

# ENVIRONMENTAL PRODUCT DECLARATION

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

**Kiilto Pro Flexilan**

Kiilto Oy



**EPD HUB, HUB-0743**

Publishing date 4 October 2023, last updated on 4 October 2023, valid until 4 October 2028.

## 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 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules A4, C1-C4, D
EPD author	Satu Kytöviita, Kiilto Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
EPD verifier	Magaly González Vázquez, 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	Kiilto Pro Flexsilan
Product reference	T3425
Place of production	Kiilto Oy Lempäälä, Finland
Period for data	01/01/2022-31/12/2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Kiilto Pro Flexsilan adhesive
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	2,07E0
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	2,08E0
Secondary material, inputs (%)	0,403
Secondary material, outputs (%)	0,0
Total energy use, A1-A3 (kWh)	5,91
Total water use, A1-A3 (m <sup>3</sup> e)	1,21E0

## 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](http://www.kiilto.com).

### PRODUCT DESCRIPTION

Kiilto Pro Flexsilan is one-component, water-free parquet adhesive designed especially for semi-elastic gluing of engineered wooden parquet, block and plank parquet. Suitable for gluing most types of parquets, and also for floors with underfloor heating. M1-certificate.

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

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Minerals	60-70	EU
Fossil materials	30-40	EU

### 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 MS Silex 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.

The production of the adhesive product consists of four steps: raw material manufacturing, raw material transportation to Kiilto, mixing, packaging. During the mixing raw materials are mixed together. Then the product is packed in polypropylene (PP) can. 90% of polypropylene is recycled. The capacity of the can is 16.5 kg. After packaging the product is ready for the delivery to customer.

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

There is no internal transport in 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 distance is defined according to average distance. Average distance of transportation from production plant to customer site is assumed as 300 km and the transportation method is assumed to be lorry. Vehicle capacity utilization volume factor is assumed to be 100 % which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. 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. Also, volume capacity utilization factor is assumed to be 100 % for the nested packaged products. Installation does not apply to the product and that's why there are no material or energy consumptions 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. The consumption of energy and natural resources is negligible for disassembling of the end-of-life product, as the adhesive is a part of another product, so the impacts of demolition are assumed to be very small (C1). The dismantled structure on which the adhesive is applied to is delivered to the nearest construction waste treatment plant (C2). The heating value of dried product is assumed negligible so 100% of the adhesive structure is going to inert material landfill (C4). The heating value of dried product is assumed negligible (D).

### MANUFACTURING PROCESS (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	No allocation
Ancillary materials	No allocation
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. Ecoinvent 3.6, Plastic Europe 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 <sup>1)</sup>	kg CO <sub>2</sub> e	1,95E0	3,74E-2	9,71E-2	2,08E0	3,91E-2	0E0	MND	MND	MND	MND	MND	MND	MND	3,3E-3	4,65E-3	0E0	5,4E-3	0E0
GWP – fossil	kg CO <sub>2</sub> e	1,94E0	3,73E-2	9,69E-2	2,07E0	3,91E-2	0E0	MND	MND	MND	MND	MND	MND	MND	3,3E-3	4,65E-3	0E0	5,39E-3	0E0
GWP – biogenic	kg CO <sub>2</sub> e	1,07E-2	5,4E-5	1,61E-4	1,09E-2	2,4E-5	0E0	MND	MND	MND	MND	MND	MND	MND	9,17E-7	3,38E-6	0E0	1,07E-5	0E0
GWP – LULUC	kg CO <sub>2</sub> e	7E-4	2,11E-5	1,01E-5	7,32E-4	1,38E-5	0E0	MND	MND	MND	MND	MND	MND	MND	2,79E-7	1,4E-6	0E0	1,6E-6	0E0
Ozone depletion pot.	kg CFC-11e	7,4E-8	7,84E-9	3,58E-7	4,4E-7	8,96E-9	0E0	MND	MND	MND	MND	MND	MND	MND	7,12E-10	1,09E-9	0E0	2,22E-9	0E0
Acidification potential	mol H <sup>+</sup> e	5,19E-3	4,65E-4	2,92E-4	5,94E-3	1,61E-4	0E0	MND	MND	MND	MND	MND	MND	MND	3,45E-5	1,95E-5	0E0	5,11E-5	0E0
EP-freshwater <sup>2)</sup>	kg Pe	3,51E-5	4,8E-7	4,11E-6	3,97E-5	3,38E-7	0E0	MND	MND	MND	MND	MND	MND	MND	1,33E-8	3,78E-8	0E0	6,51E-8	0E0
EP-marine	kg Ne	1,23E-3	1,17E-4	6,98E-5	1,42E-3	4,77E-5	0E0	MND	MND	MND	MND	MND	MND	MND	1,52E-5	5,88E-6	0E0	1,76E-5	0E0
EP-terrestrial	mol Ne	1,2E-2	1,3E-3	6,48E-4	1,39E-2	5,27E-4	0E0	MND	MND	MND	MND	MND	MND	MND	1,67E-4	6,5E-5	0E0	1,94E-4	0E0
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	4,21E-3	3,55E-4	2,38E-4	4,81E-3	1,65E-4	0E0	MND	MND	MND	MND	MND	MND	MND	4,59E-5	2,09E-5	0E0	5,63E-5	0E0
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,69E-5	2,2E-6	3,27E-7	1,94E-5	9,76E-7	0E0	MND	MND	MND	MND	MND	MND	MND	5,03E-9	7,93E-8	0E0	4,92E-8	0E0
ADP-fossil resources	MJ	8,65E0	1,95E0	2,13E0	1,27E1	5,97E-1	0E0	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,23E-2	0E0	1,51E-1	0E0
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	6,59E-1	2,29E-3	8,54E-2	7,47E-1	2,12E-3	0E0	MND	MND	MND	MND	MND	MND	MND	8,46E-5	2,69E-4	0E0	6,96E-3	0E0

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 PO<sub>4</sub>e; 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	3,05E-8	2,2E-9	2,24E-9	3,5E-8	3,02E-9	0E0	MND	MND	MND	MND	MND	MND	MND	9,14E-10	4,2E-10	0E0	9,94E-10	0E0
Ionizing radiation <sup>6)</sup>	kBq U235e	2,9E-1	2,51E-3	4,94E-2	3,42E-1	2,61E-3	0E0	MND	MND	MND	MND	MND	MND	MND	1,94E-4	3,16E-4	0E0	6,18E-4	0E0
Ecotoxicity (freshwater)	CTUe	2,79E1	4,2E-1	1E0	2,94E1	4,66E-1	0E0	MND	MND	MND	MND	MND	MND	MND	2,66E-2	5,53E-2	0E0	9,51E-2	0E0
Human toxicity, cancer	CTUh	5,6E-10	1,73E-11	2,67E-11	6,04E-10	1,32E-11	0E0	MND	MND	MND	MND	MND	MND	MND	9,53E-13	1,41E-12	0E0	2,25E-12	0E0
Human tox. non-cancer	CTUh	2,88E-7	4,47E-10	8,71E-10	2,9E-7	5,34E-10	0E0	MND	MND	MND	MND	MND	MND	MND	2,35E-11	6,55E-11	0E0	6,94E-11	0E0
SQP <sup>7)</sup>	-	1,45E0	4,23E-1	3,02E-2	1,9E0	6,65E-1	0E0	MND	MND	MND	MND	MND	MND	MND	1,16E-3	1,09E-1	0E0	2,56E-1	0E0

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	1,49E+00	1,30E-02	2,06E+00	3,56E+00	8,47E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,45E-04	9,10E-04	0,00E+00	1,22E-03	0,00E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	1,49E+00	1,30E-02	2,06E+00	3,56E+00	8,47E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,45E-04	9,10E-04	0,00E+00	1,22E-03	0,00E+00
Non-re. PER as energy	MJ	1,58E+01	5,47E-01	1,34E+00	1,77E+01	5,97E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,54E-02	7,23E-02	0,00E+00	1,51E-01	0,00E+00
Non-re. PER as material	MJ	8,88E+00	0,00E+00	7,84E-01	9,67E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-9,67E+00	0,00E+00
Total use of non-re. PER	MJ	2,47E+01	5,47E-01	2,13E+00	2,74E+01	5,97E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,54E-02	7,23E-02	0,00E+00	-9,52E+00	0,00E+00
Secondary materials	kg	4,03E-03	0,00E+00	0,00E+00	4,03E-03	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renew. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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 <sup>3</sup>	9,91E+00	1,02E-04	2,20E+00	1,21E+01	1,13E-04	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,01E-06	1,51E-05	0,00E+00	1,65E-04	0,00E+00

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	2,64E-2	8,06E-4	9,45E-3	3,67E-2	6,21E-4	0E0	MND	MND	MND	MND	MND	MND	MND	4,88E-5	7,03E-5	0E0	1,41E-4	0E0
Non-hazardous waste	kg	1,29E0	4,32E-2	2,38E-1	1,57E0	5,16E-2	0E0	MND	MND	MND	MND	MND	MND	MND	5,22E-4	7,77E-3	0E0	1,02E0	0E0
Radioactive waste	kg	4,94E-5	3,71E-6	1,64E-7	5,33E-5	4,08E-6	0E0	MND	MND	MND	MND	MND	MND	MND	3,18E-7	4,96E-7	0E0	9,96E-7	0E0

## 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	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for energy rec	kg	0E0	0E0	1,11E-2	1,11E-2	0E0	0E0	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 <sub>2</sub> e	9,2E-1	1,37E-1	9,37E-2	1,15E0	3,88E-2	0E0	MND	MND	MND	MND	MND	MND	MND	3,27E-3	4,61E-3	0E0	5,29E-3	0E0
Ozone depletion Pot.	kg CFC <sub>11</sub> e	6,05E-8	2,34E-8	3,56E-7	4,4E-7	7,13E-9	0E0	MND	MND	MND	MND	MND	MND	MND	5,63E-10	8,69E-10	0E0	1,76E-9	0E0
Acidification	kg SO <sub>2</sub> e	2,07E-3	1,92E-3	2,44E-4	4,22E-3	7,97E-5	0E0	MND	MND	MND	MND	MND	MND	MND	4,87E-6	9,46E-6	0E0	2,13E-5	0E0
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	9,65E-4	2,35E-4	6,26E-5	1,26E-3	1,66E-5	0E0	MND	MND	MND	MND	MND	MND	MND	8,57E-7	1,91E-6	0E0	4,12E-6	0E0
POCP (“smog”)	kg C <sub>2</sub> H <sub>4</sub> e	1,61E-4	5,48E-5	1,65E-5	2,32E-4	5,15E-6	0E0	MND	MND	MND	MND	MND	MND	MND	5,01E-7	5,99E-7	0E0	1,56E-6	0E0
ADP-elements	kg Sbe	1,69E-5	2,2E-6	3,27E-7	1,94E-5	9,76E-7	0E0	MND	MND	MND	MND	MND	MND	MND	5,03E-9	7,93E-8	0E0	4,92E-8	0E0
ADP-fossil	MJ	8,65E0	1,95E0	2,13E0	1,27E1	5,97E-1	0E0	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,23E-2	0E0	1,51E-1	0E0

## 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.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

04.10.2023

