	8,66E+00	9,93E+00	1,15E+02	1,08E+01	3,80E+00	ND	ND	ND	ND	ND	ND	ND	3,59E+00	9,61E+00	3,05E+00	1,86E+00	-9,36E+00
Ozone depletion Pot.	kg CFC ₁₁ e	1,41E-06	1,02E-07	2,28E-07	1,74E-06	1,74E-07	4,57E-08	ND	ND	ND	ND	ND	ND	ND	4,37E-08	1,53E-07	3,72E-08	4,31E-08	-7,94E-08
Acidification	kg SO ₂ e	2,04E-01	3,27E-02	3,08E-02	2,68E-01	2,66E-02	8,13E-03	ND	ND	ND	ND	ND	ND	ND	2,29E-02	2,30E-02	1,94E-02	9,83E-03	-4,52E-02
Eutrophication	kg PO ₄ ³ e	5,53E-02	6,34E-03	2,06E-01	2,67E-01	6,73E-03	6,27E-03	ND	ND	ND	ND	ND	ND	ND	5,34E-03	5,84E-03	4,54E-03	3,12E-03	-8,11E-03
POCP (“smog”)	kg C ₂ H ₄ e	1,12E-02	2,46E-03	4,50E-03	1,82E-02	2,50E-03	6,65E-04	ND	ND	ND	ND	ND	ND	ND	1,71E-03	2,19E-03	1,46E-03	9,29E-04	-3,68E-03
ADP-elements	kg Sbe	7,35E-05	2,28E-05	3,60E-05	1,32E-04	2,93E-05	4,74E-06	ND	ND	ND	ND	ND	ND	ND	1,26E-06	3,09E-05	1,07E-06	2,92E-06	-4,21E-05
ADP-fossil	MJ	2,64E+02	1,23E+02	1,59E+02	5,46E+02	1,54E+02	2,16E+01	ND	ND	ND	ND	ND	ND	ND	4,68E+01	1,33E+02	3,98E+01	4,55E+01	-1,07E+02

ADDITIONAL INDICATOR – GWP-GHG

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	9,10E+01	8,71E+00	9,99E+00	1,10E+02	1,09E+01	3,39E+00	ND	ND	ND	ND	ND	ND	ND	3,61E+00	9,67E+00	3,06E+00	1,87E+00	-9,42E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Heat production, natural gas, at industrial furnace >100kW, Albania, Ecoinvent, 0.0773 kgCO₂e/MJ
2. Diesel, burned in building machine, World, Ecoinvent, 0.10 kgCO₂e/MJ
3. Electricity production, nuclear, pressure water reactor, Finland, Ecoinvent, 0.0071 kgCO₂e/kWh
4. Diesel, burned in building machine, World, Ecoinvent, 0.10 kgCO₂e/MJ
5. Electricity production, nuclear, pressure water reactor, Finland, Ecoinvent, 0.0071 kgCO₂e/kWh
6. Heat production, light fuel oil, at industrial furnace 1MW, Albania, Ecoinvent, 0.10 kgCO₂e/MJ
7. Diesel, burned in building machine, World, Ecoinvent, 0.10 kgCO₂e/MJ
8. Electricity production, nuclear, pressure water reactor, Finland, Ecoinvent, 0.0071 kgCO₂e/kWh
9. Market for heat, district or industrial, other than natural gas, Albania, Ecoinvent, 0.0707 kgCO₂e/MJ

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO5, 100 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	2,29E+03
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.14 kg
2. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.13 kg
3. Exported Energy: Electricity, Ecoinvent, 0.88 MJ
4. Exported Energy: Electricity, Ecoinvent, 9.72 MJ
5. Exported Energy: Thermal, Ecoinvent, 1.211 MJ
6. Exported Energy: Thermal, Ecoinvent, 13.34 MJ
7. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.081 kg
8. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 4.64 kg
9. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 4.35 kg
10. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 5.51 kg
11. Rock crushing, Ecoinvent, Materials for recycling, 20.0 kg

End-of-life scenario documentation - C1-C4 (Data source)

1. Treatment of waste concrete, not reinforced, recycling, Ecoinvent, Materials for recycling, 700.0 kg
2. Treatment of waste concrete, inert material landfill, Ecoinvent, 300.0 kg
3. Diesel, burned in building machine, Ecoinvent, 10.0 kWh

Scenario information	Value
Scenario assumptions e.g. transportation	Concrete waste: 70% recycled (crushing, C3) and 30% landfilled (C4); transport 50 km by 16–32 t lorry (C2); based on JRC Technical Report (Gervasio & Dimova, 2018).

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

[Verified tools](#)

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
16.05.2026



ANNEX 1: A1–A3 GWP RESULTS PER M² FOR LAKKA PAVING STONE VARIANTS

Product	Manufacturing sites*	Weight (kg/pcs)	Mass per m ² (kg/m ²)	Pieces per m ² (pcs/m ²)	GWP A1-A3 EN 15804+A2 GWP-total (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-fossil (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-biogenic (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-luluc (kg CO ₂ e/m ²)**
Aavakivet 60	JOE, LOP		135		11,88	14,85	-2,93	0,01
Antiikkikivi 60	LOP, JAL	2,9	135	47	11,88	14,85	-2,93	0,01
Antiikkikivi 60 puolikas	LOP, JAL	1,4	135	94	11,88	14,85	-2,93	0,01
Antiikkikivi 80	LOP	3,9	185	47	16,28	20,35	-4,01	0,01
Antiikkilaatta 60	LOP, JAL	7,6	135	17,7	11,88	14,85	-2,93	0,01
Antiikkimuurikivi lohko	JAL	22,0	407	18,5	35,82	44,77	-8,83	0,02
Antiikkimuurikivi sileä	LOP	22,0	407	18,5	35,82	44,77	-8,83	0,02
Antiikkisauvakivi 80	JAL	2,7	185	68	16,28	20,35	-4,01	0,01
Askelkivi 50	JOE	16,5	107	6,5	9,44	11,80	-2,33	0,00
Auroralatta 245	JOE	9,5	119	12,5	10,45	13,06	-2,58	0,01
Auroralatta 305	JOE, LOP	11,0	122	11,1	10,74	13,43	-2,65	0,01
Auroralatta 405	JOE, LOP	19,0	119	6,25	10,45	13,06	-2,58	0,01
Auroralatta 505	JOE	29,0	116	4	10,21	12,76	-2,52	0,00
Auroralatta 708	JOE, LOP	93,5	191	2,04	16,79	20,98	-4,14	0,01
Betonilaatta 350x175x100	LOP	14,4	234	16,3	20,59	25,74	-5,08	0,01
Betonilaatta 350x350x100	LOP	28,7	234	8,16	20,59	25,74	-5,08	0,01
BL-245	JOE, LOP	9,5	119	12,5	10,45	13,06	-2,58	0,01

BL-305	JOE, LOP, JAL	11,0	122	11,1	10,74	13,43	-2,65	0,01
BL-308	JAL	16,5	183	11,1	16,12	20,15	-3,97	0,01
BL-405	JOE, LOP, JAL	19,0	119	6,25	10,45	13,06	-2,58	0,01

* JOE = Joensuu site, LOP = Loppi site and JAL = Jalasjärvi site

**A1–A3 GWP values (EN 15804+A2) in this Annex are derived from this EPD's underlying multi-plant LCA model and represent production-weighted averages across the manufacturing plants (weighted by annual production volume). Reported transport distances in the model are production-weighted average distances where applicable. Results are expressed per m² using each product's unit mass and pieces per m².

ANNEX 1: A1–A3 GWP RESULTS PER M² FOR LAKKA PAVING STONE VARIANTS

Product	Manufacturing sites*	Weight (kg/pcs)	Mass per m ² (kg/m ²)	Pieces per m ² (pcs/m ²)	GWP A1-A3 EN 15804+A2 GWP-total (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-fossil (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-biogenic (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-luluc (kg CO ₂ e/m ²)**
BL-505	JOE, JAL	29,0	116	4	10,21	12,76	-2,52	0,00
BL-606	JAL	50,0	144	2,87	12,63	15,79	-3,11	0,01
BL-645	JOE, LOP	28,0	116	4,16	10,25	12,81	-2,53	0,00
BL-708	JOE, LOP	93,5	191	2,04	16,79	20,98	-4,14	0,01
Citykivi 60	JAL	2,9	135	47	11,88	14,85	-2,93	0,01
Citylaatta 60	JAL	7,6	135	17,7	11,88	14,85	-2,93	0,01
Citylankku 60	JAL	15,5	136	8,8	12,00	15,00	-2,96	0,01
Citymuurikivi	JOE, JAL	23,0	426	18,5	37,44	46,81	-9,23	0,02
Citymuurikivi puolikas	JAL	12,0	111	9,25	9,77	12,21	-2,41	0,00
H-kivi 80	LOP	5,1	185	36	16,28	20,35	-4,01	0,01
Hulekatukivi 80	JAL		134	26	11,79	14,74	-2,91	0,01
KAARNA 50	JOE, LOP	28,0	116	4,16	10,25	12,81	-2,53	0,00
Katukivi 80	JOE, LOP, JAL	7,1	185	26	16,28	20,35	-4,01	0,01
Katulaatta 80	JOE, LOP, JAL	14,5	185	12,8	16,28	20,35	-4,01	0,01
Katulankku 80	JOE, LOP	10,9	185	17	16,28	20,35	-4,01	0,01
Klassikko kaarrekiivi 80	LOP	1,9	170	91	14,96	18,70	-3,69	0,01

Klassikko kaarrekiivi 60	JAL	1,5	135	91	11,88	14,85	-2,93	0,01
Klassikko neliökiivi 60	JAL	1,8	135	76	11,88	14,85	-2,93	0,01
Klassikko neliökiivi 80	LOP	2,2	170	76	14,96	18,70	-3,69	0,01
Klassikkokiivi 60	JAL	2,6	135	51	11,88	14,85	-2,93	0,01

* JOE = Joensuu site, LOP = Loppi site and JAL = Jalasjärvi site

**A1–A3 GWP values (EN 15804+A2) in this Annex are derived from this EPD's underlying multi-plant LCA model and represent production-weighted averages across the manufacturing plants (weighted by annual production volume). Reported transport distances in the model are production-weighted average distances where applicable. Results are expressed per m² using each product's unit mass and pieces per m².

ANNEX 1: A1–A3 GWP RESULTS PER M² FOR LAKKA PAVING STONE VARIANTS

Product	Manufacturing sites*	Unit mass (kg/pcs)	Mass per m ² (kg/m ²)	Pieces per m ² (pcs/m ²)	GWP A1-A3 EN 15804+A2 GWP-total (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-fossil (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-biogenic (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-luluc (kg CO ₂ e/m ²)**
Klassikkokiivi 80	LOP	3,3	170	51	14,96	18,70	-3,69	0,01
Kotikiivi 50 mm	JOE, LOP	2,3	117	50	10,30	12,87	-2,54	0,00
Kuviolaatta 305	JOE	11,0	122	11,1	10,74	13,43	-2,65	0,01
Kuviolaatta 405	JOE, JAL	19,0	119	6,25	10,45	13,06	-2,58	0,01
Lohkokansiikiivi	JOE, JAL	24,0	427	17,8	37,59	46,99	-9,27	0,02
Lohkomuurikiivi	JOE, JAL	18,2	324	17,8	28,52	35,66	-7,03	0,01
Loimuhulekivet 80	LOP		170		14,96	18,70	-3,69	0,01
Loimukivet 60	JOE, LOP		135		11,88	14,85	-2,93	0,01
Loimulaatta 405	JOE, LOP	19,0	119	6,25	10,45	13,06	-2,58	0,01
Loimuluskeikiivi 80	JOE	19,4	175	9	15,40	19,25	-3,80	0,01
Loimumuuriikiivi	JOE, LOP	12,0	372	31	32,74	40,92	-8,07	0,02
Minianttiikki 60	JAL	1,8	135	73	11,88	14,85	-2,93	0,01
Minicity 60	JAL	1,8	135	73	11,88	14,85	-2,93	0,01
Mukulakiivi 60	JAL	2,9	135	46	11,88	14,85	-2,93	0,01
Muurikiivi	JOE	19,0	200	10,5	17,56	21,95	-4,33	0,01
Nupukiivi 60	JOE, LOP, JAL	2,6	135	51	11,88	14,85	-2,93	0,01

Nupukivi 80	JOE, LOP, JAL	3,6	185	51	16,28	20,35	-4,01	0,01
Nurmikivi 80	JOE, LOP, JAL	4,1	150	36,8	13,20	16,50	-3,26	0,01
Patiolaatta 405	JOE, LOP	19,0	119	6,25	10,45	13,06	-2,58	0,01

* JOE = Joensuu site, LOP = Loppi site and JAL = Jalasjärvi site

**A1–A3 GWP values (EN 15804+A2) in this Annex are derived from this EPD's underlying multi-plant LCA model and represent production-weighted averages across the manufacturing plants (weighted by annual production volume). Reported transport distances in the model are production-weighted average distances where applicable. Results are expressed per m² using each product's unit mass and pieces per m².

ANNEX 1: A1–A3 GWP RESULTS PER M² FOR LAKKA PAVING STONE VARIANTS

Product	Manufacturing sites*	Unit mass (kg/pcs)	Mass per m ² (kg/m ²)	Pieces per m ² (pcs/m ²)	GWP A1-A3 EN 15804+A2 GWP-total (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-fossil (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-biogenic (kg CO ₂ e/m ²)**	GWP A1-A3 EN 15804+A2 GWP-luluc (kg CO ₂ e/m ²)**
Pihakivi 60	JOE, LOP, JAL	5,2	135	26	11,88	14,85	-2,93	0,01
Pihalaatta 60	JOE, LOP	10,5	135	12,8	11,88	14,85	-2,93	0,01
Reikälaatta RL-400	JAL	35,0	146	4,17	12,84	16,05	-3,17	0,01
Roomalainen kivi 208x208x80	JOE, LOP	8,2	185	22,68	16,28	20,35	-4,01	0,01
Roomalainen kivi 208x418x80	JOE, LOP	16,3	185	11,34	16,28	20,35	-4,01	0,01
Roomalainen kivi 418x418x80	JOE, LOP	32,6	185	5,67	16,28	20,35	-4,01	0,01
Roomalaiset isot kivet 80	JOE		185		16,28	20,35	-4,01	0,01
Roomalaiset pienet kivet 80	JOE		185		16,28	20,35	-4,01	0,01
Roomankivet 60	LOP		135		11,88	14,85	-2,93	0,01
Rytmikivet 60	LOP		135		11,88	14,85	-2,93	0,01
Sauvakivi 80	JAL	2,7	185	68	16,28	20,35	-4,01	0,01
Unikivi 60	JAL	3,4	135	40	11,88	14,85	-2,93	0,01
Unikivi 80	JAL	4,6	185	40	16,28	20,35	-4,01	0,01

* JOE = Joensuu site, LOP = Loppi site and JAL = Jalasjärvi site

**A1–A3 GWP values (EN 15804+A2) in this Annex are derived from this EPD's underlying multi-plant LCA model and represent production-weighted averages across the manufacturing plants (weighted by annual production volume). Reported transport distances in the model are production-weighted average distances where applicable. Results are expressed per m² using each product's unit mass and pieces per m².



Päästötön sähköenergia

Sertifikaatti

Lakan Betoni

käyttää Pohjois-Karjalan Sähkön toimittamaa
päästötöntä sähköenergiaa.

Päästöttömän sähkön käyttäjä on oman sähkön käyttönsä
osalta päästötön
ja samalla edistää ilmastoystävällisten
sähköntuotantomuotojen yleistymistä
Suomessa ja Euroopassa.

Pohjois-Karjalan Sähkö Oy

Tuure Aho
toimitusjohtaja





**Emission-free
Energy**

Certificate

Lakan Betoni

has contracted with Pohjois-Karjalan Sähkö Oy
on emission-free energy supply according to the European
Guarantee of Origin system.

The emission-free choice impacts on increasing
environmental electricity production in Finland and Europe,
thereby contributing towards a cleaner environment.

Pohjois-Karjalan Sähkö Oy

A handwritten signature in blue ink, appearing to read 'Tuure Aho'.

Tuure Aho
Managing director

