ENVIRONMENTAL PRODUCT DECLARATION

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

JACKON TUPLEX UNDERLAY

JACKON FINLAND OY

Programme operator:	EPD registration number:	Publication date:	Valid until:
Rakennustietosäätiö RTS	RTS_216_23	23.5.2023	23.5.2028

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Jackon Finland Oy
Address	Toravantie 18, Sastamala
Contact details	myynti@jackon.fi, 010 8419222
Website	www.jackon.fi

PRODUCT IDENTIFICATION

Product name	Jackon Tuplex underlay Jackon Tuplex LVT underlay
Product number / reference	Jackon Tuplex Jackon Tuplex LVT
Place(s) of production	Sastamala (Pajakatu)

The Building Information Foundation RTS sr

EPDs within the same product category but from different programmes may not be comparable.

Jukka Seppänen
RTS EPD Committee Secretary

Laura Apilo
Managing Director

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 Building Information Foundation RTS sr
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 RTS PCR (English version, 26.8.2020) is used.
EPD author	Laila Huovinen-Manu, Inkeri Seppälä, Sweco Finland
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	04.05.2023
EPD verifier	Anastasia Sipari, One Click LCA
EPD number	RTS_216_23
Publishing date	23.05.2023
EPD valid until	23.05.2028

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Tuplex is an underlay for floating floor materials. Tuplex is a combination of polyethene foil and expanded polystyrene. This EPD presents an averaged product of Tuplex and Tuplex LVT.

PRODUCT APPLICATION

As sound and moisture barrier under parquet, vinyl and laminate floors.

TECHNICAL SPECIFICATIONS

Thickness of Tuplex is 3 mm.

Jackon Tuplex LVT is only 1,1 mm thick. With high density EPS, Tuplex LVT has a compressive strength of 200 kPa EPD-025

PRODUCT STANDARDS

Product follows the EN 16354:2018 standard for floor underlays.

PHYSICAL PROPERTIES OF THE PRODUCT

Tuplex (3 mm) has a density of 0,150 kg / m^2 and Tuplex LVT (1,1 mm) a density of 0,135 kg / m^2. These densities can be used to convert the mass to one m^2 of product.

Detailed physical information can be found from the manufacturer's webpage, such as technical properties and DOP's www.jackon.fi

ADDITIONAL TECHNICAL INFORMATION

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

Jackon – materiaalipankki – asennusohjeet – tekniset tiedot

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Polystyrene	0,30	0	0	Finland
Contained pentane	0,018	0	0	
Polyethylene	0,52	0	0	Finland
Water based glue	0,18	0	0	Finland

PRODUCT RAW MATERIAL MAIN COMPOSITION

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

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)

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 raw material expandable polystyrene includes blowing agent pentane (6 % of mass). Most of the pentane (4% of EPS mass) evaporates during the manufacturing process, and remaining pentane (2% of EPS mass) during the service life.

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 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)

The rest of the pentane is assumed to be emitted during the service life of the product; therefore, the mass loss due to this blowing agent is taken into consideration in end-of-life stage. The pentane emission is modelled in C4 disposal. Consumption of energy and natural resources in demolition process is assumed to be negligible. (C1) The distance for transportation to disposal is assumed as 50 km and the transportation method is assumed to be lorry. (C2) It is estimated that 100% of end-of-life EPS product is assumed to be recovered to energy in incineration plant as it is easy to collect and qualified for energy recovery. (C3) Pentane emission occurring during service life is modelled under disposal. (C4) Thanks to the energy recovery process end-of-life EPS replaces heat and electricity. The heat and electricity benefits at the end-of-life have been calculated using European average including Russia and Turkey. (D)

MANUFACTURING PROCESS

The manufacturing process of EPS insulation begins with the so-called pre-expansion stage, where the raw material beads with a diameter of 0.8-1.5 mm are expanded with the help of steam to the desired pre-expansion density, 19 kg/m3. In addition, the manufacturing raw materials are glue and plastic films. Manufacturing takes place on lamination lines, where all manufacturing steps take place inside the same manufacturing device. One can think of the machine as a so-called line where the material automatically advances from one stage to the next.

In the manufacturing process, an even, thin layer of glue is first applied to the PE plastic films, from which, after application, the excess water is dried in an oven. There are two films, printed (customers own graphics) and clear. After the oven, one of the films is dosed with an EPS bead, so that the bead sticks to the dried glue. After dosing the beads, the machine folds another film over the beads, and presses the films together. Finally, the finished product is measured by cutting off the approx. 20 mm part that goes over the side. The operator constantly monitors the manufacturing process so that quality deviations do not arise in the material, e.g. due to machine malfunctions. This results in a ready-made so-called jumbo roll, which contains approx. 800 running meters of finished product. The jumbo roll is lengthwise cut to dimensions suitable for customer use (15, 30 and 65m) around the cardboard core, flattened, marked and transferred to the wrapping station for wrapping. When the product is wrapped, it is moved to the warehouse to await delivery to the customer.

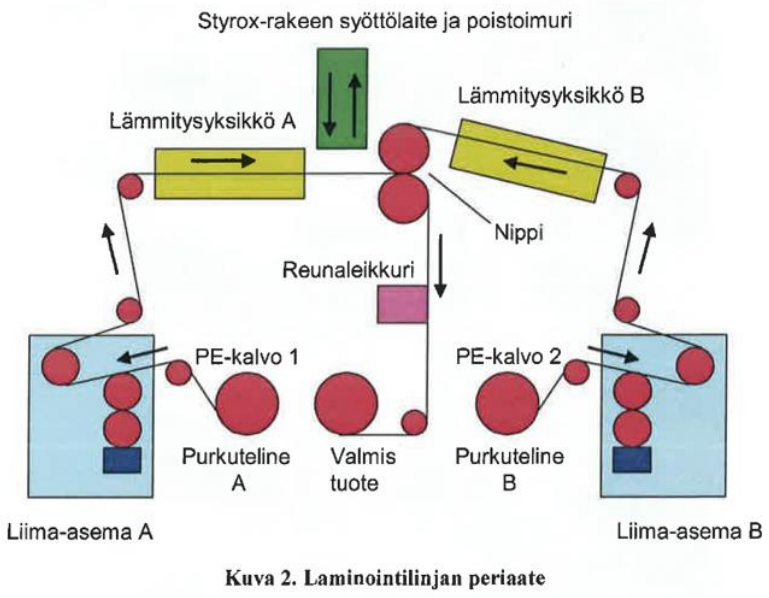


Figure 1. Manufacturing process of EPS floor underlay.

LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2021

DECLARED AND FUNCTIONAL UNIT

Declared unit	kg
Mass per declared unit	1 kg
Functional unit	not defined
Reference service life	min. 50 years, depends on use case

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	5.49E-02

SYSTEM BOUNDARY

This EPD covers the cradle to gate with options scope with the following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) 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	x	MND	MND	MND	MND	MND	MND	MND	x	x	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.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 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.

Support activities not directly link to manufacturing, such as employee commuting or municipal waste produced by the employees are excluded from the analysis.

Some 8% of EPS granulate is unused in the production process and recycled back. As the material flows back to the same process as

such, it is not treated as a by-product and re-entered as secondary material but rather ignored.

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.

Transportation in modules A2, A4 & C2:
Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality 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 taken into account as it is assumed that return trip is used by transportation companies to serve the needs of other clients.

Module A3:
Electricity needs are covered by renewable energy. These are modelled based on Statistics Finland data on renewable energy production in Finland in the reference year.

Module A4:
Transportation doesn't cause losses as products are packaged properly. Additionally, it is assumed that there is no significant weight loss due to the emission of the rest of the blowing agent in the product during transportation, the rest of the pentane is assumed to evaporate gradually during the service life. Transportation distances and vehicle types are assumed according to the exports in the reference year.

Module A5:
Installation loss is estimated to be 4%. It is estimated to be incinerated for energy completely.

Use phase:
Although use phase is not included in the analysis, the remaining pentane is assumed to evaporate during this phase. This is taken into consideration in the weight used in C2 transportation and C3-C4 EOL scenarios. The pentane evaporation is recorded under C4 disposal.

Module C1:
The impacts of the disassembly stage are assumed zero, since the consumption of energy and natural resources for disassembling the end-of-life product is negligible.

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.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 - standard.

AVERAGES AND VARIABILITY

The presented results are a weighted average of Jackon Tuplex and Jackon Tuplex LVT. The weighting has been made based on annual production volumes. The total GWP variability between the products is less than 10%.

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 CO2e	2,9E0	2,26E-2	9,58E-2	3,02E0	1,3E-1	4,62E-1	MND	MND	MND	MND	MND	MND	MND	0E0	4,52E-3	2,71E0	0E0	-1,57E0
GWP – fossil	kg CO2e	2,98E0	2,26E-2	2,33E-1	3,24E0	1,31E-1	2,46E-1	MND	MND	MND	MND	MND	MND	MND	0E0	4,52E-3	2,71E0	0E0	-1,57E0
GWP – biogenic	kg CO2e	-8,69E-2	1,66E-5	-1,41E-1	-2,28E-1	6,93E-8	2,25E-1	MND	MND	MND	MND	MND	MND	MND	0E0	3,28E-6	2,58E-4	0E0	-4,37E-3
GWP – LULUC	kg CO2e	1,79E-3	6,89E-6	4,09E-3	5,89E-3	7,11E-5	2,42E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,36E-6	1,42E-5	0E0	-3,32E-3
Ozone depletion pot.	kg CFC-11e	1,03E-7	5,39E-9	1,59E-8	1,25E-7	2,75E-8	6,9E-9	MND	MND	MND	MND	MND	MND	MND	0E0	1,06E-9	5,76E-9	0E0	-2,29E-7
Acidification potential	mol H+e	1,64E-2	8,85E-5	6,11E-4	1,71E-2	3,42E-3	8,61E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,9E-5	4,2E-4	0E0	-2,36E-3
EP-freshwater3)	kg Pe	8,63E-5	1,86E-7	7,05E-6	9,35E-5	6,75E-7	3,88E-6	MND	MND	MND	MND	MND	MND	MND	0E0	3,67E-8	6,82E-7	0E0	-1,61E-5
EP-marine	kg Ne	2,29E-3	2,5E-5	1,46E-4	2,46E-3	8,58E-4	1,49E-4	MND	MND	MND	MND	MND	MND	MND	0E0	5,72E-6	1,8E-4	0E0	-5,37E-4
EP-terrestrial	mol Ne	2,51E-2	2,76E-4	1,49E-3	2,68E-2	9,54E-3	1,61E-3	MND	MND	MND	MND	MND	MND	MND	0E0	6,31E-5	1,95E-3	0E0	-6,2E-3
POCP (“smog”)	kg NMVOCe	1,06E-2	9,24E-5	1,36E-2	2,43E-2	2,49E-3	1,12E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,03E-5	4,79E-4	6,2E-3	-1,88E-3
ADP-minerals & metals	kg Sbe	2,73E-5	3,91E-7	1,25E-6	2,89E-5	1,2E-6	1,3E-6	MND	MND	MND	MND	MND	MND	MND	0E0	7,71E-8	7,42E-7	0E0	-1,4E-6
ADP-fossil resources	MJ	8,34E1	3,56E-1	2,24E0	8,6E1	1,76E0	3,59E0	MND	MND	MND	MND	MND	MND	MND	0E0	7,02E-2	4,25E-1	0E0	-2,95E1
Water use2)	m3e depr.	1,83E0	1,33E-3	6,21E-2	1,89E0	4,25E-3	7,76E-2	MND	MND	MND	MND	MND	MND	MND	0E0	2,61E-4	4,84E-2	0E0	-1,09E-1

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 (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	1,04E-7	2,03E-9	7,21E-9	1,13E-7	5,84E-9	5,53E-9	MND	MND	MND	MND	MND	MND	MND	0E0	4,08E-10	2,33E-9	0E0	-8,86E-9
Ionizing radiation5)	kBq U235e	2,7E-1	1,56E-3	6,43E-3	2,78E-1	7,62E-3	1,17E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,07E-4	1,18E-3	0E0	-2,31E-1
Ecotoxicity (freshwater)	CTUe	4,03E1	2,72E-1	2,42E0	4,3E1	1,15E0	2,07E0	MND	MND	MND	MND	MND	MND	MND	0E0	5,37E-2	9,08E0	0E0	-6,51E0
Human toxicity, cancer	CTUh	1,01E-9	6,93E-12	1,25E-10	1,14E-9	6,2E-11	6,36E-11	MND	MND	MND	MND	MND	MND	MND	0E0	1,37E-12	1,32E-10	0E0	-1,97E-10
Human tox. non-cancer	CTUh	3,45E-8	3,19E-10	1,77E-9	3,66E-8	1,07E-9	1,85E-9	MND	MND	MND	MND	MND	MND	MND	0E0	6,36E-11	5,8E-9	0E0	-3,95E-9
SQP	-	3,11E0	5,38E-1	5,6E-1	4,2E0	7,63E-1	2,59E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,06E-1	2,48E-1	0E0	-3,29E-1

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	3,08E0	4,48E-3	1,04E0	4,13E0	1,41E-2	1,69E-1	MND	MND	MND	MND	MND	MND	MND	0E0	8,84E-4	1,91E-2	0E0	-2,87E0
Renew. PER as material	MJ	6,52E-1	0E0	1,52E0	2,17E0	0E0	-2,02E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-1,48E-1	-3,1E-3	0E0
Total use of renew. PER	MJ	3,74E0	4,48E-3	2,56E0	6,3E0	1,41E-2	-1,85E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,84E-4	-1,29E-1	-3,1E-3	-2,87E0
Non-re. PER as energy	MJ	4,25E1	3,56E-1	1,77E0	4,46E1	1,76E0	1,93E0	MND	MND	MND	MND	MND	MND	MND	0E0	7,02E-2	4,25E-1	0E0	-2,95E1
Non-re. PER as material	MJ	4,09E1	0E0	-2,38E0	3,85E1	0E0	-4,74E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-3,76E1	-2,68E-1	0E0
Total use of non-re. PER	MJ	8,34E1	3,56E-1	-6,13E-1	8,31E1	1,76E0	1,46E0	MND	MND	MND	MND	MND	MND	MND	0E0	7,02E-2	-3,72E1	-2,68E-1	-2,95E1
Secondary materials	kg	1,65E-2	0E0	1,7E-2	3,35E-2	0E0	1,34E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m3	5,48E0	7,42E-5	3,04E-3	5.48	2,17E-4	2,19E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,46E-5	4,09E-3	0E0	-3,76E-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	1,65E-1	3,46E-4	6,73E-3	1,72E-1	1,86E-3	8,18E-3	MND	MND	MND	MND	MND	MND	MND	0E0	6,83E-5	0E0	0E0	-2,4E-2
Non-hazardous waste	kg	3,57E0	3,83E-2	2,1E-1	3,82E0	6,95E-2	2,06E-1	MND	MND	MND	MND	MND	MND	MND	0E0	7,55E-3	0E0	0E0	-5,96E-1
Radioactive waste	kg	7,43E-5	2,45E-6	7,96E-6	8,47E-5	1,23E-5	4,25E-6	MND	MND	MND	MND	MND	MND	MND	0E0	4,82E-7	0E0	0E0	-1,06E-4

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	3,06E-3	3,06E-3	0E0	2,06E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	2,6E-3	2,6E-3	0E0	6,25E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for energy	kg	0E0	0E0	8,75E-2	8,75E-2	0E0	1,39E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,94E-1	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2,88E1	0E0	0E0

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

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 CO2e	2,9E0	2,26E-2	9,58E-2	3,02E0	1,3E-1	4,62E-1	MND	MND	MND	MND	MND	MND	MND	0E0	4,52E-3	2,71E0	0E0	-1,57E0
ADP-minerals & metals	kg Sbe	2,73E-5	3,91E-7	1,25E-6	2,89E-5	1,2E-6	1,3E-6	MND	MND	MND	MND	MND	MND	MND	0E0	7,71E-8	7,42E-7	0E0	-1,4E-6
ADP-fossil	MJ	8,34E1	3,56E-1	2,24E0	8,6E1	1,76E0	3,59E0	MND	MND	MND	MND	MND	MND	MND	0E0	7,02E-2	4,25E-1	0E0	-2,95E1
Water use	m3e depr.	1,83E0	1,33E-3	6,21E-2	1,89E0	4,25E-3	7,76E-2	MND	MND	MND	MND	MND	MND	MND	0E0	2,61E-4	4,84E-2	0E0	-1,09E-1
Secondary materials	kg	1,65E-2	0E0	1,7E-2	3,35E-2	0E0	1,34E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Biog. C in product	kg C	N/A	N/A	0E0	0E0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	N/A	N/A	5.49E-02	5.49E-02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

7) Biog. C in product = Biogenic carbon content in product

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Ecoinvent 3.6 / 2019: Fair quality. Shares of renewables (hydro, wind & solar) based on Statistics Finland data on renewable electricity production in 2021.
Electricity CO2e / kWh	0.0381
District heating data source and quality	Ecoinvent 3.6 / 2019: Fair quality. No district heating but steam production.
District heating CO2e / kWh	0.0868

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO2e emissions, kg CO2e / tkm	0.1046
Average transport distance, km	1100
Capacity utilization (including empty return) %	100
Bulk density of transported products	15
Volume capacity utilization factor	<1

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	1
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0
Recovery process – kg for energy recovery	1
Disposal (total) – kg for final deposition	0
Scenario assumptions e.g. transportation	50

BIBLIOGRAPHY

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.

Ecoinvent database v3.6 (2019) and One Click LCA database.

EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

RTS PCR (English version, 26.8.2020)

Jackon Tuplex underlay LCA background report 4.4.2023

ABOUT THE MANUFACTURER

Jackon Finland Oy is part of Bewi group. They produce modern, energy-efficient solutions and components for the construction and industry.

A comprehensive portfolio of EPS, XPS, EPP and EPE products includes insulation, panels, wet board and other building systems, as well as packaging products and technical components for industry.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Jackon Finland Oy
EPD author	Laila Huovinen-Manu, Inkeri Seppälä, Sweco Finland Oy
EPD verifier	Anastasia Sipari, One Click LCA
EPD program operator	The Building Information Foundation RTS sr
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 Plastic-based insulation

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 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	Anastasia Sipari, One Click LCA
EPD verification started on	16.09.2022
EPD verification completed on	04.05.2023
Approver of the EPD verifier	The Building Information Foundation RTS sr

Author & tool verification	Answer
EPD author	Laila Huovinen-Manu, Inkeri Seppälä, Sweco Finland
EPD Generator module	Plastic-based Products and Systems
Independent software verifier	Silvia Vilčeková, Silcert sro:
Software verification date	07.05.2021

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.

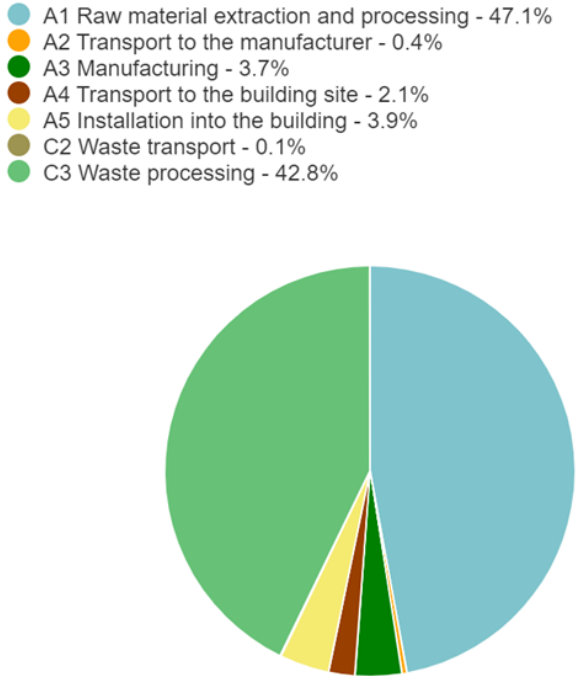
Anastasia Sipari, One Click LCA

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 CO2e	2,83E0	2,24E-2	2,34E-1	3,08E0	1,3E-1	2,44E-1	MND	MND	MND	MND	MND	MND	MND	0E0	4,48E-3	2,71E0	0E0	-1,53E0
Ozone depletion Pot.	kg CFC-11e	1,01E-7	4,28E-9	1,34E-8	1,19E-7	2,18E-8	6,3E-9	MND	MND	MND	MND	MND	MND	MND	0E0	8,44E-10	6,12E-9	0E0	-1,95E-7
Acidification	kg SO2e	1,52E-2	4,66E-5	4,82E-4	1,57E-2	2,69E-3	7,65E-4	MND	MND	MND	MND	MND	MND	MND	0E0	9,19E-6	3E-4	0E0	-1,92E-3
Eutrophication	kg PO43e	3,23E-3	9,41E-6	3,32E-4	3,57E-3	3,08E-4	1,93E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,86E-6	2,32E-4	0E0	-5,81E-4
POCP (“smog”)	kg C2H4e	1,58E-3	2,87E-6	3,98E-5	1,62E-3	7,14E-5	7,05E-5	MND	MND	MND	MND	MND	MND	MND	0E0	5,82E-7	7,78E-6	0E0	-1,2E-4
ADP-elements	kg Sbe	2,73E-5	3,91E-7	1,25E-6	2,89E-5	1,2E-6	1,3E-6	MND	MND	MND	MND	MND	MND	MND	0E0	7,71E-8	7,42E-7	0E0	-1,4E-6
ADP-fossil	MJ	8,34E1	3,56E-1	2,24E0	8,6E1	1,76E0	3,59E0	MND	MND	MND	MND	MND	MND	MND	0E0	7,02E-2	4,25E-1	0E0	-2,95E1

ANNEX 2: LIFE-CYCLE ASSESSMENT RESULT VISUALIZATION

Global warming potential total kg CO2e – life-cycle stages



Life-cycle impacts by stage as stacked columns