ENVIRONMENTAL PRODUCT DECLARATION

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

Fontedur FL Matt, Solid Laq

Tikkurila Group

EPD HUB, EPDHUB-0112

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Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Tikkurila Group
Address	Heidehofintie 2, 01300 Vantaa, Finland
Contact details	epd-team@tikkurila.com
Website	www.tikkurilagroup.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	Andrey Iskorkin Tikkurila OYJ
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	N.C, as an authorized verifier acting for EPD Hub Limited

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

PRODUCT

Product name	Fontedur FL Matt, Solid Laq
Place of production	Vantaa facility, Finland
Period for data	Calendar year 2019
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	The declared unit is 1 litre of paint
Declared unit mass	1,1 kg
GWP-fossil, A1-A3 (kgCO2e)	2,41
GWP-total, A1-A3 (kgCO2e)	2,42
Secondary material, inputs (%)	2,15
Secondary material, outputs (%)	2,34E1
Total energy use, A1-A3 (kWh)	4,62
Total water use, A1-A3 (m3e)	9,42E-1

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Tikkurila offers a broad range of decorative paints for consumers and professionals for surface protection and decoration. The product offering includes, among others, interior paints, lacquers, and effect products, exterior products for wood, masonry, and metal surfaces, as well as services related to painting. In addition, Tikkurila produces paints and coatings for the metal and wood industries.

PRODUCT DESCRIPTION

Fontedur FL Matt

A two-component, water-borne polyurethane lacquer

- The M1 classification for low-emitting building materials has been granted by the Finnish Building Information Foundation RTS
- Can be tinted into Semi-transparent Grey colors in Pro Grey color card

Solid Laq

Matt 2-component waterborne polyurethane lacquer for concrete surfaces

- For concrete floor exposed to moderate wear
- Can be used for dust binding. Also suitable as matt top lacquer for other Solid flooring products

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	-
Minerals	0	-
Fossil materials	43	EU
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,002

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	The declared unit is 1 litre of paint.
Mass per declared unit	1,1 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm). Safety data sheets are available on request from Tikkurila Group.

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.

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.

Transport impacts resulting from the delivery of finished products to a construction site (A4) include direct fuel exhaust emissions, the environmental impact of fuel production, and associated infrastructure emissions. The transportation distance is determined according to the EPD Hub PCR. The average transportation distance from the plant to the construction site is assumed to be 179 km, and it is assumed that the transport will be carried out by truck. There is no loss in transportation as the products are properly packaged.

PRODUCT USE AND MAINTENANCE (B1-B7)

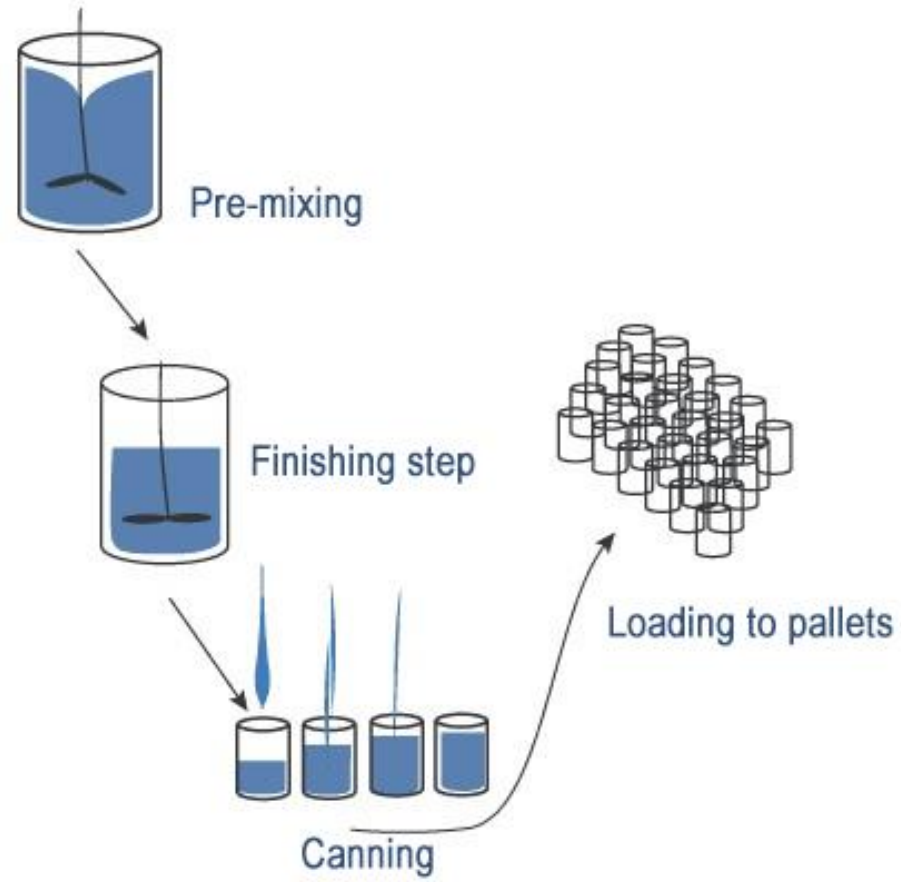
This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Since the consumption of energy and natural resources is negligible for disassembling the end-of-life product, the impacts of demolition are assumed zero (C1). All the end-of-life products are assumed to be sent to the closest facilities (C2). It is assumed that about 60% of the paint for mineral floors is reused as mineral waste (C3) and 40% is landfilled (C4). Wooden pallets are used for transportation 10 times and then go to recycling (D).

MANUFACTURING PROCESS

The paint production process at the Vantaa plant consists of several separate steps. In the initial steps water, powders (pigments, fillers), additives, and sometimes binders are mixed together and then dispersed to a homogeneous paste. The following step is the let-down stage: binders, water, additives, etc. are mixed with the paste to obtain a ready-to-use paint. At the next quality control stage, the compliance of the product with the specified quality is checked. In the packaging stage, paint is filled into cans of various sizes on filling machines, and then by robots, it is loaded onto pallets and transferred to the warehouse. Eventually, the paint is transported to the construction site.



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 life cycle analysis covers all industrial processes from raw material acquisition to production, distribution, and end-of-life stages.
To simplify the modeling and due to the lack of accuracy in the available modeling resources, many constituents under 1% of product mass are excluded. These include preservatives and biocides which are only present in very small quantities in the product and do not have a significant impact on product emissions.
Major equipment manufacturing, construction and infrastructure activities, equipment maintenance and operation, personnel-related activities, energy, and water use related to company management and sales activities are excluded.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. In this study, as per the reference standard, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g., mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

The values for 1 liter of the product which is used within this study are calculated by considering the total product weight per annual production. Since the manufacturing processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials, and the generated waste per the declared product are allocated. Subsequently, the product output is fixed to 1,1 kg (1 liter of paint) and the corresponding amount of product is used in the calculations.

Allocation used in environmental data sources is aligned with the above.

AVERAGES AND VARIABILITY

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. Ecoinvent 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	1,48E0	1,65E-1	7,74E-1	2,42E0	3,82E-2	3,07E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,95E-3	1,44E-3	9,08E-4	-1,03E-3
GWP – fossil	kg CO_2e	1,47E0	1,65E-1	7,79E-1	2,41E0	3,85E-2	3,01E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,95E-3	1,44E-3	9,06E-4	4,57E-5
GWP – biogenic	kg CO_2e	8,48E-3	1,13E-4	-5,63E-3	2,96E-3	2,06E-5	6,76E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,42E-6	4,01E-7	1,8E-6	-1,08E-3
GWP – LULUC	kg CO_2e	4,69E-5	5,14E-5	5,36E-4	6,35E-4	1,37E-5	4,79E-6	MND	MND	MND	MND	MND	MND	MND	0E0	5,87E-7	1,22E-7	2,69E-7	5,14E-7
Ozone depletion pot.	kg $CFC_{-11}e$	5,57E-7	3,84E-8	3,62E-8	6,31E-7	8,76E-9	7,98E-10	MND	MND	MND	MND	MND	MND	MND	0E0	4,58E-10	3,11E-10	3,73E-10	7,18E-12
Acidification potential	mol H^+e	7,76E-3	7,15E-4	4,27E-3	1,27E-2	1,57E-4	5,06E-5	MND	MND	MND	MND	MND	MND	MND	0E0	8,19E-6	1,51E-5	8,6E-6	2,93E-7
EP-freshwater[2)]	kg Pe	1,54E-3	1,37E-6	2,83E-5	1,57E-3	3,23E-7	2,61E-7	MND	MND	MND	MND	MND	MND	MND	0E0	1,59E-8	5,82E-9	1,09E-8	4,67E-9
EP-marine	kg Ne	1,11E-3	2,13E-4	7,1E-4	2,03E-3	4,68E-5	1,31E-5	MND	MND	MND	MND	MND	MND	MND	0E0	2,47E-6	6,65E-6	2,96E-6	8,84E-8
EP-terrestrial	mol Ne	1,25E-2	2,35E-3	8,15E-3	2,3E-2	5,17E-4	1,45E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,73E-5	7,3E-5	3,26E-5	9,69E-7
POCP ("smog")[3)]	kg NMVOCe	4,5E-3	7,49E-4	3,44E-3	8,69E-3	1,58E-4	4,15E-5	MND	MND	MND	MND	MND	MND	MND	0E0	8,76E-6	2,01E-5	9,47E-6	3,49E-7
ADP-minerals & metals[4)]	kg Sbe	-2,8E-4	2,98E-6	2,08E-5	-2,56E-4	1,04E-6	2,1E-7	MND	MND	MND	MND	MND	MND	MND	0E0	3,33E-8	2,2E-9	8,28E-9	9,43E-10
ADP-fossil resources	MJ	3,39E1	2,55E0	8,25E0	4,47E1	5,81E-1	7,32E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,03E-2	1,98E-2	2,53E-2	8,25E-4
Water use[5)]	m^3e depr.	2,71E-1	9,53E-3	7,08E-1	9,89E-1	1,87E-3	1,46E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,13E-4	3,7E-5	1,17E-3	1,97E-5

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	1,42E-8	1,45E-8	5,74E-8	8,61E-8	2,69E-9	7,28E-10	MND	MND	MND	MND	MND	MND	MND	0E0	1,76E-10	1,42E-9	1,67E-10	3,84E-12
Ionizing radiation[6)]	kBq U235e	4,48E-2	1,11E-2	1,81E-2	7,39E-2	2,54E-3	3,46E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,33E-4	8,49E-5	1,04E-4	7,98E-6
Ecotoxicity (freshwater)	CTUe	1,26E1	1,97E0	2,32E1	3,77E1	4,49E-1	2,36E-1	MND	MND	MND	MND	MND	MND	MND	0E0	2,32E-2	1,16E-2	1,6E-2	8,08E-4
Human toxicity, cancer	CTUh	6,8E-8	5,1E-11	9,8E-9	7,79E-8	1,3E-11	1,01E-11	MND	MND	MND	MND	MND	MND	MND	0E0	5,93E-13	4,17E-13	3,78E-13	4,14E-14
Human tox. non-cancer	CTUh	3,26E-7	2,3E-9	3,22E-8	3,61E-7	5,07E-10	2,93E-10	MND	MND	MND	MND	MND	MND	MND	0E0	2,75E-11	1,03E-11	1,17E-11	8,65E-13
SQP[7)]	-	1,57E-1	3,65E0	1,94E0	5,75E0	4,84E-1	4,06E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,58E-2	5,09E-4	4,3E-2	1,83E-4

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	1,57E-1	3,17E-2	3,16E0	3,34E0	8,2E-3	7,88E-3	MND	MND	MND	MND	MND	MND	MND	0E0	3,82E-4	1,07E-4	2,05E-4	7,43E-4
Renew. PER as material	MJ	1,59E-1	0E0	2,17E-1	3,75E-1	0E0	1,03E-4	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	1,16E-2
Total use of renew. PER	MJ	3,15E-1	3,17E-2	3,37E0	3,72E0	8,2E-3	7,98E-3	MND	MND	MND	MND	MND	MND	MND	0E0	3,82E-4	1,07E-4	2,05E-4	1,24E-2
Non-re. PER as energy	MJ	3,24E0	2,55E0	7,5E0	1,33E1	5,81E-1	7,32E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,03E-2	1,98E-2	2,53E-2	8,25E-4
Non-re. PER as material	MJ	2,45E0	0E0	7,55E-1	3,2E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	5,68E0	2,55E0	8,25E0	1,65E1	5,81E-1	7,32E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,03E-2	1,98E-2	2,53E-2	8,25E-4
Secondary materials	kg	5,47E-4	0E0	2,31E-2	2,36E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Renew. secondary fuels	MJ	2,17E-5	0E0	0E0	2,17E-5	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	4,12E-5	0E0	0E0	4,12E-5	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	9,36E-1	5,21E-4	5,18E-3	9,42E-1	9,93E-5	7,24E-4	MND	MND	MND	MND	MND	MND	MND	0E0	6,31E-6	1,75E-6	2,77E-5	7,13E-7

6) 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	9,93E-3	2,58E-3	5,87E-1	5,99E-1	5,9E-4	4,64E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,95E-5	0E0	2,36E-5	2,6E-6
Non-hazardous waste	kg	1,39E-1	2,64E-1	1,39E0	1,79E0	4,05E-2	3,13E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,26E-3	0E0	1,72E-1	8,25E-5
Radioactive waste	kg	9,45E-6	1,74E-5	1,65E-5	4,33E-5	3,98E-6	4,21E-7	MND	MND	MND	MND	MND	MND	MND	0E0	2,08E-7	0E0	1,68E-7	5,9E-9

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	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	2,06E-4	0E0	1,64E-2	1,66E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2,57E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	4,02E-2	4,02E-2	0E0	8,8E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

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	1,53E0	1,64E-1	7,54E-1	2,45E0	3,82E-2	3,02E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,93E-3	1,43E-3	8,89E-4	4,53E-5
Ozone depletion Pot.	kg CFC_{-11}e	6E-7	3,06E-8	3,1E-8	6,61E-7	6,97E-9	6,7E-10	MND	MND	MND	MND	MND	MND	MND	0E0	3,64E-10	2,46E-10	2,96E-10	6,72E-12
Acidification	kg SO_2e	6,91E-3	3,75E-4	3,51E-3	1,08E-2	7,73E-5	3,23E-5	MND	MND	MND	MND	MND	MND	MND	0E0	3,97E-6	2,13E-6	3,58E-6	1,88E-7
Eutrophication	kg PO_4^3e	1,95E-3	7,55E-5	1,16E-3	3,19E-3	1,59E-5	8,57E-5	MND	MND	MND	MND	MND	MND	MND	0E0	8,01E-7	3,75E-7	6,93E-7	8,66E-8
POCP (“smog”)	kg C_2H_4e	1,14E-3	2,18E-5	3,02E-4	1,46E-3	5,09E-6	2,35E-6	MND	MND	MND	MND	MND	MND	MND	0E0	2,51E-7	2,19E-7	2,63E-7	2,45E-8
ADP-elements	kg Sbe	-2,8E-4	2,98E-6	2,08E-5	-2,56E-4	1,04E-6	2,1E-7	MND	MND	MND	MND	MND	MND	MND	0E0	3,33E-8	2,2E-9	8,28E-9	9,43E-10
ADP-fossil	MJ	3,39E1	2,55E0	8,25E0	4,47E1	5,81E-1	7,32E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,03E-2	1,98E-2	2,53E-2	8,25E-4

ENVIRONMENTAL IMPACTS – TRACI 2.1. / 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	1,61E-1	1,63E-1	7,49E-1	1,07E0	3,82E-2	3,03E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,93E-3	1,42E-3	8,84E-4	4,5E-5
Ozone Depletion	kg CFC_{-11}e	2,17E-8	4,07E-8	4,18E-8	1,04E-7	9,28E-9	8,76E-10	MND	MND	MND	MND	MND	MND	MND	0E0	4,85E-10	3,28E-10	3,94E-10	8,6E-12
Acidification	kg SO_2e	7,28E-4	6,22E-4	3,6E-3	4,95E-3	1,37E-4	4,36E-5	MND	MND	MND	MND	MND	MND	MND	0E0	7,13E-6	1,38E-5	7,63E-6	2,56E-7
Eutrophication	kg Ne	1,59E-4	8,53E-5	3,28E-4	5,72E-4	1,93E-5	5,76E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1E-6	1,22E-6	9,13E-7	6,33E-8
POCP (“smog”)	kg O_3e	7,83E-3	1,35E-2	4,42E-2	6,55E-2	2,96E-3	8,02E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,56E-4	4,23E-4	1,88E-4	5,46E-6
ADP-fossil	MJ	6,18E-1	3,65E-1	6,57E-1	1,64E0	8,31E-2	8,2E-3	MND	MND	MND	MND	MND	MND	MND	0E0	4,34E-3	2,93E-3	3,67E-3	6,57E-5

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.

Neena Chandramathy, as an authorized verifier acting for EPD Hub Limited
05.09.2022