



ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for

LIGHTING POLES TEHOMET OY



GENERAL ASPECTS

Manufacturer	Tehomet Oy
Address	Nikkarintie 4 51200 Kangasniemi, Finland
Website	https://www.tehomet.com/


Tehomet is the Nordic countries' largest manufacturer of steel and wooden lighting poles and mast structures. Tehomet's product range covers conical, stepped and cylindrical poles, safety poles, spotlight poles, traffic infrastructures, smart infrastructure solutions, arms and decorative steel and wooden poles. In addition to physical products, Tehomet serves its customers by offering design, painting and delivery services.

Tehomet is a proudly local and Finnish company, for which the partnership with the American Valmont group gives even better resources and opportunities to develop the infrastructure of the future and serve customers worldwide.

PRODUCT IDENTIFICATION

Product name	Lighting poles
Declared unit	1 piece of product
Specific product names	1) Stepped pole 2) Small stepped pole 3) Conical pole 4) Wooden pole 5) Traffic portal 6) Retail pole
Places of production	Kangasniemi, Finland Parikkala, Finland Kiiu, Estonia Shanghai, China


EPD INFORMATION

EPD program operator	The Building Information Foundation RTS, Malminkatu 16 A 00100 Helsinki https://ymparisto.rakennustieto.fi/rakennustiedon-epd
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The EN 15804 standard serves as the core PCR. Additionally RTS PCR (English version, 26.8.2020).
EPD author	Heini Koutonen, Senior consultant, Nordic Impact Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External EPD verifier: Anni Viitala (Granlund Oy) 
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EPD valid until	21.1.2030

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. 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.



Jukka Seppänen
RTS EPD Committee Secretary



Laura Apilo
Managing Director

PRODUCT INFORMATION

PRODUCT DESCRIPTION

This EPD includes 6 different product groups of light poles. One reference product has been modelled from each product group. Note that this EPD concerns only the poles manufactured by Tehomet, not any electronics.

PRODUCTION PROCESSES

Steel poles: Machine shop manufacturing, cutting, cold shaping, perforation, welding and zinc coating. Finishing, potential powder coating, and packaging.

Wooden pole: Glue-lamination of wood lamells. Mechanical glue-lam processing, surface treatments, combing wood pole with steel footing and packaging.

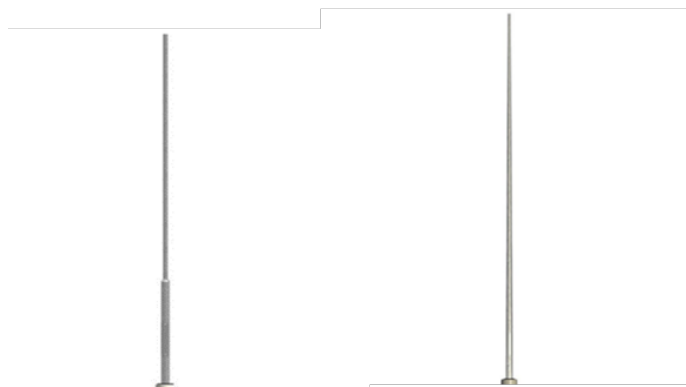
RAW MATERIAL COMPOSITION AND TECHNICAL INFORMATION

The modelled products and their information is shown in the table. The products do not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm). Additional technical information can be found at www.tehomet.com.

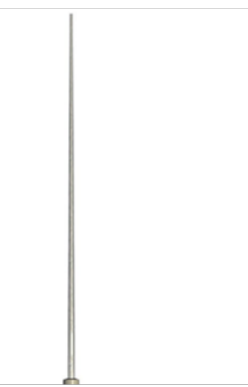
Product group	Modelled reference product	Place of production	Height, m	Mass, kg	Raw material composition	Packaging materials
1) Stepped pole	B108 stepped pole + P110 arm	Kangasniemi, Finland	8,0	80,1	Steel >99 % (Recycled content 20 %)	Steel rod
2) Small stepped pole	Park pole P4,5	Kiiu, Estonia	4,0	20,5	Steel >99 % (Recycled content 20 %)	Steel rod
3) Conical pole	A106S Conical pole	Kangasniemi, Finland	6,0	47,6	Steel >99 % (Recycled content 20 %)	-
4) Wooden pole	Inari park 6 (+ metal parts BE01+S10 top parts)	Parikkala, Finland	6,0	59,4	Wood 58 % Steel 41 % (Recycled content 20 %) Other 1 %	Wood, plastic, board
5) Traffic portal	372525KGMH H914NT1 "KAPA"	Kangasniemi, Finland	7,0	633,5	Steel >99 % (Recycled content 20 %)	Wood, plastic
6) Retail pole	60/125/6500/3 Steel pole	Shanghai, China	6,5	44,6	Steel >99 % (Recycled content 20 %)	Wood, plastic



1) Stepped pole



2) Small stepped pole



3) Conical pole
6) Retail pole



4) Wooden pole



5) traffic portal

LIFE CYCLE ASSESSMENT INFORMATION

System boundary

The EPD type is cradle to gate with options, modules C1–C4, and module D. This system boundary includes all relevant life cycle stages: raw material supply (A1) and transport (A2), manufacturing processes (A3), and transport of the product (A4). Packaging waste recycling was included for those products that have packaging (A5). The end-of-life phase covered product demolition (C1) and transport to a recycling facility (C2), waste processing (C3) and disposal (C4). No relevant life cycle stages were omitted. Manufacturing of the machines and construction of the facilities required for the production are excluded, as is transportation of employees. The system boundary of the assessment is presented the picture. Key assumptions related to life cycle stages are described below.

Raw material supply (A1): The environmental impacts arising from the procurement, processing, and manufacture of all raw materials used in the products. Post consumer scrap content in steel is assumed to be 20 % based on information provided by steel suppliers.

Raw material transport (A2): Transportation of the raw materials to the production facility in Kangasniemi or Parikkala in Finland, Kiiu in Estonia or Shanghai in China. Specific transportation mode (truck or ship) and actual distances are considered.

Manufacturing (A3): Manufacturing and packaging of the products. The assessment covers the electricity, heating, fuel and water consumption needed in the production process and the transport and management of production waste. For some products, zinc coating and transport to the coating facility is also included.

Product transport (A4): Transportation of the finished product over by truck cargo with accurate distances from the production plants to Helsinki.

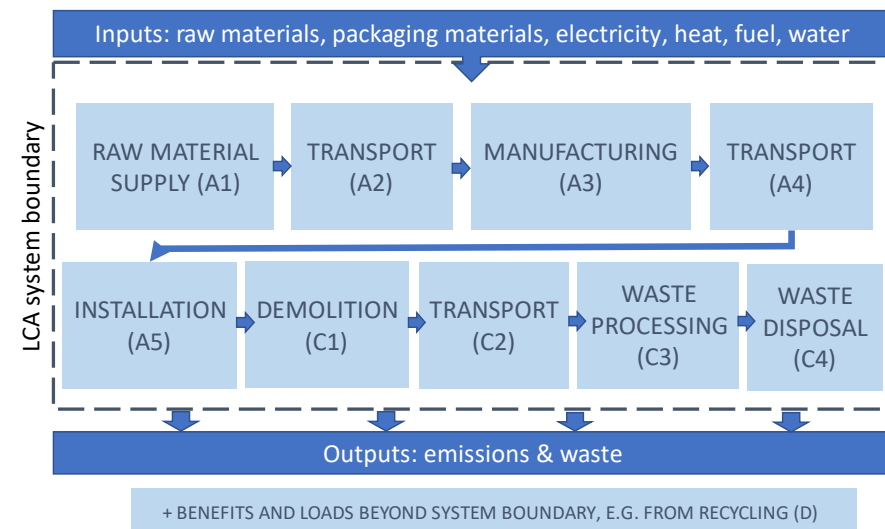
Installation (A5): From the installation phase, packaging waste recycling was included for those products that have packaging (all except conical pole).

Demolition (C1): It was assumed that it was assumed that the installed lighting poles are disassembled one by one by a diesel-running vehicle crane and collected separately for recycling in the end-of-life stage.

Transport to waste management (C2): Transportation of the discarded product over an assumed average 121 km distance to a waste management facility.

Waste processing (C3): In the end-of-life scenario, it was assumed that 95 % of steel is recycled as material. 100 % of wood is assumed to be sent to energy recovery.

Waste disposal (C4): It was assumed that 5 % of steel is sent to waste disposal.



Benefits and loads beyond the system boundary (D): Materials delivered for material recycling can be used to make secondary material, thus avoiding the use of virgin raw material. Secondary metal content has been deducted from the materials sent to material recovery to avoid double-counting of benefits as it has already been recovered from a previous system.

LIFE CYCLE INVENTORY ANALYSIS

DECLARED UNIT

The declared unit is set to 1 piece of finished product.

TIME REPRESENTATIVENESS

The data represents the year 2022, which was the newest full year data. The data from generic databases are from 2018 – 2022.

DATA COLLECTION

Primary data concerning the production was collected directly from Tehomet by using an Excel form. The data represents the production of the studied products in Kangasniemi, Parikkala and Kiiu from the materials transported to and from the facilities (phases A1-A3 + A4). Scenarios for phases A5 and C1-C4 + D were agreed together with the manufacturer. The scenarios included are currently in use and are representative for one of the most likely scenario alternatives.

Generic data used for modelling the upstream and downstream processes was collected from the Sphera and Ecoinvent 3.9.1 databases. The generic datasets were chosen to represent the studied system as closely as possible. When supplier specific information was not available the information sources were chosen based on their technical and geographical representativeness. Only when country specific or European data has not been available, global level data been used.

CALCULATION PROCEDURES

The modelling was made by using LCA for Experts software (former GaBi software) and the life cycle inventory datasets provided by Sphera and Ecoinvent. All gathered data was used without excluding categories in advance following the system boundaries set in the beginning of the assessment.

CUT-OFF CRITERIA

This study follows the cut-off criteria set in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any modules or processes which represent more than 1 % of the emissions of studied life cycle stages. Manufacturing of the machines and construction of the facilities required for the production are excluded, as is transportation of employees. The system boundary of the assessment is presented in the table and in the graph below.

ALLOCATIONS

Allocation is required if the production process produces more than one product and the flows of materials, energy and waste cannot be separately measured for the studied product. Avoiding allocation could not be avoided for electricity, heating, diesel and water consumption, and waste generation, as the information was only measured on factory level. The inputs were allocated to each studied product based on their production volume (mass in kilograms). The recyclable steel scrap is considered as a co-product. The scrap metal is sent for material recycling and environmental impacts from A1-A3 module are allocated for the co-product based on mass (kg).

Product stage			Construction stage		Use stage							End-of-life stage				Beyond system boundary		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X	X	X
Raw materials	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Energy use	Water use	Demolition	Transport	Waste processing	Waste disposal	Reuse	Recovery	Recycling

ND = Not declared

Mandatory according to EN15804+A2
Mandatory as per the RTS PCR section 6.2.1 rules and terms
Optional modules based on scenarios

LIFE CYCLE IMPACT ASSESSMENT

The life cycle impact assessment was made based on the data collection described in the previous chapter. Separate life cycle models were done for all six reference products. Quantitative data on input and output flows, transport modes and distances collected for the environmental impact assessment of the products were entered into the program. The software automatically calculates the environmental impact category results based on the entered data.

The impact categories, category indicators and characterization factors included in this study correspond to the EN 15804 standard. Note that the LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

1) Stepped pole

ENVIRONMENTAL INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	1,89E+02	8,83E+00	3,72E+01	1,66E+00	2,86E-05	4,68E+00	9,03E-01	2,07E-01	6,04E-02	-1,64E+02
Climate change - Fossil	kg CO2 eq	1,89E+02	8,69E+00	3,67E+01	1,64E+00	2,64E-05	4,61E+00	8,88E-01	2,04E-01	6,00E-02	-1,63E+02
Climate change - Biogenic	kg CO2 eq	2,26E-01	2,90E-04	3,94E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,74E-02
Climate change - Land use and LU change	kg CO2 eq	3,12E-02	1,37E-01	1,56E-01	2,68E-02	2,20E-06	7,23E-02	1,46E-02	2,76E-03	3,60E-04	-1,77E-02
Ozone depletion	kg CFC11 eq	1,35E-11	1,23E-12	6,02E-07	2,35E-13	1,93E-17	6,34E-13	1,28E-13	3,69E-13	1,62E-03	-1,69E-11
Acidification	mol H+ eq	5,28E-01	5,09E-02	1,70E-01	8,85E-03	1,13E-07	4,39E-02	4,51E-03	1,02E-03	4,26E-04	-4,90E-01
Eutrophication, freshwater	kg P eq	7,01E-05	3,49E-05	1,20E-02	6,80E-06	5,59E-10	1,84E-05	3,70E-06	7,94E-07	1,36E-07	-4,71E-05
Eutrophication, marine	kg N eq	1,11E-01	2,48E-02	4,26E-02	4,30E-03	3,31E-08	2,14E-02	2,18E-03	4,70E-04	1,10E-04	-1,05E-01
Eutrophication, terrestrial	mol N eq	1,17E+00	2,76E-01	4,84E-01	4,79E-02	4,05E-07	2,36E-01	2,42E-02	5,20E-03	1,21E-03	-1,12E+00
Photochemical ozone formation	kg NMVOC eq	4,05E-01	5,18E-02	1,20E-01	8,65E-03	1,16E-07	6,27E-02	4,42E-03	1,30E-03	3,35E-04	-4,04E-01
Resource use, minerals and metals	kg Sb eq	8,04E-05	7,19E-07	4,79E-03	1,39E-07	1,14E-11	3,75E-07	7,55E-08	2,14E-07	3,88E-09	-8,57E-05
Resource use, fossil fuels	MJ	2,04E+03	1,12E+02	6,39E+02	2,10E+01	1,73E-03	5,67E+01	1,14E+01	3,82E+00	7,91E-01	-1,92E+03
Water use	m3 depriv.	4,15E-02	1,27E-01	1,56E+01	2,47E-02	2,03E-06	6,66E-02	1,34E-02	3,90E-02	6,86E-03	-1,18E+00

In the following tables the potential environmental impacts are reported per declared unit (1 piece of final product) and per life cycle stage. The results are presented in scientific form. Data interpretation example: $1.31E-2 = 1.31 \cdot 10^{-2} = 0.0131$

The LCIA results for the studied Tehomet products are comparable, but comparison to different products may not be valid if the life cycle assessments have not been prepared in accordance with same standards or if a different declared unit has been used.

NATURAL RESOURCE USE INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	4,12E+01	9,28E+00	1,36E+02	1,81E+00	1,49E-04	4,88E+00	9,84E-01	4,07E-01	1,38E-01	-3,58E+01
Use of renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	4,12E+01	9,28E+00	1,36E+02	1,81E+00	1,49E-04	4,88E+00	9,84E-01	4,07E-01	1,38E-01	-3,58E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	2,04E+03	1,12E+02	6,39E+02	2,10E+01	1,73E-03	5,67E+01	1,14E+01	3,82E+00	7,91E-01	-1,92E+03
Use of non-renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	2,04E+03	1,12E+02	6,39E+02	2,10E+01	1,73E-03	5,67E+01	1,14E+01	3,82E+00	7,91E-01	-1,92E+03
Use of secondary material	kg	1,55E+01	0,00E+00	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 renewable secondary fuels	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	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	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	0,00E+00	0,00E+00
Net use of fresh water	m3	3,63E-01	1,03E-02	4,26E-01	2,01E-03	1,66E-07	5,44E-03	1,10E-03	1,14E-03	2,10E-04	-1,12E-01

WASTE AND OUTPUT FLOWS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	1,03E-06	4,24E-09	1,05E-07	8,03E-10	6,61E-14	2,17E-09	4,37E-10	5,52E-10	1,97E-10	-6,38E-07
Non-hazardous waste	kg	1,05E+01	1,79E-02	4,57E-01	3,42E-03	2,82E-07	9,26E-03	1,87E-03	1,05E-03	4,01E+00	-9,49E-01
Radioactive waste	kg	5,64E-05	2,00E-04	4,18E-02	3,82E-05	3,14E-09	1,03E-04	2,08E-05	4,80E-05	8,30E-06	-1,03E-08

Output flow	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	4,43E+00	0,00E+00	1,00E-02	0,00E+00	0,00E+00	7,61E+01	0,00E+00	0,00E+00
Material for energy recovery	kg	0,00E+00	0,00E+00	9,96E-01	0,00E+00	0,00E+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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Biogenic carbon content	unit	
Biogenic carbon in product	kg	0,00
Biogenic carbon in packaging	kg	0,00

2) Small stepped pole

ENVIRONMENTAL INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	4,71E+01	5,77E+00	3,04E+01	1,45E-01	1,49E-04	4,68E+00	2,31E-01	5,30E-02	1,55E-02	-4,21E+01
Climate change - Fossil	kg CO2 eq	4,71E+01	5,68E+00	3,02E+01	1,44E-01	1,46E-04	4,61E+00	2,28E-01	5,23E-02	1,54E-02	-4,20E+01
Climate change - Biogenic	kg CO2 eq	5,32E-02	2,03E-07	1,74E-01	0,00E+00	7,90E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-9,62E-03
Climate change - Land use and LU change	kg CO2 eq	7,79E-03	9,28E-02	2,03E-02	1,10E-03	2,21E-06	7,23E-02	3,73E-03	7,07E-04	9,22E-05	-4,55E-03
Ozone depletion	kg CFC11 eq	1,19E-11	8,14E-13	2,69E-07	1,60E-14	8,22E-17	6,34E-13	3,27E-14	9,44E-14	-4,60E-13	-4,35E-12
Acidification	mol H+ eq	1,32E-01	3,08E-02	7,55E-02	1,75E-03	7,22E-07	4,39E-02	1,15E-03	2,62E-04	2,28E-04	-1,26E-01
Eutrophication, freshwater	kg P eq	1,77E-05	2,36E-05	5,35E-03	2,97E-07	5,91E-10	1,84E-05	9,49E-07	2,03E-07	2,14E-05	-1,21E-05
Eutrophication, marine	kg N eq	2,77E-02	1,50E-02	1,66E-02	8,82E-04	3,38E-07	2,14E-02	5,58E-04	1,20E-04	2,30E-04	-2,71E-02
Eutrophication, terrestrial	mol N eq	2,90E-01	1,66E-01	1,89E-01	9,69E-03	3,76E-06	2,36E-01	6,21E-03	1,33E-03	8,85E-04	-2,88E-01
Photochemical ozone formation	kg NMVOC eq	1,01E-01	3,01E-02	5,60E-02	2,26E-03	6,95E-07	6,27E-02	1,13E-03	3,33E-04	5,44E-04	-1,04E-01
Resource use, minerals and metals	kg Sb eq	1,98E-05	4,81E-07	2,14E-03	7,57E-09	1,35E-11	3,75E-07	1,93E-08	5,48E-08	-2,42E-09	-2,20E-05
Resource use, fossil fuels	MJ	5,11E+02	7,28E+01	4,25E+02	1,87E+00	2,21E-03	5,67E+01	2,93E+00	9,78E-01	2,56E-01	-4,93E+02
Water use	m3 depriv.	5,49E-01	8,55E-02	6,29E+00	1,16E-03	3,86E-06	6,66E-02	3,44E-03	1,00E-02	-3,09E-03	-3,03E-01

NATURAL RESOURCE USE INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	1,07E+01	6,27E+00	2,15E+01	7,89E-02	5,45E-04	4,88E+00	2,52E-01	1,04E-01	-2,95E-01	-9,21E+00
Use of renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	1,07E+01	6,27E+00	2,15E+01	7,89E-02	5,45E-04	4,88E+00	2,52E-01	1,04E-01	-2,95E-01	-9,21E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	5,11E+02	7,28E+01	4,25E+02	1,87E+00	2,21E-03	5,67E+01	2,93E+00	9,78E-01	2,56E-01	-4,93E+02
Use of non-renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	5,11E+02	7,28E+01	4,25E+02	1,87E+00	2,21E-03	5,67E+01	2,93E+00	9,78E-01	2,56E-01	-4,93E+02
Use of secondary material	kg	3,86E+00	0,00E+00	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 renewable secondary fuels	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	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	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	0,00E+00	0,00E+00
Net use of fresh water	m3	5,54E-01	6,98E-03	1,52E-01	8,84E-05	6,11E-07	5,44E-03	2,81E-04	2,91E-04	-1,73E-04	-2,89E-02

WASTE AND OUTPUT FLOWS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	2,59E-07	2,79E-09	2,10E-08	6,42E-11	6,57E-13	2,17E-09	1,12E-10	1,41E-10	-6,16E-10	-1,64E-07
Non-hazardous waste	kg	2,54E+00	1,19E-02	8,03E-02	2,37E-04	7,40E-07	9,26E-03	4,78E-04	2,69E-04	8,29E-01	-2,44E-01
Radioactive waste	kg	1,42E-05	1,33E-04	1,63E-03	2,69E-06	1,35E-07	1,03E-04	5,33E-06	1,23E-05	-7,38E-05	-2,66E-09

Output flow	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	3,22E-01	0,00E+00	1,00E-02	0,00E+00	0,00E+00	1,95E+01	0,00E+00	0,00E+00
Material for energy recovery	kg	0,00E+00	0,00E+00	1,93E-02	0,00E+00	0,00E+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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Biogenic carbon content	unit	
Biogenic carbon in product	kg	0,00
Biogenic carbon in packaging	kg	0,00

3) Conical pole

ENVIRONMENTAL INDICATORS

Impact category	unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	1,14E+02	5,28E+00	2,52E+01	9,89E-01	4,68E+00	5,37E-01	1,23E-01	3,59E-02	-9,71E+01
Climate change - Fossil	kg CO2 eq	1,14E+02	5,20E+00	2,48E+01	9,73E-01	4,61E+00	5,28E-01	1,21E-01	3,57E-02	-9,71E+01
Climate change - Biogenic	kg CO2 eq	1,36E-01	0,00E+00	2,71E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,22E-02
Climate change - Land use and LU change	kg CO2 eq	1,89E-02	8,20E-02	1,25E-01	1,59E-02	7,23E-02	8,67E-03	1,64E-03	2,14E-04	-1,05E-02
Ozone depletion	kg CFC11 eq	1,25E-11	7,34E-13	4,10E-07	1,39E-13	6,34E-13	7,60E-14	2,19E-13	9,62E-14	-1,00E-11
Acidification	mol H+ eq	3,20E-01	3,04E-02	1,21E-01	5,27E-03	4,39E-02	2,68E-03	6,07E-04	2,53E-04	-2,91E-01
Eutrophication, freshwater	kg P eq	4,25E-05	2,09E-05	8,15E-03	4,04E-06	1,84E-05	2,20E-06	4,72E-07	8,10E-08	-2,80E-05
Eutrophication, marine	kg N eq	6,72E-02	1,48E-02	3,21E-02	2,56E-03	2,14E-02	1,29E-03	2,80E-04	6,52E-05	-6,25E-02
Eutrophication, terrestrial	mol N eq	7,07E-01	1,65E-01	3,63E-01	2,85E-02	2,36E-01	1,44E-02	3,09E-03	7,18E-04	-6,66E-01
Photochemical ozone formation	kg NMVOC eq	2,45E-01	3,09E-02	8,71E-02	5,14E-03	6,27E-02	2,63E-03	7,74E-04	1,26E-03	-2,40E-01
Resource use, minerals and metals	kg Sb eq	4,82E-05	4,30E-07	3,25E-03	8,25E-08	3,75E-07	4,49E-08	1,27E-07	-5,61E-09	-5,09E-05
Resource use, fossil fuels	MJ	1,24E+03	6,67E+01	4,22E+02	1,25E+01	5,67E+01	6,79E+00	2,27E+00	5,94E-01	-1,14E+03
Water use	m3 depriv.	-2,58E-01	7,59E-02	1,05E+01	1,47E-02	6,66E-02	7,99E-03	2,32E-02	-7,17E-03	-7,00E-01

NATURAL RESOURCE USE INDICATORS

Impact category	unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	2,50E+01	5,55E+00	8,53E+01	1,07E+00	4,88E+00	5,85E-01	2,42E-01	-6,86E-01	-2,13E+01
Use of renewable primary energy resources used as raw materials	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	0,00E+00
Total use of renewable primary energy resources	MJ	2,50E+01	5,55E+00	8,53E+01	1,07E+00	4,88E+00	5,85E-01	2,42E-01	-6,86E-01	-2,13E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	1,24E+03	6,67E+01	4,22E+02	1,25E+01	5,67E+01	6,79E+00	2,27E+00	5,94E-01	-1,14E+03
Use of non-renewable primary energy resources used as raw materials	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	0,00E+00
Total use of non-renewable primary energy resources	MJ	1,24E+03	6,67E+01	4,22E+02	1,25E+01	5,67E+01	6,79E+00	2,27E+00	5,94E-01	-1,14E+03
Use of secondary material	kg	9,40E+00	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 renewable secondary fuels	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	0,00E+00
Use of non-renewable secondary fuels	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	0,00E+00
Net use of fresh water	m3	7,68E-02	6,18E-03	2,82E-01	1,20E-03	5,44E-03	6,52E-04	6,76E-04	-4,03E-04	-6,67E-02

WASTE AND OUTPUT FLOWS

Impact category	unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	5,83E-07	2,53E-09	6,33E-08	4,78E-10	2,17E-09	2,60E-10	3,28E-10	1,17E-10	-3,79E-07
Non-hazardous waste	kg	6,35E+00	1,07E-02	2,74E-01	2,04E-03	9,26E-03	1,11E-03	6,24E-04	2,38E+00	-5,64E-01
Radioactive waste	kg	2,45E-05	1,20E-04	2,49E-02	2,27E-05	1,03E-04	1,24E-05	2,86E-05	4,94E-06	-6,14E-09

Output flow	unit	A1	A2	A3	A4	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	2,63E+00	0,00E+00	0,00E+00	0,00E+00	4,53E+01	0,00E+00	0,00E+00
Material for energy recovery	kg	0,00E+00	0,00E+00	5,92E-01	0,00E+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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Biogenic carbon content	unit	
Biogenic carbon in product	kg	0,00
Biogenic carbon in packaging	kg	0,00

4) Wooden pole

ENVIRONMENTAL INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	6,84E-01	1,95E+00	9,27E+01	1,58E+00	1,37E+01	4,68E+00	6,97E-01	5,54E+01	1,82E-02	-6,78E+01
Climate change - Fossil	kg CO2 eq	1,03E+02	1,92E+00	5,63E+01	1,55E+00	1,24E+00	4,61E+00	6,59E-01	1,04E+00	1,81E-02	-6,78E+01
Climate change - Biogenic	kg CO2 eq	-1,03E+02	0,00E+00	3,63E+01	0,00E+00	1,25E+01	0,00E+00	2,75E-02	5,44E+01	0,00E+00	-2,42E-02
Climate change - Land use and LU change	kg CO2 eq	2,59E-01	3,14E-02	5,46E-02	2,54E-02	1,83E-03	7,23E-02	1,08E-02	1,38E-03	1,09E-04	-8,09E-03
Ozone depletion	kg CFC11 eq	6,47E-07	2,75E-13	2,16E-09	2,23E-13	1,33E-12	6,34E-13	9,47E-14	6,45E-12	4,89E-14	-2,00E-11
Acidification	mol H+ eq	3,76E-01	1,04E-02	3,70E-01	8,40E-03	2,51E-03	4,39E-02	3,34E-03	9,80E-03	1,29E-04	-1,80E-01
Eutrophication, freshwater	kg P eq	8,62E-03	7,98E-06	2,89E-05	6,45E-06	7,72E-07	1,84E-05	2,75E-06	1,87E-06	4,12E-08	-2,21E-05
Eutrophication, marine	kg N eq	1,04E-01	5,06E-03	8,84E-02	4,09E-03	8,30E-04	2,14E-02	1,61E-03	2,92E-03	3,31E-05	-3,96E-02
Eutrophication, terrestrial	mol N eq	1,11E+00	5,62E-02	9,76E-01	4,54E-02	1,12E-02	2,36E-01	1,80E-02	4,14E-02	3,65E-04	-4,24E-01
Photochemical ozone formation	kg NMVOC eq	3,52E-01	1,02E-02	3,24E-01	8,21E-03	2,10E-03	6,27E-02	3,27E-03	8,04E-03	1,01E-04	-1,44E-01
Resource use, minerals and metals	kg Sb eq	1,96E-03	1,63E-07	3,62E-06	1,32E-07	2,29E-08	3,75E-07	5,60E-08	1,32E-07	1,17E-09	-2,61E-05
Resource use, fossil fuels	MJ	1,39E+03	2,46E+01	1,36E+03	1,99E+01	4,25E+00	5,67E+01	8,47E+00	1,51E+01	2,39E-01	-8,27E+02
Water use	m3 depriv.	1,96E+01	2,89E-02	9,51E+00	2,34E-02	1,34E+00	6,66E-02	9,96E-03	6,31E+00	2,07E-03	-8,53E-01

NATURAL RESOURCE USE INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	1,49E+03	2,12E+00	3,16E+03	1,71E+00	9,51E-01	4,88E+00	7,30E-01	4,08E+00	4,17E-02	-9,92E+01
Use of renewable primary energy resources used as raw materials	MJ	-2,50E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	1,49E+03	2,12E+00	3,16E+03	1,71E+00	9,51E-01	4,88E+00	7,30E-01	4,08E+00	4,17E-02	-9,92E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	1,43E+03	2,46E+01	1,37E+03	1,99E+01	4,25E+00	5,67E+01	8,47E+00	1,51E+01	2,39E-01	-8,27E+02
Use of non-renewable primary energy resources used as raw materials	MJ	-5,39E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	1,43E+03	2,46E+01	1,37E+03	1,99E+01	4,25E+00	5,67E+01	8,47E+00	1,51E+01	2,39E-01	-8,27E+02
Use of secondary material	kg	4,80E+00	0,00E+00	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 renewable secondary fuels	MJ	9,78E-03	0,00E+00	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	MJ	8,90E-05	0,00E+00	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	m3	1,51E+00	2,36E-03	6,29E-01	1,91E-03	3,16E-02	5,44E-03	8,13E-04	1,48E-01	6,33E-05	-1,36E-01
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WASTE AND OUTPUT FLOWS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	9,29E-07	9,43E-10	6,71E-07	7,62E-10	1,78E-09	2,17E-09	3,24E-10	8,38E-09	5,95E-11	-3,23E-07
Non-hazardous waste	kg	3,90E+00	4,02E-03	3,59E+00	3,25E-03	2,28E-01	9,26E-03	1,38E-03	1,13E+00	1,21E+00	-5,06E-01
Radioactive waste	kg	4,45E-02	4,48E-05	2,90E-01	3,63E-05	1,64E-04	1,03E-04	1,54E-05	7,68E-04	2,51E-06	-2,93E-02

Output flow	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	1,50E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,42E+01	0,00E+00	0,00E+00
Material for energy recovery	kg	0,00E+00	0,00E+00	2,90E+01	0,00E+00	7,80E+00	0,00E+00	0,00E+00	3,52E+01	0,00E+00	0,00E+00
Exported energy	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	0,00E+00	0,00E+00

Biogenic carbon content	unit	
Biogenic carbon in product	kg	15,2
Biogenic carbon in packaging	kg	3,2

5) Traffic portal

ENVIRONMENTAL INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	1,45E+03	1,54E+02	3,94E+02	1,32E+01	1,31E+01	4,68E+00	7,14E+00	1,64E+00	4,77E-01	-1,29E+03
Climate change - Fossil	kg CO2 eq	1,46E+03	1,52E+02	3,87E+02	1,29E+01	3,60E-01	4,61E+00	7,02E+00	1,61E+00	4,74E-01	-1,29E+03
Climate change - Biogenic	kg CO2 eq	-1,17E+01	0,00E+00	5,13E+00	0,00E+00	1,28E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,96E-01
Climate change - Land use and LU change	kg CO2 eq	2,64E-01	2,44E+00	1,79E+00	2,12E-01	1,89E-03	7,23E-02	1,15E-01	2,18E-02	2,84E-03	-1,40E-01
Ozone depletion	kg CFC11 eq	1,36E-10	2,16E-11	7,86E-06	1,85E-12	1,46E-12	6,34E-13	1,01E-12	2,91E-12	1,28E-12	-1,34E-10
Acidification	mol H+ eq	4,09E+00	8,49E-01	2,08E+00	7,00E-02	2,71E-03	4,39E-02	3,57E-02	8,08E-03	3,37E-03	-3,87E+00
Eutrophication, freshwater	kg P eq	5,63E-04	6,21E-04	1,56E-01	5,38E-05	8,18E-07	1,84E-05	2,93E-05	6,28E-06	1,08E-06	-3,73E-04
Eutrophication, marine	kg N eq	8,54E-01	4,14E-01	5,23E-01	3,40E-02	8,96E-04	2,14E-02	1,72E-02	3,72E-03	8,67E-04	-8,32E-01
Eutrophication, terrestrial	mol N eq	8,94E+00	4,59E+00	5,95E+00	3,78E-01	1,20E-02	2,36E-01	1,92E-01	4,11E-02	9,54E-03	-8,87E+00
Photochemical ozone formation	kg NMVOC eq	3,12E+00	8,45E-01	1,45E+00	6,84E-02	2,27E-03	6,27E-02	3,49E-02	1,03E-02	2,65E-03	-3,19E+00
Resource use, minerals and metals	kg Sb eq	7,31E-04	1,27E-05	6,25E-02	1,10E-06	2,45E-08	3,75E-07	5,97E-07	1,69E-06	3,07E-08	-6,78E-04
Resource use, fossil fuels	MJ	1,60E+04	1,94E+03	6,54E+03	1,66E+02	4,56E+00	5,67E+01	9,03E+01	3,02E+01	6,25E+00	-1,52E+04
Water use	m3 depriv.	5,26E+01	2,25E+00	1,94E+02	1,95E-01	1,44E+00	6,66E-02	1,06E-01	3,09E-01	5,43E-02	-9,32E+00

NATURAL RESOURCE USE INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	5,53E+02	1,65E+02	1,24E+03	1,43E+01	1,02E+00	4,88E+00	7,78E+00	3,22E+00	1,09E+00	-2,83E+02
Use of renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	5,53E+02	1,65E+02	1,24E+03	1,43E+01	1,02E+00	4,88E+00	7,78E+00	3,22E+00	1,09E+00	-2,83E+02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	1,60E+04	1,94E+03	6,54E+03	1,66E+02	4,56E+00	5,67E+01	9,03E+01	3,02E+01	6,25E+00	-1,52E+04
Use of non-renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	1,60E+04	1,94E+03	6,54E+03	1,66E+02	4,56E+00	5,67E+01	9,03E+01	3,02E+01	6,25E+00	-1,52E+04
Use of secondary material	kg	1,20E+02	0,00E+00	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 renewable secondary fuels	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	0,00E+00	0,00E+00

Use of non-renewable secondary fuels	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	0,00E+00	0,00E+00
Net use of fresh water	m3	5,55E+01	1,84E-01	5,02E+00	1,59E-02	3,38E-02	5,44E-03	8,67E-03	8,99E-03	1,66E-03	-8,88E-01

WASTE AND OUTPUT FLOWS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	6,52E-06	7,42E-08	8,41E-07	6,35E-09	1,92E-09	2,17E-09	3,46E-09	4,37E-09	1,56E-09	-5,05E-06
Non-hazardous waste	kg	7,45E+01	3,15E-01	3,65E+00	2,71E-02	2,56E-01	9,26E-03	1,48E-02	8,30E-03	3,17E+01	-7,50E+00
Radioactive waste	kg	1,64E-03	3,52E-03	3,31E-01	3,02E-04	1,74E-04	1,03E-04	1,65E-04	3,80E-04	6,57E-05	-8,17E-08

Output flow	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	3,50E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,34E+02	0,00E+00	0,00E+00
Material for energy recovery	kg	0,00E+00	0,00E+00	7,87E+00	0,00E+00	8,01E+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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Biogenic carbon content	unit	
Biogenic carbon in product	kg	0,00
Biogenic carbon in packaging	kg	3,52

6) Retail pole

ENVIRONMENTAL INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	1,12E+02	2,95E-01	8,17E+00	1,25E+01	1,06E+00	4,68E+00	5,03E-01	1,15E-01	3,36E-02	-9,10E+01
Climate change - Fossil	kg CO2 eq	1,13E+02	2,95E-01	8,00E+00	1,25E+01	1,49E-01	4,61E+00	4,95E-01	1,14E-01	3,34E-02	-9,10E+01
Climate change - Biogenic	kg CO2 eq	-9,38E-01	-3,69E-04	1,47E-01	0,00E+00	9,10E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,08E-02
Climate change - Land use and LU change	kg CO2 eq	1,34E-02	1,40E-05	1,58E-02	3,00E-02	1,43E-04	7,23E-02	8,11E-03	1,54E-03	2,00E-04	-9,85E-03
Ozone depletion	kg CFC11 eq	1,35E-08	1,90E-14	2,31E-07	4,63E-13	1,10E-13	6,34E-13	7,11E-14	2,05E-13	9,01E-14	-9,42E-12
Acidification	mol H+ eq	3,40E-01	1,57E-03	5,45E-02	2,02E-01	2,08E-04	4,39E-02	2,51E-03	5,69E-04	2,37E-04	-2,73E-01
Eutrophication, freshwater	kg P eq	3,21E-04	3,73E-08	4,58E-03	8,64E-06	6,19E-08	1,84E-05	2,06E-06	4,42E-07	7,59E-08	-2,62E-05
Eutrophication, marine	kg N eq	7,28E-02	7,83E-04	1,13E-02	8,61E-02	6,77E-05	2,14E-02	1,21E-03	2,62E-04	6,10E-05	-5,86E-02
Eutrophication, terrestrial	mol N eq	7,75E-01	8,61E-03	1,29E-01	9,44E-01	9,27E-04	2,36E-01	1,35E-02	2,89E-03	6,72E-04	-6,24E-01
Photochemical ozone formation	kg NMVOC eq	2,80E-01	1,56E-03	3,42E-02	2,33E-01	1,73E-04	6,27E-02	2,46E-03	7,24E-04	1,87E-04	-2,25E-01
Resource use, minerals and metals	kg Sb eq	6,85E-05	4,70E-09	1,83E-03	2,76E-07	1,86E-09	3,75E-07	4,21E-08	1,19E-07	2,16E-09	-4,77E-05
Resource use, fossil fuels	MJ	1,34E+03	4,10E+00	1,51E+02	1,57E+02	3,46E-01	5,67E+01	6,36E+00	2,13E+00	4,40E-01	-1,07E+03
Water use	m3 depriv.	1,52E+00	1,30E-03	5,74E+00	3,96E-02	1,14E-01	6,66E-02	7,48E-03	2,17E-02	3,82E-03	-6,56E-01

NATURAL RESOURCE USE INDICATORS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	4,25E+01	1,97E-02	1,59E+01	2,18E+00	7,73E-02	4,88E+00	5,48E-01	2,27E-01	7,68E-02	-1,99E+01
Use of renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	4,25E+01	1,97E-02	1,59E+01	2,18E+00	7,73E-02	4,88E+00	5,48E-01	2,27E-01	7,68E-02	-1,99E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	1,34E+03	4,10E+00	1,51E+02	1,57E+02	3,46E-01	5,67E+01	6,36E+00	2,13E+00	4,40E-01	-1,07E+03
Use of non-renewable primary energy resources used as raw materials	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	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	1,34E+03	4,10E+00	1,51E+02	1,57E+02	3,46E-01	5,67E+01	6,36E+00	2,13E+00	4,40E-01	-1,07E+03
Use of secondary material	kg	8,76E+00	0,00E+00	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 renewable secondary fuels	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	0,00E+00	0,00E+00

Use of non-renewable secondary fuels	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	0,00E+00	0,00E+00
Net use of fresh water	m3	9,87E-02	3,47E-05	1,34E-01	2,62E-03	2,68E-03	5,44E-03	6,10E-04	6,33E-04	1,17E-04	-6,25E-02

WASTE AND OUTPUT FLOWS

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	4,26E-07	8,16E-11	1,25E-08	2,62E-09	1,46E-10	2,17E-09	2,44E-10	3,08E-10	1,10E-10	-3,55E-07
Non-hazardous waste	kg	6,50E-01	1,66E-04	1,05E-02	5,97E-03	1,87E-02	9,26E-03	1,04E-03	5,84E-04	2,23E+00	-5,28E-01
Radioactive waste	kg	4,53E-05	1,63E-06	5,29E-04	6,03E-05	1,32E-05	1,03E-04	1,16E-05	2,67E-05	4,62E-06	-5,75E-09

Output flow	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	5,00E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,46E+01	0,00E+00	0,00E+00
Material for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,10E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Biogenic carbon content	unit	
Biogenic carbon in product	kg	0,00
Biogenic carbon in packaging	kg	0,25

NOTE 1 kg biogenic carbon is equivalent to 44/12 kg of CO₂.

ADDITIONAL INFORMATION

Tehomet light poles can also be coated either with powder painting or wet painting. For this Tehomet uses services from FSP for Surface Protection Oy, who have made their own CO₂e emissions calculation on the painting processes. The CO₂e emissions of the painting processes are shown in the table below.

Painting processes	Emission intensity
Powder painting	6,65 kg CO ₂ e / m ²
Wet painting	26,72 kg CO ₂ e / m ²

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

Energy use in manufacturing (A3)

Parameter	Quantity			
	Kangasniemi	Parikkala	Kiiu	China
A3 Electricity information and CO2 eq. emission	0,265 kgCO2 eq. /kWh	0,265 kgCO2 eq. /kWh	0,678 kgCO2 eq. /kWh	0,798 kgCO2 eq. /kWh
Data quality	Finland: Primary data from Lumme energia		Estonia: Electricity grid mix Estonia, 2019, Sphera.	China: Electricity grid mix, 2019, Sphera
A3 Heat information and CO2 eq. emission	0,313 kgCO2 eq. /kWh	0,011 kgCO2 eq. /kWh	0,309 kgCO2 eq. /kWh	No heating in use
Data quality	Kangasniemi: 67 % Thermal energy from LPG, Europe 2019, Sphera. 33 % Thermal energy from light fuel oil, Europe 2019, Sphera.	Parikkala: Thermal energy from solid biomass, Finland 2019, Sphera.	Kiiu: Thermal energy from LPG, Europe 2019, Sphera.	-

Transport to customers (A4)

Parameter	Quantity			
	Kangasniemi	Parikkala	Kiiu	China
Transport, distance	250 km	320 km	40 km (road) + 80 km (sea)	94 km (road) + 21705 km (sea) + 500 km (road)
Specific emissions, type of vehicle used for transport	Truck: 0,077 kg CO2 /tkm Truck-trailer, Euro 5, 34 - 40t gross weight / 27t payload capacity, Global 2022, Sphera.		Truck: 0,077 kg CO2 /tkm Truck-trailer, Euro 5, 34 - 40t gross weight / 27t payload capacity, Global 2022, Sphera.	Truck: 0,077 kg CO2 /tkm Truck-trailer, Euro 5, 34 - 40t gross weight / 27t payload capacity, Global 2022, Sphera.
			Ship: 0,045 kg CO2 /km Ro-ro-ship, 1.200 to 10.000 dwt payload capacity, Global 2022, Sphera.	Ship: 0,010 kg CO2 /km Container ship, 5.000 to 200.000 dwt payload capacity, deep sea, Global 2022, Sphera.
Capacity utilization	Truck average capacity utilisation default 61 % Ship average capacity utilisation default ro-ro ship and container ship 70 %			

End-of-life scenario (C1-C4)

Process flow	Unit	Quantity per declared unit					
		Stepped pole	Small stepped pole	Conical pole	Wooden pole	Traffic portal	Retail pole
Collection process specified by type	kg collected separately	80,1	20,5	47,6	59,4	634	44,6
	kg collected with mixed construction waste	-	-	-	-	-	-
Recovery system specified by type	kg for re-use	-	-	-	-	-	-
	kg for recycling	76,1	19,5	45,3	18,4	602	42,4
	kg for energy recovery	-	-	-	35,2	-	-
Disposal of waste	kg product or material for final deposition	4,0	1,0	2,4	0,9	32	2,2
Assumptions for scenario development, e.g., transportation		Disassembly by a vehicle crane, assumed waste transportation distance 121 km					

REFERENCES

CO2data.fi, 2024. Infrarakentamisen päästötietokanta. Ajoneuvonosturi. Available at: <https://co2data.fi/infra/>

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 Offset Oy 2023.

RTS PCR (26.8.2020): Protocol for drawing up Environmental Product Declarations of building products (RTS EPD). PT 18 RTS EPD Committee.

ANNEX 1 EPD RESULTS BY RTS PCR REQUIREMENTS

The potential environmental impacts are reported per 1 kg of final product.

1) Stepped pole

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	2,36E+00	1,10E-01	4,65E-01	2,08E-02	3,57E-07	5,84E-02	1,13E-02	2,58E-03	7,54E-04	-2,04E+00
Abiotic repletion potential, minerals and metals	kg Sb eq	1,00E-06	8,97E-09	5,97E-05	1,73E-09	1,42E-13	4,68E-09	9,43E-10	2,67E-09	4,84E-11	-1,07E-06
Abiotic depletion potential, fossil resources	MJ	2,55E+01	1,39E+00	7,97E+00	2,62E-01	2,15E-05	7,08E-01	1,43E-01	4,77E-02	9,88E-03	-2,39E+01
Water use	m3 depriv.	5,18E-04	1,59E-03	1,95E-01	3,08E-04	2,53E-08	8,32E-04	1,68E-04	4,87E-04	8,56E-05	-1,47E-02
Use of secondary material	kg	1,94E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	0									

2) Small stepped pole

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	2,30E+00	2,82E-01	1,48E+00	7,08E-03	7,25E-06	2,28E-01	1,13E-02	2,58E-03	7,56E-04	-2,05E+00
Abiotic repletion potential, minerals and metals	kg Sb eq	9,67E-07	2,35E-08	1,04E-04	3,69E-10	6,60E-13	1,83E-08	9,44E-10	2,68E-09	-1,18E-10	-1,08E-06
Abiotic depletion potential, fossil resources	MJ	2,49E+01	3,55E+00	2,07E+01	9,14E-02	1,08E-04	2,76E+00	1,43E-01	4,77E-02	1,25E-02	-2,40E+01
Water use	m3 depriv.	2,68E-02	4,17E-03	3,07E-01	5,64E-05	1,88E-07	3,25E-03	1,68E-04	4,88E-04	-1,51E-04	-1,48E-02
Use of secondary material	kg	1,88E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	0									

3) Conical pole

Impact category	unit	A1	A2	A3	A4	C1	C2	C3	C4	D	
Climate change - Total	kg CO2 eq	2,40E+00	1,11E-01	5,29E-01	2,08E-02	9,83E-02	1,13E-02	2,58E-03	7,54E-04	-2,04E+00	
Abiotic repletion potential, minerals and metals	kg Sb eq	1,01E-06	9,02E-09	6,84E-05	1,73E-09	7,87E-09	9,44E-10	2,67E-09	-1,18E-10	-1,07E-06	
Abiotic depletion potential, fossil resources	MJ	2,60E+01	1,40E+00	8,87E+00	2,62E-01	1,19E+00	1,43E-01	4,77E-02	1,25E-02	-2,39E+01	
Water use	m3 depriv.	-5,41E-03	1,60E-03	2,20E-01	3,08E-04	1,40E-03	1,68E-04	4,88E-04	-1,51E-04	-1,47E-02	
Use of secondary material	kg	1,97E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
Biogenic carbon content in product	kg C	0									

4) Wooden pole

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	1,15E-02	3,29E-02	1,56E+00	2,66E-02	2,31E-01	7,88E-02	1,17E-02	9,33E-01	3,07E-04	-1,14E+00
Abiotic repletion potential, minerals and metals	kg Sb eq	3,30E-05	2,74E-09	6,10E-08	2,22E-09	3,86E-10	6,31E-09	9,43E-10	2,22E-09	1,97E-11	-4,39E-07
Abiotic depletion potential, fossil resources	MJ	2,33E+01	4,14E-01	2,30E+01	3,35E-01	7,16E-02	9,54E-01	1,43E-01	2,55E-01	4,02E-03	-1,39E+01
Water use	m3 depriv.	3,29E-01	4,87E-04	1,60E-01	3,94E-04	2,26E-02	1,12E-03	1,68E-04	1,06E-01	3,48E-05	-1,44E-02
Use of secondary material	kg	8,08E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	0,26									

5) Traffic portal

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	2,29E+00	2,43E-01	6,22E-01	2,08E-02	2,07E-02	7,38E-03	1,13E-02	2,58E-03	7,53E-04	-2,04E+00
Abiotic repletion potential, minerals and metals	kg Sb eq	1,15E-06	2,01E-08	9,86E-05	1,73E-09	3,86E-11	5,92E-10	9,43E-10	2,67E-09	4,85E-11	-1,07E-06
Abiotic depletion potential, fossil resources	MJ	2,53E+01	3,07E+00	1,03E+01	2,62E-01	7,20E-03	8,95E-02	1,43E-01	4,77E-02	9,87E-03	-2,39E+01
Water use	m3 depriv.	8,30E-02	3,56E-03	3,06E-01	3,08E-04	2,27E-03	1,05E-04	1,68E-04	4,87E-04	8,57E-05	-1,47E-02
Use of secondary material	kg	1,90E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	0									

6) Retail pole

Impact category	unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	2,50E+00	6,61E-03	1,83E-01	2,80E-01	2,38E-02	1,05E-01	1,13E-02	2,58E-03	7,53E-04	-2,04E+00
Abiotic repletion potential, minerals and metals	kg Sb eq	1,54E-06	1,05E-10	4,11E-05	6,19E-09	4,16E-11	8,40E-09	9,43E-10	2,67E-09	4,84E-11	-1,07E-06
Abiotic depletion potential, fossil resources	MJ	3,00E+01	9,19E-02	3,38E+00	3,53E+00	7,76E-03	1,27E+00	1,43E-01	4,77E-02	9,87E-03	-2,39E+01
Water use	m3 depriv.	3,41E-02	2,91E-05	1,29E-01	8,87E-04	2,55E-03	1,49E-03	1,68E-04	4,87E-04	8,57E-05	-1,47E-02
Use of secondary material	kg	1,96E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	0									

ANNEX 2

LIFE CYCLE ASSESSMENT RESULTS SUMMARY

	Global Warming Potential (kg CO ₂ e)													Impacts beyond system boundary (Reuse, recycling, recovery)
	Height, m	Mass, kg	Raw material supply	Transport	Manufacturing		Transport	Installation	De-construction	Transport	Waste processing	Disposal		
			A1	A2	A3	A1-A3 TOTAL	A4	A5	C1	C2	C3	C4	LIFE CYCLE TOTAL	
1) Stepped pole	8	80.1	188.9	8.8	37.2	235	1.7	0.0	4.7	0.9	0.2	0.1	242	-163.5
2) Small stepped pole	4	20.5	47.1	5.8	30.4	83	0.1	0.0	4.7	0.2	0.1	0.0	88	-42.1
3) Conical pole	6	47.6	114.3	5.3	25.2	145	1.0	0.0	4.7	0.5	0.1	0.0	151	-97.1
4) Wooden pole	6	59.4	0.7	2.0	92.7	95	1.6	13.7	4.7	0.7	55.4	0.0	171	-67.8
5) Traffic portal	7	633.5	1453.1	154.0	393.8	2001	13.2	13.1	4.7	7.1	1.6	0.5	2041	-1292.9
6) Retail pole	6.5	44.6	111.6	0.3	8.2	120	12.5	1.1	4.7	0.5	0.1	0.0	139	-91.0

An accurate LCA study was made for the above-mentioned 6 Tehomet products.

On the following sheets the results are scaled for different product sizes in each product group.

Product group	Modelled reference product	Place of prod	Height, m	Mass, kg	Raw material composition
1) Stepped pole	B108 stepped pole + P110 arm	Kangasniemi	8	80.1	Hot-dip galvanized steel >99 %

LCA results (GWP total)

Stepped pole			Raw material supply	Transport	Manufacturing	A1-A3	Transport	Installation	Deconstruction	Transport	Waste processing	Disposal	LIFE CYCLE TOTAL	
Product	Height, m	Mass, kg	A1	A2	A3	TOTAL	A4	A5	C1	C2	C3	C4		
Stepped pole P110B108	8 m	80.1	188.9	8.8	37.2	235	1.7	0.0	4.7	0.9	0.2	0.1	242	kg CO2e
Stepped pole P210B210	10 m	133.92	326.7	14.8	62.3	404	2.8	0	4.7	1.5	0.3	0.1	413	kg CO2e
Stepped pole P110B110	10 m	121.8	297.2	13.4	56.6	367	2.5	0	4.7	1.4	0.3	0.1	376	kg CO2e

Product group	Modelled reference product	Place of prod	Height, m	Mass, kg	Raw material composition
2) Small stepped pole	Park pole P4,5	Kiiu, Estonia	4	20.5	Hot-dip galvanized steel >99 %

LCA results (GWP total)

Small stepped pole			Raw material supply	Transport	Manufacturing	A1-A3	Transport	Installation	Deconstruction	Transport	Waste processing	Disposal	LIFE CYCLE TOTAL	
Product	Height, m	Mass, kg	A1	A2	A3	TOTAL	A4	A5	C1	C2	C3	C4		
Small stepped pole P3,5/108	3	15.6	37.1	4.4	23.1	65	0.1	0.0	4.7	0.2	0.0	0.0	70	kg CO2e
Small stepped pole P4,5/108	4	20.5	47.1	5.8	30.4	83	0.1	0.0	4.7	0.2	0.1	0.0	88	kg CO2e
Small stepped pole P5,5/108	5	29	68.9	8.2	43.0	120	0.2	0.0	4.7	0.3	0.1	0.0	125	kg CO2e
Small stepped pole P6,5/108	6	35	83.1	9.9	51.9	145	0.2	0.0	4.7	0.4	0.1	0.0	150	kg CO2e

Product group	Modelled reference prod	Place of prod	Height, m	Mass, kg	Raw material composition
3) Conical pole	A106S Conical pole	Kangasniemi,	6	47.6	Hot-dip galvanized steel >9

LCA results (GWP total)

Conical pole			Raw material supply	Transport	Manufacturing	A1-A3	Transport	Installation	Deconstruction	Transport	Waste processing	Disposal	LIFE CYCLE TOTAL	
Product	Height, m	Mass, kg	A1	A2	A3	TOTAL	A4	A5	C1	C2	C3	C4		
Conical pole A203SK	3	21.3	53.0	2.4	11.3	67	0.4	0	4.7	0.2	0.1	0.0	72	kg CO2e
Conical pole A204SK	4	28.5	70.9	3.2	15.1	89	0.6	0	4.7	0.3	0.1	0.0	95	kg CO2e
Conical pole A205SK	5	37.6	93.5	4.2	19.9	118	0.8	0	4.7	0.4	0.1	0.0	124	kg CO2e
Conical pole A106SK	6	47.6	114.3	5.3	25.2	145	1.0	0	4.7	0.5	0.1	0.0	151	kg CO2e
Conical pole A108SK	8	71.6	178.1	7.9	37.9	224	1.5	0	4.7	0.8	0.2	0.1	231	kg CO2e
Conical pole A110SK	10	98.8	245.7	11.0	52.3	309	2.1	0	4.7	1.1	0.3	0.1	317	kg CO2e
Conical pole A112SK	12	124	308.4	13.7	65.7	388	2.6	0	4.7	1.4	0.3	0.1	397	kg CO2e

Product group	Modelled reference prod	Place of pro	Height, m	Mass, kg	Raw material composition
4) Wooden pole	Inari park 6 (+ metal parts)	Parikkala, Fi	6	59.4	Wood 58 %, Hot-dip galvanized steel 41 %, Other 1 %

LCA results (GWP total)

Pallas Puupylväs			Raw material supply	Transport	Manufacturing	A1-A3 TOTAL	Transport	Installation	Deconstruction	Transport	Waste processing	Disposal	LIFE CYCLE TOTAL	
Diameter	Height, m	Mass, kg	A1	A2	A3		A4	A5	C1	C2	C3	C4		
d140/1300	3m	31.8	28.9	1.1	50.7	81	0.9	5.4	4.7	0.3	21.9	0.0	114	kg CO2e
d140/1300	4m	36.1	13.9	1.3	61.4	77	1.1	8.1	4.7	0.4	32.7	0.0	124	kg CO2e
d140/1300	5m	40.4	-1.1	1.5	72.0	73	1.3	10.8	4.7	0.4	43.6	0.0	133	kg CO2e
d140/1300	6m	44.7	-16.0	1.7	82.7	68	1.5	13.5	4.7	0.5	54.4	0.0	143	kg CO2e
d168/1400	6m Park	59.4	0.7	2.0	92.7	95	1.6	13.7	4.7	0.7	55.4	0.0	171	kg CO2e
d193/1400	7m	94.5	-63.7	4.0	187.6	128	3.3	32.6	4.7	1.1	131.6	0.0	301	kg CO2e
d193/1400	8m	102.4	-93.7	4.4	208.9	120	3.7	38.0	4.7	1.2	153.4	0.0	321	kg CO2e
d220/1600	10m	166.8	-179.9	6.9	327.8	155	5.8	62.0	4.7	1.9	250.6	0.0	480	kg CO2e

Product group	Modelled reference produc	Place of prod	Height, m	Mass, kg	Raw material composition
5) Traffic portal	372525KGMH H914NT1 "KA	Kangasniemi,	7	633.5	Hot-dip galvanized steel >99 %

LCA results (GWP total)

Traffic portal			Raw material supply	Transport	Manufacturing	A1-A3	Transport	Installation	Deconstruction	Transport	Waste processing	Disposal	LIFE CYCLE TOTAL	
Product	Height, m	Mass, kg	A1	A2	A3	TOTAL	A4	A5	C1	C2	C3	C4		
Esimerkki A	7	550	1312.5	134.0	341.9	1788	11.4	13	4.7	6.2	1.4	0.4	1826	kg CO2e
Traffic portal	7	633.5	1453.1	154.0	393.8	2001	13.2	13.1	4.7	7.1	1.6	0.5	2041	kg CO2e
Esimerkki B	7	700	1670.5	170.0	435.2	2276	14.5	13	4.7	7.9	1.8	0.5	2318	kg CO2e

Product group	Modelled reference product	Place of prod	Height, m	Mass, kg	Raw material composition
6) Retail pole	60/125/6500/3 Steel pole	Shanghai, Ch	6.5	44.6	Hot-dip galvanized steel >99

LCA results (GWP total)

Retail pole			Raw material supply	Transport	Manufacturing	A1-A3	Transport	Installation	Deconstruction	Transport	Waste processing	Disposal	LIFE CYCLE TOTAL	
Product	Height, m	Mass, kg	A1	A2	A3	TOTAL	A4	A5	C1	C2	C3	C4		
60/108/3500 3MM	3.5	21.0	52.9	0.1	3.9	57	5.9	0.5	4.7	0.2	0.1	0.0	68	kg CO2e
60/108/4500 3MM	4.5	29.0	73.0	0.2	5.4	79	8.1	0.7	4.7	0.3	0.1	0.0	92	kg CO2e
60/121/5500 3MM	5.5	38.0	95.6	0.3	7.1	103	10.6	0.9	4.7	0.4	0.1	0.0	120	kg CO2e
60/125/6500 3MM	6.5	44.6	111.6	0.3	8.2	120	12.5	1.1	4.7	0.5	0.1	0.0	139	kg CO2e
60/131/7100/LR 3MM	7.1	52.0	130.9	0.3	9.7	141	14.6	1.2	4.7	0.6	0.1	0.0	162	kg CO2e
60/146/8600 3MM	8.6	63.6	160.1	0.4	11.8	172	17.8	1.5	4.7	0.7	0.2	0.0	197	kg CO2e
60/166/9100/LR 3MM	9.1	79.0	198.8	0.5	14.7	214	22.1	1.9	4.7	0.9	0.2	0.1	244	kg CO2e
60/183/10600 3MM	10.6	94.1	236.9	0.6	17.5	255	26.3	2.2	4.7	1.1	0.2	0.1	290	kg CO2e
76/148/7100/LR 3MM	7.1	57.3	144.2	0.4	10.6	155	16.0	1.4	4.7	0.6	0.1	0.0	178	kg CO2e
76/185/9100/LR 3MM	9.1	85.8	216.0	0.6	15.9	232	24.0	2.0	4.7	1.0	0.2	0.1	264	kg CO2e
76/208/11100/LR 3MM	11.1	114.2	287.4	0.8	21.2	309	32.0	2.7	4.7	1.3	0.3	0.1	350	kg CO2e
89/198/9100/LR 3MM	9.1	95.0	239.1	0.6	17.6	257	26.6	2.3	4.7	1.1	0.2	0.1	292	kg CO2e
89/222/11100/LR 3MM	11.1	125.3	315.4	0.8	23.3	339	35.1	3.0	4.7	1.4	0.3	0.1	384	kg CO2e
89/222/11100/LR 4MM	11.1	173.6	436.9	1.2	32.2	470	48.6	4.1	4.7	2.0	0.4	0.1	530	kg CO2e
89/263/14500/LR/2KL 3MM	14.5	200.0	503.4	1.3	37.1	542	56.0	4.8	4.7	2.3	0.5	0.2	610	kg CO2e
89/263/14500/LR/2KL 4MM	14.5	265.0	667.0	1.8	49.2	718	74.2	6.3	4.7	3.0	0.7	0.2	807	kg CO2e
89/290/17500/LR/2KL 4MM	17.5	342.0	130.9	2.3	63.5	197	95.7	8.1	4.7	3.9	0.9	0.3	310	kg CO2e