pintos

REINFORCEMENTS, NON-ALLOY STEEL



EPD programme operator	Rakennustieto Oy Malminkatu 16 A, 00100 Helsinki http://cer.rts.fi
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RAKENNUSTIETO · ENVIRONMENTAL PRODUCT DECLARATION · EPD

ECO PLATFORM EPD VERIFIED

EPD INTERNATIONAL EPD SYSTEM
EPD® International ref. number
EPD-IES-0028992

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804:2012+A2:2019

GENERAL INFORMATION

Manufacturer	Pintos Oy
Address	Pysäkintie 12, 27510 Eura, Finland
Website	https://www.pintos.fi/

Pintos Oy is one of Finland's leading suppliers of concrete construction products, manufacturing reinforcement meshes, lifting loops, fasteners, and other products at its production facilities in Eura and Lappi in western Finland.

PRODUCT INFORMATION

Product	Reinforcements, non-alloy carbon steel
Declared unit	1 ton of product
Manufacturing site	Eura and Lappi, Finland

EPD REPORT INFORMATION

EPD operator	Building Information Foundation RTS Malminkatu 16 A 00100 Helsinki https://ymparisto.rakennustieto.fi/rakennustiedon-epd
Standards applied	ISO 14025 EN 15804:2012+A2:2019
Product category rules	RTS Methodology Guide 2020 (version 26.8.2020)
Geographical representativeness	Finland
LCA practitioner	Heini Koutonen & Veikka Vauhkonen, Nordic Impact Oy
EPD verification	The environmental declaration has been verified by an external independent body in accordance with the requirements of ISO 14025 and EN 15804+A2 standards. Verification carried out by: *Valtteri Kainila* Ramboll Finland Oy
Verification date	2.10.2025

Environmental declarations for construction products may not be comparable if they have not been prepared in accordance with standard EN 15804 or if the comparison is not made at the building or infrastructure level.

Jukka Seppänen
RTS EPD Committee Secretary

Laura Apilo
Managing Director

PRODUCT INFORMATION

PRODUCT

Pintos manufactures reinforcement meshes, lifting loops, and fasteners used in the concrete product industry, among other things. This EPD covers reinforcement used specifically in the manufacture of concrete elements, piles, columns, and beams. The raw material for the products is non-alloy low-carbon steel wire, and they are manufactured at Pintos's factories in Eura and Lappi.

DESCRIPTION OF THE PRODUCTION PROCESS

The products are manufactured on automated lines. The manufacturing process includes cold rolling, straightening, cutting, bending, welding, and packing.

RAW MATERIAL COMPOSITION AND TECHNICAL DATA

The raw material composition of the products is presented in the table below. The products do not contain any substances that exceed the registration limits set by the European Chemicals Agency for substances of very high concern. Further information on the products can be found at: https://www.pintos.fi/fi_FI/tuotteet

Technical characteristics					
Diameter		3–32 mm			
Density		7,850 kg/m³			
Raw material	Quantity	Usability			Origin of raw materials
	Weight %*	Renewable	Non-renewable	Recycled	
Low-carbon steel wire	98		x	68-95	EU
Brush steel rod	2		x	68-76	EU
Packaging materials					
Metal	1.7 kg		x		EU
Wood	1.5 kg	x			Finland
Plastic	0.1 kg		x		EU

Raw material	Amount [weight %]*	Origin of raw materials
Metals	100	EU
Minerals	0	-
Fossil materials	0	-
Bio-based materials	0	-

*order of magnitude, not exact composition



Figure 2 . Illustrative image of the studied products

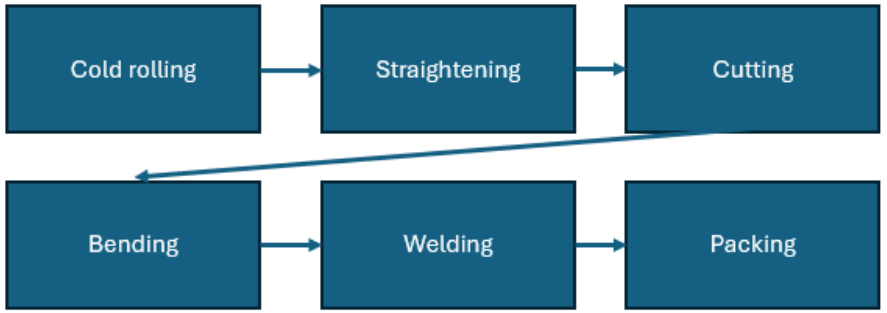


Figure 1 . Product manufacturing process

LIFE CYCLE ASSESSMENT INFORMATION

DECLARED UNIT

The declared unit in this assessment is 1 ton (1000 kg) of final product.

SYSTEM BOUNDARIES

The type of assessment is cradle to gate with optional modules and end-of-life, in which case the assessment includes the following life cycle stages: raw material procurement and processing (A1), transport to manufacturing (A2), production (A3), distribution of the finished product (A4) and installation (A5). The end-of-life phase includes dismantling (C1), transport to waste processing (C2), waste processing (C3) and final disposal (C4). In addition, module D, benefits and loads occurring beyond the product life cycle, are taken into account.

Assumptions related to system boundaries are described below.

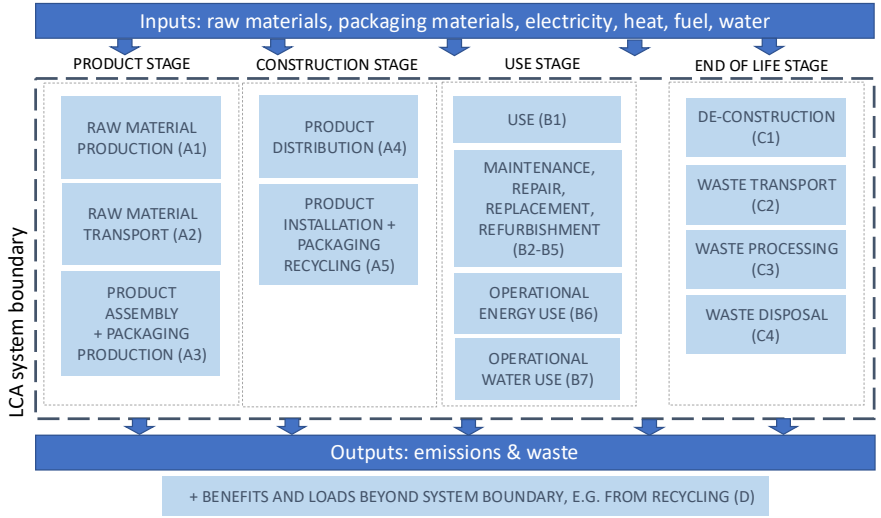


Figure 3. System boundaries for life cycle assessment

Raw material procurement (A1): Environmental impacts arising from the entire procurement chain for raw materials and packaging materials.

Transport of raw materials (A2): Transport of raw materials to Pintos' production facilities in Eura and Lappi. Actual transport methods and distances have been considered.

Manufacturing (A3): Manufacturing and packaging of products at the Eura and Lappi plants. The assessment includes the impacts of production inputs consumed in the manufacturing process, such as electricity, heat, and fuels. The amounts of production inputs per unit studied were calculated from the average consumption of the two production facilities. The end-of-life stages of production waste were modelled using the most likely final treatment option, and waste transport distances were based on average transport distances calculated by Statistics Finland (2025).

Product distribution (A4): The distribution distances of finished products were estimated based on market share and transport distance estimates calculated for the relevant market areas.

Installation (A5): The installation phase includes the recycling of packaging materials.

Demolition of buildings (C1): The demolition of the product is assumed to take place as part of the demolition of the entire building using a diesel-powered machine, whose fuel consumption has been estimated based on research data.

Transport during demolition (C2): The impacts of waste transport during demolition were estimated based on the average waste transport distance (Statistics Finland, 2025).

Demolition waste treatment (C3): The products are 100% recyclable as material, but it is likely that not all reinforced products will be collected separately during

the demolition phase. The life cycle assessment assumes that 90 % of the waste will be sent for material recovery.

Final disposal of demolition waste (C4): It is assumed that 10% of the demolition waste generated will end up in final disposal. The impacts of waste transport were assessed based on the average waste transport distance (Statistics Finland, 2025).

Impacts beyond the life cycle (D): Materials delivered for material recycling can be used to manufacture recycled raw materials, thereby avoiding the use of virgin raw materials. The amount of secondary or recycled steel entering the product system was 887.5 kilograms per product. The life cycle assessment assumes that 90% of the product will be recycled at the end of its life cycle. The proportion of recycled steel used in manufacturing was reduced from the proportion of steel going to recycling to avoid double counting.

LIFE CYCLE ASSESSMENT DATA COLLECTION

The production data is based on actual manufacturing data collected by Pintos from its own production in 2024. The data collected by the manufacturer is based on the materials and energy required to manufacture the products. Some raw material suppliers had their own environmental declarations in accordance with the EN15804+A2 standard, which were used as source data whenever available. All other environmental data required for the life cycle assessment was available from the Sphera and Ecoinvent 3.10 databases. Representativeness, coverage and reliability of the data can be considered good.

TIME-RELATED REPRESENTATIVENESS

The data on the production process represent production in 2024, for which the latest full-year production data was available. All general datasets used from databases were less than 3 years old.

SOFTWARE AND DATABASES USED

The Ecoinvent 3.10 and Sphera databases were used for background data, and the latest version of the LCA for Experts life cycle assessment software was used as the calculation tool.

CUT-OFF CRITERIA

The assessment follows the cut-off criteria specified in standard EN 15804:2012+A2:2019: no modules or processes representing more than 5% of the input flows of each module have been excluded from the assessment.

The life cycle stages excluded from the assessment are the optional modules B1-B7 for the use phase. No other stages that are part of the assessment according to the EN 15804 standard and the RTS method guide have been excluded. The review does not cover support functions outside the company's production process, employee commutes, or the environmental impact of the construction of the production facility and other infrastructure.

The assessment includes all raw materials reported by the manufacturer and their life cycle environmental impacts. No raw materials or other production inputs had to be excluded from the study, e.g., due to a lack of source data.

ALLOCATION

Allocation is necessary if more than one product is produced in the production process and the material, energy, and waste flows cannot be measured separately for the product under study. According to the ISO 14044 standard, allocation should be carried out according to the following principles (in order):

1) Allocation should be avoided.
2) Allocation should be based on physical characteristics when the difference in economic value between products is small.
3) Allocation should be based on economic value.

In this study, the electricity, heat, and fuel used in production, as well as the waste streams generated in production, have been allocated per unit examined at the total production level. Production inputs were allocated to the products and by-products studied based on the total production masses (in tons). Metal scrap generated in production and sent for material recycling is considered a by-product, but as its economic value is very low (<1% of turnover), mass-based allocation could also be applied to it in accordance with the standard.

Product phase			Construction phase		Use phase							Demolition phase				Impacts beyond the system boundary		
A	A	A	A	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	x	NR	NR	NR	NR	NR	NR	NR	x	x	x	x	x	x	x
Raw material procurement	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling
ND = Not declared NR = Not relevant																		
	Mandatory modules																	
	Mandatory in accordance with the rules and conditions in section 6.2.1 of the RTS EPD Methodology Guide																	
	Optional modules based on scenarios																	

LIFE CYCLE ASSESSMENT RESULTS

The environmental impact assessment of the product's life cycle was carried out using the methods and assumptions described in the previous chapter. The quantitative data collected on input and output flows was entered into the modeling program, and suitable datasets were selected from the background databases. The software automatically calculates the results for different environmental impact categories based on the data entered.

The impact assessment calculations were performed using LCA for Experts modeling software and impact category parameters in accordance with standard EN 15804:2012+A2:2019. The environmental impact results obtained are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The environmental impacts of product groups are presented per declared unit, per 1 ton (1000 kg) of final product (e.g., 1 kg CO2e / 1 t of product). The results are presented in scientific format. Example of data interpretation: 1.31E-2 = 1.31*10-2 = 0.0131.

In accordance with standard EN 15804, environmental declarations for construction products may not be comparable if they have not been prepared in accordance with that standard or if a different declared unit has been used in their preparation.

POTENTIAL ENVIRONMENTAL IMPACTS (RESULTS PER 1 TON (1000 kg) OF PRODUCT)

Impact category	Abbrevia-tion	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential - total (GWP-total)	GWP total	kg CO2 eq	5,50E+02	2,64E+01	2,76E+00	3,37E+01	1,75E+01	1,20E+00	2,13E+00	-1,01E+01
Global Warming Potential - fossil (GWP-fossil)	GWP fossil	kg CO2 eq	5,47E+02	2,62E+01	3,21E-01	3,37E+01	1,73E+01	1,12E+00	2,13E+00	-1,05E+01
Global Warming Potential - biogenic (GWP-biogenic)	GWP biogenic	kg CO2 eq	2,27E+00	0,00E+00	2,44E+00	3,69E-03	0,00E+00	4,61E-02	-3,01E-03	3,62E-01
Global Warming Potential - land use and land use change (GWP-luluc)	GWP luluc	kg CO2 eq	7,07E-01	2,68E-01	5,99E-04	2,93E-03	1,78E-01	3,36E-02	6,68E-03	2,43E-02
Ozone depletion	ODP	kg CFC11 eq	1,75E-05	4,32E-12	3,50E-13	5,16E-07	2,87E-12	6,13E-12	6,88E-12	2,46E-10
Acidification	AP	mol H+ eq	2,59E+00	4,03E-02	5,21E-04	3,04E-01	2,99E-02	3,47E-03	1,33E-02	-6,71E-02
Eutrophication, fresh water	EP fresh	kg P eq	1,83E-02	7,02E-05	1,75E-07	9,85E-04	4,66E-05	1,35E-06	3,01E-06	9,04E-06
Eutrophication, marine	EP marine	kg N eq	8,23E-01	1,64E-02	1,61E-04	1,41E-01	1,25E-02	8,75E-04	3,23E-03	-1,10E-02
Eutrophication, terrestrial	EP terrestrial	mol N eq	9,04E+00	1,74E-01	2,20E-03	1,55E+00	1,34E-01	9,57E-03	3,52E-02	-1,12E-01
Photochemical ozone formation	POFP	kg NMVOC eq	2,48E+00	3,66E-02	4,25E-04	4,61E-01	2,71E-02	2,75E-03	1,00E-02	-4,25E-02
Depletion of abiotic resources - minerals and metals	ADP	kg Sb eq	2,12E-03	1,73E-06	7,08E-09	1,20E-05	1,15E-06	1,79E-07	1,44E-07	-2,87E-06
Depletion of abiotic resources - fossil fuels	ADP fossil	MJ	9,62E+03	3,34E+02	1,36E+00	4,37E+02	2,21E+02	4,52E+01	3,48E+01	2,82E+01
Water scarcity	WDP	m3 depriv.	1,03E+02	1,19E-01	2,89E-01	1,36E+00	7,90E-02	1,11E-01	2,48E-01	4,46E+00

USE OF NATURAL RESOURCES (RESULTS PER 1 TON (1000 kg) OF PRODUCT)

Impact category	Abbreviation	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ	2,48E+03	2,51E+01	2,97E-01	2,71E+00	1,67E+01	3,65E+01	5,67E+00	1,42E+02
Use of renewable primary energy resources used as raw materials	PERM	MJ	2,21E+01	0,00E+00	-2,21E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources	PERT	MJ	2,51E+03	2,51E+01	-2,18E+01	2,71E+00	1,67E+01	3,65E+01	5,67E+00	1,42E+02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ	6,38E+03	3,34E+02	1,36E+00	4,37E+02	2,21E+02	4,52E+01	3,48E+01	2,83E+01
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	9,22E-01	0,00E+00	-9,22E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total consumption of non-renewable primary energy resources	PENRT	MJ	6,38E+03	3,34E+02	4,42E-01	4,37E+02	2,21E+02	4,52E+01	3,48E+01	2,83E+01
Use of secondary material	SM	kg	8,88E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	FW	m	6,20E+00	1,24E-02	6,88E-03	3,16E-02	8,25E-03	3,44E-02	7,32E-03	1,45E-01

WASTE CATEGORIES (RESULTS PER 1 TON (1000 kg) OF PRODUCT)

Impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,33E-02	1,34E-08	4,84E-10	3,79E-01	8,88E-09	4,87E-08	7,51E-09	-1,86E-07
Non-hazardous waste disposed	kg	6,60E+01	4,66E-02	6,89E-02	0,00E+00	3,09E-02	4,33E-02	1,00E+02	-1,70E+00
Radioactive waste disposed	kg	8,99E-01	6,30E-04	5,98E-05	0,00E+00	4,18E-04	1,23E-02	4,82E-04	3,47E-02

OTHER ENVIRONMENTAL INDICATORS (RESULTS PER 1 TON (1000 kg) OF PRODUCT)

Impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	3,53E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,02E+00	0,00E+00	1,68E+00	0,00E+00	0,00E+00	9,00E+02	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	1,58E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	1,71E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

AMOUNT OF BIOGENIC CARBON (RESULTS PER 1 TON (1000 kg) OF PRODUCT)

Impact category	Unit	
Amount of biogenic carbon in the product	kg C	0
Amount of biogenic carbon in the packaging	kg C	0,67
Note: 1 kg of biogenic carbon corresponds to 44/12 kg of CO2.		

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

Energy procurement for manufacturing (A3)

Variable	Quantity	Data quality
Electricity data quality and CO2e emission factor	0,0048 $kgCO_2$ ekv. /kWh	Carbon-free electricity, Paneliankosken Voima (100% nuclear power)
Heating data quality and CO2e emission factor	0,0044 $kgCO_2$ ekv. /kWh	Wood chip heating

Product distribution (A4)

Variable		Amount per declared unit	Data quality
Vehicle type, fuel quality and consumption	Land	8,31 l	Truck-trailer, Diesel, Euro VI A-C, 34 - 40t gross weight
	Sea	0,0143 l	Ro-ro ship, 1,200 to 10,000 dwt payload capacity, light fuel oil (0.05 wt.% S)
Transport distance	Land	327 km	Weighted average based on market shares
	Sea	1 km	
Transport capacity utilization rate % (including empty return trips)	Land	61 %	Dataset assumption
	Sea	70 %	
Volume weight of transported products kg/m3	7850 kg/m^3		
Volume capacity utilization rate (utilization rate = 1 or <1 or ≥1 for compressed or nested products)	1		

End of life (C1-C4)

Process description	Unit	Value
Product dismantling process and resulting construction waste broken down as follows:	kg collected and sorted	1000
	kg collected as mixed construction waste	-
The construction waste utilization process and the resulting construction waste broken down as follows:	kg of components for reuse (same purpose)	-
	kg for material recycling	900
	kg for energy recovery	-
Final disposal process for construction waste and amount of waste to be disposed of	kg of product or material for final disposal	100
Assumptions used in preparing the scenario, e.g. regarding transport	Waste transport distance based on average transport distances according to Statistics Finland.	

SOURCES

Ecoinvent database, version 3.10, cut-off system model

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

ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO 14040:2006 + A1:2020 Environmental management - Life cycle assessment - Principles and framework

ISO 14044:2006 + A1:2018 + A2:2020 Environmental management. Life cycle assessment. Requirements and guidelines.

LCA background report, Nordic Impact Oy 2025

LCA for Experts. 2025. Database version 10.9.1.10.

RTS (2021): Programme operator The Building Information Foundation RTS sr: The Finnish RTS EPD programme RTS EPD Guideline. Published 18.2.2021.

RTS PCR (August 26, 2020): Protocol for drawing up Environmental Product Declarations of building products (RTS EPD). PT 18 RTS EPD Committee.

Statistics Finland, STAT. 2025. Road freight transport 2023

APPENDIX 1 Summary table of environmental declaration data in accordance with RTS PCR

Potential environmental impacts reported per kilogram of final product.

Impact category	Unit	A1-A3	A	A	C1	C2	C3	C4	D
Global warming potential – total	kg CO2 eq	5,50E-01	2,64E-02	2,76E-03	3,37E-02	1,75E-02	1,20E-03	2,13E-03	-1,01E-02
Depletion of abiotic resources - minerals and metals	kg Sb eq	2,12E-06	1,73E-09	7,08E-12	1,20E-08	1,15E-09	1,79E-10	1,44E-10	-2,87E-09
Depletion of abiotic resources - fossil fuels	MJ	9,62E+00	3,34E-01	1,36E-03	4,37E-01	2,21E-01	4,52E-02	3,48E-02	2,82E-02
Water scarcity	m3 depriv.	1,03E-01	1,19E-04	2,89E-04	1,36E-03	7,90E-05	1,11E-04	2,48E-04	4,46E-03
Secondary materials used	kg	7,89E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	kg C	0							