

ENVIRONMENTAL PRODUCT DECLARATION

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

Kiilto Pro Kerasafe Foil Attach

Kiilto Oy



EPD HUB, EPD number HUB-2809

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Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Kiilto Oy
Address	Tampereentie 408, 33880 Lempäälä
Contact details	lifecyclecalculations@kiilto.com
Website	www.kiilto.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
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4, and modules C1-C4, D
EPD author	Mari Borg, Kiilto Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ 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	Kiilto Pro Kerasafe Foil Attach
Product reference	T3788
Place of production	Kiilto Oy Lempäälä, Finland
Period for data	01/01/2023-31/12/2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Kiilto Pro Kerasafe Foil Attach adhesive
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	1,33
GWP-total, A1-A3 (kgCO2e)	1,33
Secondary material, inputs (%)	0,63
Secondary material, outputs (%)	80
Total energy use, A1-A3 (kWh)	7,62
Total water use, A1-A3 (m3e)	5,08

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Kiilto is a growing, family-owned company, with over a hundred-year history and a vision looking ahead to 2080. We develop, produce and sell chemical industry solutions in four business areas: construction, industrial adhesives and fireproofing, professional hygiene and consumer goods. Please find more info at www.kiilto.com.

PRODUCT DESCRIPTION

Kiilto Pro Kerasafe Foil Attach is two-component, cement-based adhesive for fixing Kiilto Pro Kerasafe foils. The product is suitable for sealing foil overlaps and for fixing Kiilto inlet reinforcements and prefabricated corner reinforcements. The product is ETA tested with Kiilto Pro Kerasafe foils. M1-certificate.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Minerals	40-50	Europe
Fossil materials	50-60	Europe

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	-

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Kiilto Pro Kerasafe Foil Attach adhesive
Mass per declared unit	1 kg

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	MND	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.

Kiilto Pro Kerasafe Foil Attach is a two-component cement-based adhesive that has a liquid component and a powder component. Raw materials for both of the components come from national suppliers (Finland) or Europe. The raw materials coming from Europe are transported by trucks or train and then shipped to the coast of Finland. Within Finland the raw materials are transported by trucks to Lempäälä.

The production for both of the components consists of four steps: raw material manufacturing, raw material transportation to Kiilto, mixing and packaging. During the the mixing, raw materials are mixed together, separately for the liquid and powder components. During packaging process the liquid component is packed on to the bottom of the actual retail package, the polypropylene (PP) can, and then a intermediate lid is placed on top it. The powder component is then packed on top of the intermediate lid in the same retail can. The capacity of the package is 6,3 kg + 4,2 kg. 75 % of the polypropylene of the package is recycled. The most manufactured package size has been considered in this study.

Eventually, the product is moved out and transported to the customer in the package.

There is no internal transport on the factory site because manufacturing place is very compact. Only resource that has been used is electricity. Emissions to air are not relevant either.

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.

The transportation impacts that occur from the delivery of the final product to the construction site cover direct exhaust emissions of fuel, environmental impacts of fuel production, as well as related infrastructure emissions. The transportation distance is defined according to average distance, and is assumed to be 300 km and the transportation method is assumed to be a lorry. Vehicle capacity utilization volume factor is assumed to be 100 % which means full load. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly.

Installation does not apply to the product and that is why there are no material or energy consumption to be considered during the installation stage.

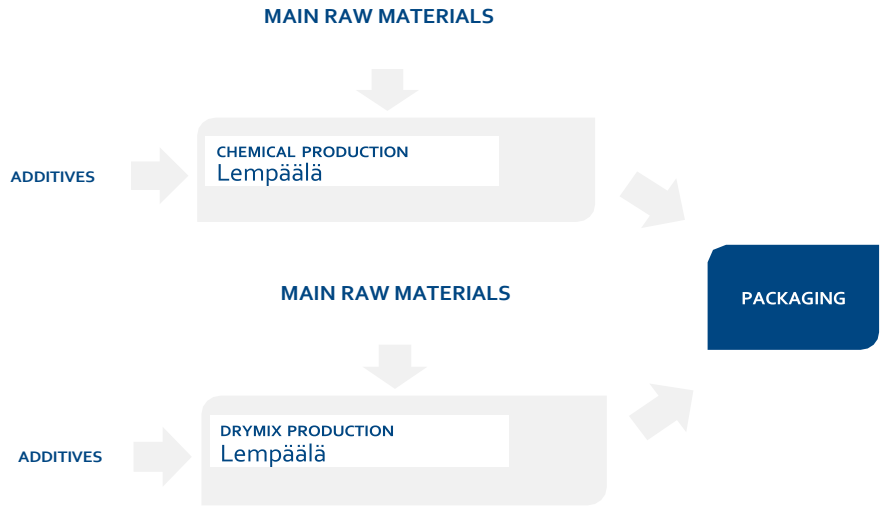
PRODUCT USE AND MAINTENANCE (B1-B7)

Product use and maintenance is considered negligible due to their minor existence.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

At the end-of-life, in the demolition phase, 100% of the waste is assumed to be collected as separate construction waste. (C1). All of end-of-life product is assumed to be sent to the closest facilities (C2). 80% of the end-of-life product is sent to recycling (C3). 20% is sent to the landfill (C4). Due to the 80% recycling potential, the benefits for recycling brick and load for rock crushing are considered, and the end-of-life product is converted into recycled raw materials (D).

MANUFACTURING PROCESS (A1-A3)



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	Not applicable
Ancillary materials	Not applicable
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[1)]	kg CO_2e	9,05E-01	2,40E-01	1,82E-01	1,33E+00	4,02E-02	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	6,69E-03	6,80E-03	1,05E-03	-6,43E-03
GWP – fossil	kg CO_2e	9,05E-01	2,40E-01	1,81E-01	1,33E+00	4,01E-02	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	6,69E-03	6,79E-03	1,05E-03	-6,43E-03
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-7,04E-05	-7,04E-05	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	3,74E-05	1,02E-04	5,10E-04	6,50E-04	1,61E-05	MND	MND	MND	MND	MND	MND	MND	MND	3,30E-07	2,68E-06	5,19E-06	9,94E-07	-8,84E-06
Ozone depletion pot.	kg CFC_{-11}e	6,33E-09	5,51E-08	5,30E-09	6,67E-08	9,36E-09	MND	MND	MND	MND	MND	MND	MND	MND	7,07E-10	1,56E-09	1,37E-09	4,26E-10	-5,24E-10
Acidification potential	mol H^+e	2,07E-03	1,71E-03	7,01E-04	4,48E-03	1,64E-04	MND	MND	MND	MND	MND	MND	MND	MND	3,44E-05	2,74E-05	6,97E-05	9,90E-06	-4,16E-05
EP-freshwater[2)]	kg Pe	4,20E-06	1,64E-06	2,45E-06	8,29E-06	2,92E-07	MND	MND	MND	MND	MND	MND	MND	MND	1,10E-08	4,87E-08	1,74E-07	1,10E-08	-3,65E-07
EP-marine	kg Ne	4,25E-04	4,69E-04	5,12E-05	9,46E-04	4,89E-05	MND	MND	MND	MND	MND	MND	MND	MND	1,52E-05	8,15E-06	2,74E-05	3,43E-06	-9,02E-06
EP-terrestrial	mol Ne	4,81E-03	5,19E-03	5,23E-04	1,05E-02	5,39E-04	MND	MND	MND	MND	MND	MND	MND	MND	1,67E-04	8,99E-05	3,06E-04	3,77E-05	-1,17E-04
POCP ("smog")[3)]	kg NMVOCe	1,63E-03	1,50E-03	3,79E-04	3,51E-03	1,69E-04	MND	MND	MND	MND	MND	MND	MND	MND	4,59E-05	2,82E-05	8,41E-05	1,10E-05	-3,01E-05
ADP-minerals & metals[4)]	kg Sbe	2,62E-06	7,42E-07	1,98E-07	3,56E-06	1,33E-07	MND	MND	MND	MND	MND	MND	MND	MND	1,68E-09	2,22E-08	2,23E-08	2,42E-09	-6,26E-08
ADP-fossil resources	MJ	2,30E+01	3,54E+00	5,18E+00	3,17E+01	6,03E-01	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	1,01E-01	1,17E-01	2,89E-02	-9,30E-02
Water use[5)]	m^3e depr.	-7,58E-02	1,63E-02	5,27E-02	-6,78E-03	2,89E-03	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	4,82E-04	2,05E-03	9,16E-05	-1,23E-02

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	1,86E-08	2,18E-08	2,09E-08	6,12E-08	3,93E-09	MND	MND	MND	MND	MND	MND	MND	MND	9,22E-10	6,55E-10	7,25E-09	1,99E-10	-5,36E-10
Ionizing radiation[6)]	kBq U235e	1,62E-02	1,84E-02	2,08E-01	2,43E-01	3,16E-03	MND	MND	MND	MND	MND	MND	MND	MND	2,05E-04	5,27E-04	1,12E-03	1,31E-04	-1,38E-03
Ecotoxicity (freshwater)	CTUe	1,76E+01	2,91E+00	1,30E+00	2,18E+01	5,07E-01	MND	MND	MND	MND	MND	MND	MND	MND	2,68E-02	8,46E-02	8,08E-02	1,88E-02	-1,17E-01
Human toxicity, cancer	CTUh	7,55E-10	9,54E-11	2,87E-11	8,80E-10	1,52E-11	MND	MND	MND	MND	MND	MND	MND	MND	1,03E-12	2,54E-12	1,79E-11	4,71E-13	-6,47E-12
Human tox. non-cancer	CTUh	1,34E-08	2,91E-09	6,08E-10	1,69E-08	5,22E-10	MND	MND	MND	MND	MND	MND	MND	MND	1,94E-11	8,70E-11	6,87E-11	1,23E-11	-1,20E-10
SQP[7)]	-	6,23E-01	2,92E+00	5,48E-01	4,09E+00	5,39E-01	MND	MND	MND	MND	MND	MND	MND	MND	5,79E-03	8,99E-02	1,17E-01	6,18E-02	-8,92E-02

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	3,72E-01	4,87E-02	4,26E+00	4,68E+00	8,73E-03	MND	MND	MND	MND	MND	MND	MND	MND	2,54E-04	1,46E-03	6,26E-03	2,51E-04	-8,35E-03
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	3,72E-01	4,87E-02	4,26E+00	4,68E+00	8,73E-03	MND	MND	MND	MND	MND	MND	MND	MND	2,54E-04	1,46E-03	6,26E-03	2,51E-04	-8,35E-03
Non-re. PER as energy	MJ	1,42E+01	3,54E+00	5,02E+00	2,28E+01	6,03E-01	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	1,01E-01	1,17E-01	2,89E-02	-9,30E-02
Non-re. PER as material	MJ	9,80E+00	0,00E+00	1,81E+00	1,16E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,03E+01	-1,34E+00	-1,16E+01
Total use of non-re. PER	MJ	2,40E+01	3,54E+00	6,83E+00	3,44E+01	6,03E-01	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	1,01E-01	-1,02E+01	-1,31E+00	-1,17E+01
Secondary materials	kg	6,26E-03	1,20E-03	1,45E-04	7,60E-03	2,00E-04	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	3,33E-05	4,13E-05	6,07E-06	-1,02E-04
Renew. secondary fuels	MJ	6,43E-06	1,14E-05	5,93E-07	1,84E-05	2,06E-06	MND	MND	MND	MND	MND	MND	MND	MND	5,70E-08	3,43E-07	5,96E-07	1,59E-07	-7,31E-07
Non-ren. secondary fuels	MJ	1,08E-28	0,00E+00	0,00E+00	1,08E-28	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	3,06E-04	4,48E-04	5,08E+00	5,08E+00	8,03E-05	MND	MND	MND	MND	MND	MND	MND	MND	2,70E-06	1,34E-05	8,58E-05	3,16E-05	-2,96E-04

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	7,28E-03	4,10E-03	2,13E-02	3,27E-02	6,93E-04	MND	MND	MND	MND	MND	MND	MND	MND	5,96E-05	1,16E-04	2,95E-04	0,00E+00	-5,44E-04
Non-hazardous waste	kg	1,79E-01	6,88E-02	5,59E-01	8,07E-01	1,23E-02	MND	MND	MND	MND	MND	MND	MND	MND	4,19E-04	2,04E-03	1,47E-01	2,00E-01	-1,60E-02
Radioactive waste	kg	6,53E-05	2,44E-05	4,41E-05	1,34E-04	4,14E-06	MND	MND	MND	MND	MND	MND	MND	MND	3,13E-07	6,91E-07	7,68E-07	0,00E+00	-4,64E-07

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	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	1,28E-04	0,00E+00	0,00E+00	1,28E-04	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,00E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	1,50E-05	0,00E+00	6,00E-03	6,02E-03	0,00E+00	MND	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	9,05E-01	2,40E-01	1,82E-01	1,33E+00	4,02E-02	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-6,43E-03

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
14.02.2025

