EPD®
THE INTERNATIONAL EPD® SYSTEM

KiiLTO

ENVIRONMENTAL PRODUCT DECLARATION

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

KIILTO PRO RECO

KIILTO AB

Programme:	Programme operator:	EPD registration number:	Publication date:	Valid until:	Geographical scope:
The International EPD® System, www.environdec.com	***EPD International AB***	*S-P-05795*	*2022-04-07*	*2027-04-06*	***Sweden***

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

One Click LCA Environmental Product Declaration created with One Click LCA

ECO PLATFORM EPD VERIFIED

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Kiilto AB
Address	Box 395, 891 28 Örnsköldsvik
Contact details	Peter Forsberg, peter.forsberg@kiilto.com
Website	www.kiilto.se

PRODUCT IDENTIFICATION

Product name	Kiilto Pro rECO
Place(s) of production	Hallstahammar, Sweden
CPC code	37510 Non-refractory mortars and concretes

The International EPD System
EPDs within the same product category but from different programmes may not be comparable.

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The International EPD System
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.11 (05.02.2021) is used.
EPD author	Viivi Kettula
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	2022-04-06
EPD verifier	Anni Oviir, Rangi Maja OÜ, anni.oviir@lcasupport.com
EPD number	S-P-05795
ECO Platform nr.	-
Publishing date	2022-04-07
EPD valid until	2027-04-06

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Kiilto Pro rECO is a fast setting, normal drying, pumpable self-levelling compound. The product is free from casein and slag, low-alkaline and suitable as a thicker base layer indoors for floating coverings or other screeds, in new constructions as well as renovation of housing, offices and public areas. Under certain conditions, surface covering may be applied directly onto the product. For plane or slope applications on many different substrates.

PRODUCT APPLICATION

Kiilto Pro rECO is suitable for new production and renovation of buildings, offices and public constructions. The product is used as screed or filling on concrete, lightweight concrete substrates, ceramics and other stable substrates indoors.

TECHNICAL SPECIFICATIONS

Intended layer thickness (mm): 10 - 80
Consumption (kg/m2/mm): 1,85
Pumpable: Yes
Self-levelling: Yes

PRODUCT STANDARDS

The product is produced according to the requirements in the standard EN 13813 Screed material and floor screeds - Screed materials.

PHYSICAL PROPERTIES OF THE PRODUCT

Detailed physical properties available at https://www.kiilto.se/produkter.

ADDITIONAL TECHNICAL INFORMATION

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

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Sand	0,5-0,6	0	0	Sweden
Filler	0,2-0,3	0	0	EU
Cement	0,05-1	0.72	0	EU
Gypsum	0,01-0,05	0	0	EU
Stucco	0,01-0,05	0	0	EU
Additives	0,01-0,05	0	0	EU

Note: There is no packaging since the product is delivered by bulk trucks.

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

MANUFACTURING AND PACKAGING (A1-A3)

Raw materials are simple and come from the EU or Sweden. Main raw materials are cement, sand and fillers (Calcium carbonate etc.). They have been transported by lorries and trains from middle Europe and shipped to Sweden coast where from further chartered to Halstahammar by trucks.

The production of the floor screed is a very simple process. In the manufacturing all raw materials are added in big mixturing vessels, where they are mixed together for a few minutes. Final product mix will be blown to the storage silos. The product is delivered to the construction sites by bulk trucks.

Internal transport does not have any in the factory site, because the manufacturing place is very compact. Only resource that has been used is electricity. Also, emissions to air are not relevant.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final product delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Transportation impacts from final products delivery to construction sites cover direct exhaust emissions of fuel, environmental impacts of fuel production, as well as related infrastructure emissions. Average distance of transportation from production plant to building site is assumed as 300 km and the transportation method is assumed to be lorry. Vehicle capacity utilisation volume factor is assumed to be 100 %.

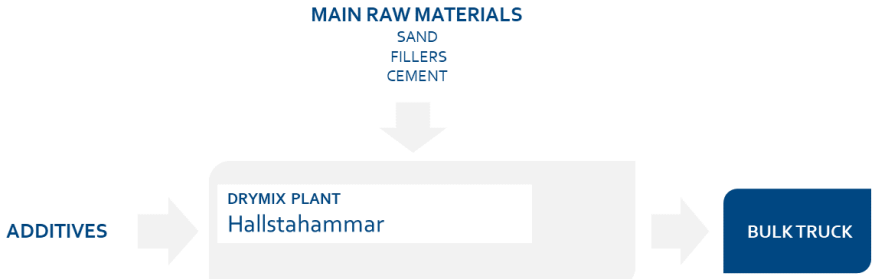
PRODUCT USE AND MAINTENANCE (B1-B7)

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 end-of-life products are assumed to be sent to the closest facilities (C2). 90% of the end-of-life product is sent to recycling (C3). 10% is sent to the landfill (C4). Due to the recycling potential of reinforcement steel and concrete, the end-of-life product is converted into recycled raw materials (D).

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2021

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 kg
Mass per declared unit	1 kg

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

SYSTEM BOUNDARY

This EPD covers the *cradle to gate with options* scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

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	D	D
x	x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Geography, by two-letter ISO country code or regions. The International EPD System only.																		
EU	EU	EU	EU	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU		
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.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the Standards and 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 are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total excluded input and output flows do not exceed 5% of energy usage or mass.

For easier modelling and because of lack of accuracy in available modelling resources many constituents under 0,1% of product mass are excluded. These include additives which are all present in the

product only in very small amounts and have no serious 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.

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 EN 15804, 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.

Allocation is based on the annual production rate of the reference year. The values for 1 kg of the produced product which is used within this study are calculated by considering the total product weight per annual production. The product output is fixed to 1 kg and the corresponding amount of product is used in the calculations.

In the factory, several kinds of floor screeds are produced. Since the production processes of these products are similar, the annual production percentages are taken into consideration to allocate energy consumption and wastage ratio. Accordingly, total annual consumed energy and wastage are allocated per 1 kg of product considering the annual production. Since the formulation of each product is certain, base materials do not need to be allocated. Additionally, there is no co-product or by-product generated.

All estimations and assumptions are given below.

▪ Modules A2, A4 & C2: Vehicle capacity utilisation 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 and so the variety in load assumed to be negligible. Empty returns are not considered as it is assumed that return trips are used by transportation companies to serve the needs of other clients.

▪ Module A4: Transportation doesn't cause losses since the product is delivered by bulk trucks. Therefore, the volume capacity utilisation factor is assumed to be 1. In addition, transport distances and vehicle types are assumed based on delivery in the past year. According to the basic data used (Ecoinvent) for trucks, average load factors are taken into account. According to the Ecoinvent data used, the average load factor is between 16 and 30 tonnes. Considering that the range is quite flexible in the Ecoinvent data and the components are neither light nor heavy, it is reasonable to assume that the volume factor is 1.

▪ Module C1: Consumed energy and other sources for the demolition process of the product is negligible. There is no additional effort to demolish the product, it is demolished thanks to the general process to crush the reinforced concrete.

▪ Module C2: Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry which is the most common.

▪ Modules C3: 90% of end-of-life product is assumed to be converted to crushed concrete to be used instead of crushed gravel

in regard to the article Ympäristönäkökohdat - Kiertotalous toimii (https://betoni.com/tietoa-betonista/perustietopaketti/ekologisuus/kierratys).

- Module C4: 10% of end-of-life product is assumed to be treated in an inert landfill.
- Module D: The benefits are thanks to the use of recycled concrete as a substitute for gravel.

AVERAGES AND VARIABILITY

The LCA study represents a single product produced in one production plant 'Hallstahammar, Sweden'. All data used within the study represents the product itself; namely, there is no average data. Besides, as it mentioned in the allocation methods, energy and the wastage in the product stage are allocated per the product. However, since allocation is made within the similar products and production systems, it is considered that this allocation will not cause variations.

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	100%
Variation in GWP-GHG between products	N/A
Variation in GWP-GHG between sites	N/A

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

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	kg CO_2e	9,38E-2	3,31E-2	1,04E-4	1,27E-1	5,16E-2	MND	MND	MND	MND	MND	MND	MND	MND	0E0	6,38E-3	8,12E-3	5,28E-4	-4,22E-3
GWP – fossil	kg CO_2e	9,29E-2	3,3E-2	1,03E-4	1,26E-1	5,21E-2	MND	MND	MND	MND	MND	MND	MND	MND	0E0	6,37E-3	8,05E-3	5,27E-4	-4,11E-3
GWP – biogenic	kg CO_2e	8,88E-4	2,14E-5	3,69E-7	9,09E-4	2E-5	MND	MND	MND	MND	MND	MND	MND	MND	0E0	3,9E-6	5,9E-5	1,04E-6	-9,92E-5
GWP – LULUC	kg CO_2e	2,29E-5	1,55E-5	6,76E-8	3,85E-5	1,93E-5	MND	MND	MND	MND	MND	MND	MND	MND	0E0	2,25E-6	5,02E-6	1,56E-7	-9,98E-6
Ozone depletion pot.	kg CFC_{-11}e	5,56E-9	7,23E-9	1,39E-11	1,28E-8	1,13E-8	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,46E-9	1,7E-9	2,17E-10	7,98E-11
Acidification potential	mol H^+e	3,36E-4	1,76E-4	6,52E-7	5,13E-4	2,16E-4	MND	MND	MND	MND	MND	MND	MND	MND	0E0	2,62E-5	6,95E-5	5E-6	-1,25E-5
EP-freshwater[3)]	kg Pe	8,67E-6	3,34E-7	4,02E-9	9,01E-6	5,09E-7	MND	MND	MND	MND	MND	MND	MND	MND	0E0	5,5E-8	2,17E-7	6,36E-9	-4,92E-7
EP-marine	kg Ne	8,84E-5	5,32E-5	1,61E-7	1,42E-4	6,29E-5	MND	MND	MND	MND	MND	MND	MND	MND	0E0	7,77E-6	2,6E-5	1,72E-6	6,17E-6
EP-terrestrial	mol Ne	1,09E-3	5,88E-4	1,75E-6	1,68E-3	6,95E-4	MND	MND	MND	MND	MND	MND	MND	MND	0E0	8,59E-5	2,87E-4	1,9E-5	4,47E-5
POCP (“smog”)	kg NMVOCe	2,89E-4	1,72E-4	5,71E-7	4,62E-4	2,12E-4	MND	MND	MND	MND	MND	MND	MND	MND	0E0	2,7E-5	7,97E-5	5,51E-6	1,54E-5
ADP-minerals & metals	kg Sbe	2,44E-6	8,17E-7	6,66E-9	3,26E-6	1,37E-6	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,59E-7	5,97E-8	4,81E-9	-8,16E-7
ADP-fossil resources	MJ	5,58E-1	4,9E-1	1,44E-3	1,05E0	7,67E-1	MND	MND	MND	MND	MND	MND	MND	MND	0E0	9,72E-2	1,38E-1	1,47E-2	-6,27E-2
Water use[2)]	m^3e depr.	4,37E-2	1,86E-3	5,82E-5	4,57E-2	2,95E-3	MND	MND	MND	MND	MND	MND	MND	MND	0E0	3,45E-4	2,3E-3	6,81E-4	-1,33E-2

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) 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 experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO_4e.

ADDITIONAL 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	2,92E-9	2,32E-9	1,02E-11	5,25E-9	3,59E-9	MND	MND	MND	MND	MND	MND	MND	MND	0E0	4,92E-10	5,02E-9	9,72E-11	4E-9
Ionizing radiation[5)]	kBq U235e	3,78E-1	2,15E-3	5,02E-6	3,8E-1	3,19E-3	MND	MND	MND	MND	MND	MND	MND	MND	0E0	4,25E-4	7,1E-4	6,04E-5	-5,14E-4
Ecotoxicity (freshwater)	CTUe	7,76E-1	3,94E-1	3,12E-3	1,17E0	6,53E-1	MND	MND	MND	MND	MND	MND	MND	MND	0E0	7,59E-2	9,36E-2	9,29E-3	-1,04E-1
Human toxicity, cancer	CTUh	4,27E-11	1,32E-11	3,45E-13	5,62E-11	1,73E-11	MND	MND	MND	MND	MND	MND	MND	MND	0E0	2,15E-12	3,49E-12	2,2E-13	-5,78E-12
Human tox. non-cancer	CTUh	1,36E-9	4,4E-10	4,74E-12	1,81E-9	6,77E-10	MND	MND	MND	MND	MND	MND	MND	MND	0E0	8,71E-11	8,49E-11	6,79E-12	-1,36E-10
SQP	-	1,14E0	3,88E-1	1,65E-3	1,53E0	6,31E-1	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,08E-1	1,58E-1	2,5E-2	-7,27E-2

4) SQP = Land use related impacts/soil quality. 5) 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.

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	MJ	2,17E-2	8,62E-3	4,31E-2	7,35E-2	8,57E-3	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,38E-3	6,97E-3	1,19E-4	-9,79E-3
Renew. PER as material	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	2,17E-2	8,62E-3	4,31E-2	7,35E-2	8,57E-3	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,38E-3	6,97E-3	1,19E-4	-9,79E-3
Non-re. PER as energy	MJ	5,58E-1	4,9E-1	1,44E-3	1,05E0	7,67E-1	MND	MND	MND	MND	MND	MND	MND	MND	0E0	9,72E-2	1,38E-1	1,47E-2	-6,27E-2
Non-re. PER as material	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	5,58E-1	4,9E-1	1,44E-3	1,05E0	7,67E-1	MND	MND	MND	MND	MND	MND	MND	MND	0E0	9,72E-2	1,38E-1	1,47E-2	-6,27E-2
Secondary materials	kg	6,54E-4	0E0	0E0	6,54E-4	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	3,3E-3	8,95E-5	1,36E-6	3,39E-3	1,33E-4	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,84E-5	6,12E-5	1,61E-5	-1,06E-3

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	1,58E-3	6,3E-4	1,57E-5	2,23E-3	1E-3	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,01E-4	0E0	1,37E-5	-5,23E-4
Non-hazardous waste	kg	5,74E-2	3,49E-2	2,82E-3	9,52E-2	5,59E-2	MND	MND	MND	MND	MND	MND	MND	MND	0E0	8,41E-3	0E0	1E-1	-2,35E-2
Radioactive waste	kg	2,75E-6	3,3E-6	6,45E-9	6,06E-6	5,08E-6	MND	MND	MND	MND	MND	MND	MND	MND	0E0	6,65E-7	0E0	9,74E-8	-1,81E-7

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	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

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	kg CO_2e	9,29E-2	3,3E-2	1,03E-4	1,26E-1	5,21E-2	MND	MND	MND	MND	MND	MND	MND	MND	0E0	6,37E-3	8,05E-3	5,27E-4	-4,11E-3

7) 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) This indicator Is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	- Electricity production, wind, 1-3mw turbine, onshore, Sweden, Ecoinvent 3.6 - Electricity production, hydro, run-of-river, Sweden, Ecoinvent 3.6
Electricity CO_2e / kWh	0,0148 (wind), 0,0039 (hydro)

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO_2e emissions, kg CO_2e / tkm	0.17
Average transport distance, km	300
Capacity utilisation (including empty return) %	100
Bulk density of transported products	≈ 1,8 g/dm^3
Volume capacity utilisation factor	1

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected with mixed waste	1
Recovery process – kg for recycling	0,9
Disposal (total) – kg for final deposition	0,1
Scenario assumptions e.g. transportation	End-of-life product is transported 50 km with an average lorry

BIBLIOGRAPHY

Standards and PCR

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

EN 15804+A2 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

PCR 2019:14. Construction Products. Version 1.1.

Data references:

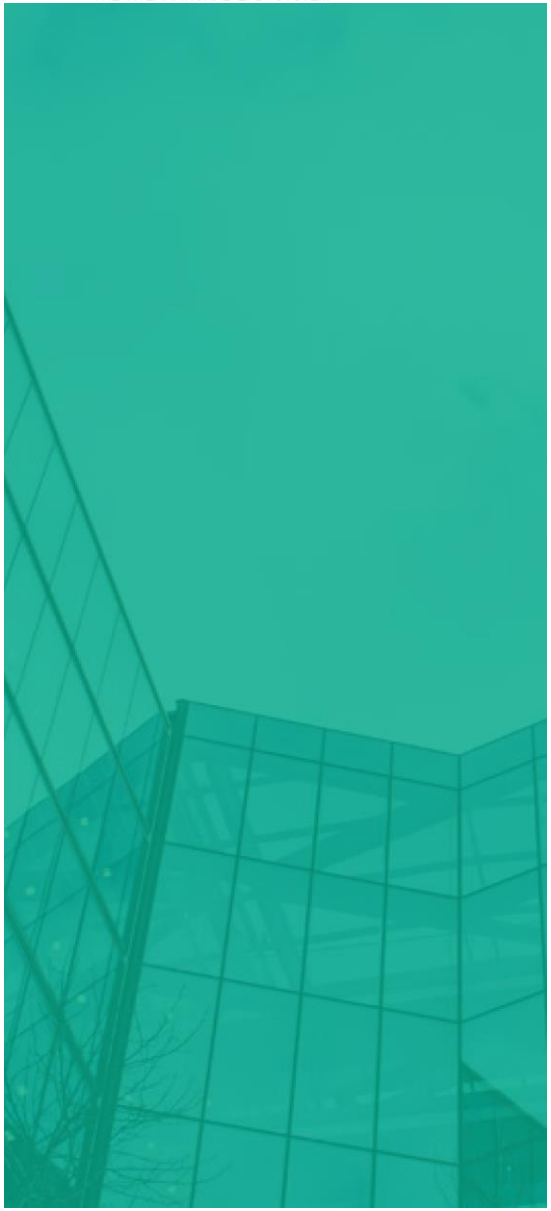
Ecoinvent v3.6 (2019)

EPD Geseke Portlandzement CEM I 525 N milke classic

Ympäristönäkökohdat - Kiertotalous toimii

Background report of Kiilto Pro rECO

EPD®
THE INTERNATIONAL EPD® SYSTEM



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

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Kiilto AB
EPD author	Viivi Kettula
EPD verifier	Anni Oviir, Rangi Maja OÜ, anni.oviir@lcasupport.com
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Concrete and cement-based products

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 compliance with EN 15804, 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 background report (project report) for this EPD

Why does verification transparency matter? Read more online.

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Anni Oviir, Rangi Maja OÜ
EPD verification started on	2022-04-04
EPD verification completed on	2022-04-06
Supply-chain specific data %	100%
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Viivi Kettula
EPD Generator module	Concrete and cement-based products
Independent software verifier	Ugo Pretato, Studio Fieschi & soci Sri
Software verification date	2021-05-11

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 EN 15804:2012+A2:2019.

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.

Anni Oviir, Rangi Maja OÜ

VERIFICATION AND REGISTRATION (ENVIRONDEC)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.11
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Third party verifier	Anni Oviir
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	☐ yes ☑ no

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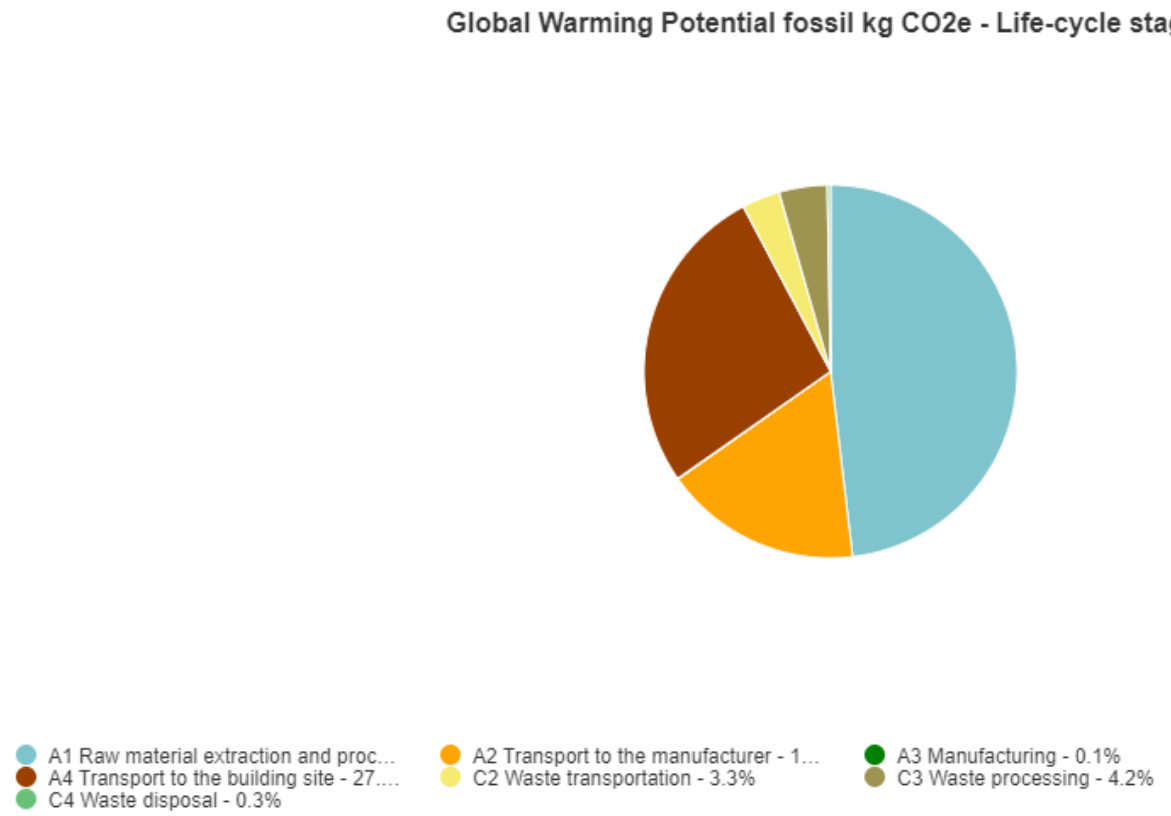
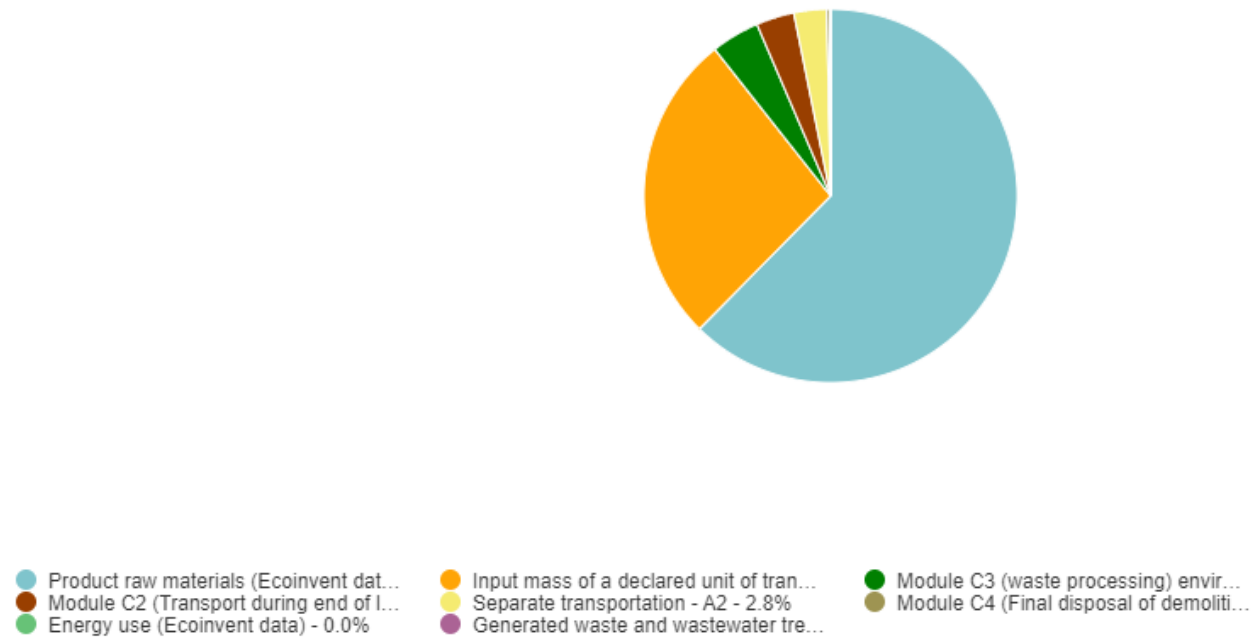
ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

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	7,23E-2	3,27E-2	1,01E-4	1,05E-1	5,16E-2	MND	MND	MND	MND	MND	MND	MND	MND	0E0	6,32E-3	7,96E-3	5,17E-4	-3,98E-3
Ozone depletion Pot.	kg CFC_{-11}e	4,43E-9	5,76E-9	1,16E-11	1,02E-8	8,98E-9	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,16E-9	1,4E-9	1,72E-10	-2,75E-11
Acidification	kg SO_2e	2,09E-4	1,02E-4	4,37E-7	3,11E-4	1,6E-4	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,3E-5	1,28E-4	2,08E-6	-2,59E-5
Eutrophication	kg PO_4^3e	5,32E-5	2,09E-5	1,85E-7	7,43E-5	3,66E-5	MND	MND	MND	MND	MND	MND	MND	MND	0E0	2,7E-6	9,07E-6	4,03E-7	-1,61E-5
POCP (“smog”)	kg C_2H_4e	8,8E-6	5,14E-6	3,29E-8	1,4E-5	6,86E-6	MND	MND	MND	MND	MND	MND	MND	MND	0E0	8,39E-7	1,48E-6	1,53E-7	-1,95E-6
ADP-elements	kg Sbe	2,44E-6	8,17E-7	6,66E-9	3,26E-6	1,37E-6	MND	MND	MND	MND	MND	MND	MND	MND	0E0	1,59E-7	5,97E-8	4,81E-9	-8,16E-7
ADP-fossil	MJ	5,58E-1	4,9E-1	1,44E-3	1,05E0	7,67E-1	MND	MND	MND	MND	MND	MND	MND	MND	0E0	9,72E-2	1,38E-1	1,47E-2	-6,27E-2

ANNEX 2 : LIFE-CYCLE ASSESSMENT RESULT VISUALIZATION

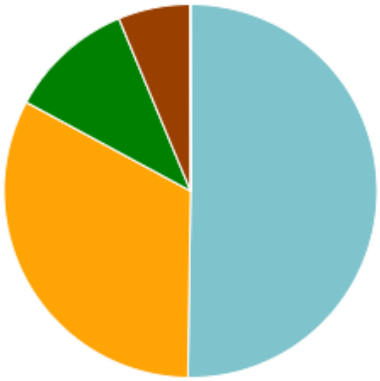


Global Warming Potential fossil kg CO2e - Classifications



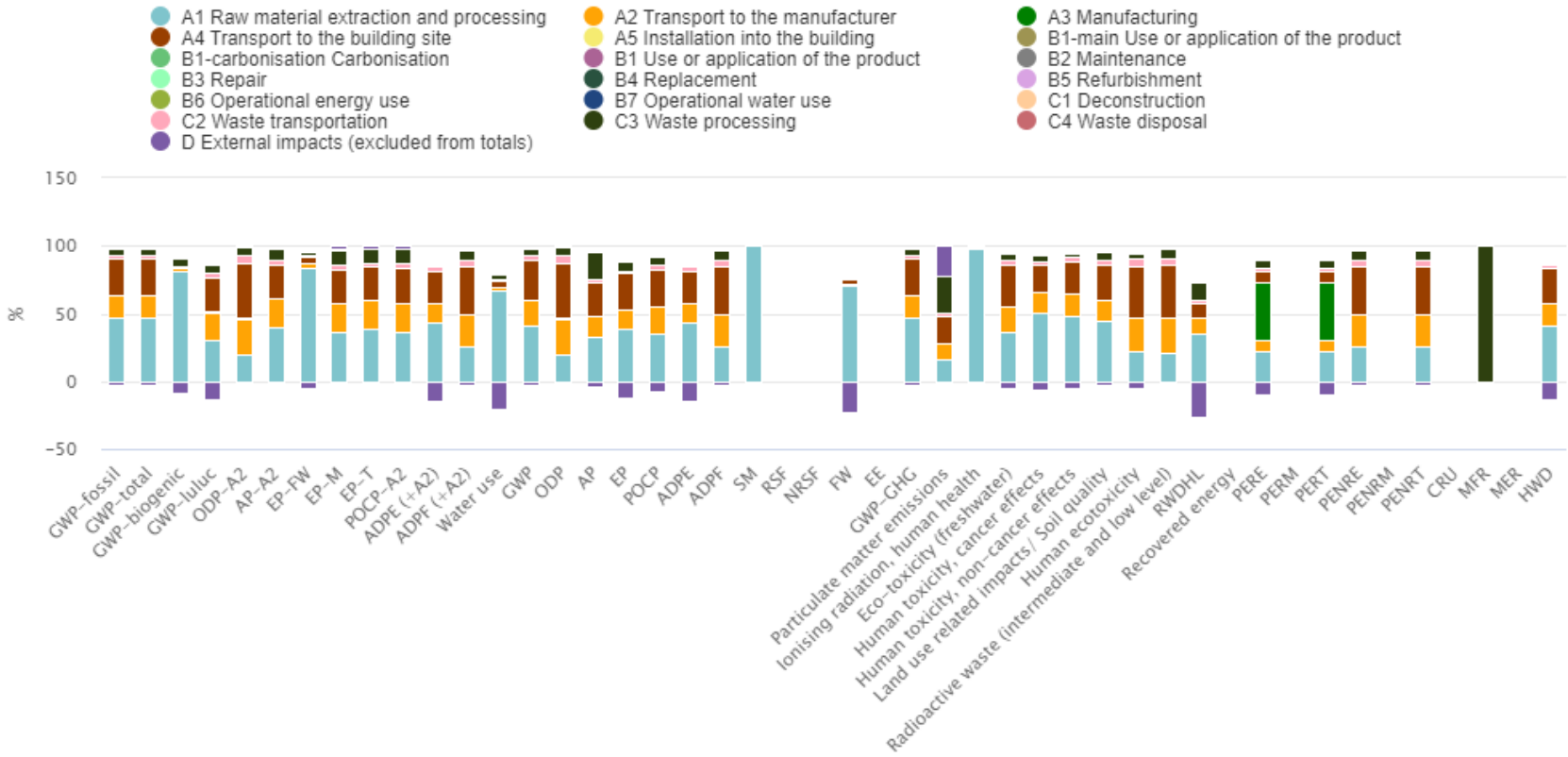
Global Warming Potential fossil kg CO2e - Resource types

This is a drilldown chart. Click on the chart to view details



C:Manufacturing - 50.2%
E:Water supply; sewerage, waste m...
Other resource types - 32.7%
D:Electricity, gas, steam and air con...
Cement - 10.8%

Life-cycle impacts by stage as stacked columns



Life-cycle impacts by material as stacked columns