

ENVIRONMENTAL PRODUCT DECLARATION

Pole+ Scanpole Copper Oil Utility Pole

SCAN|POLE

This environmental product declaration refers to the utility poles produced by Scanpole As. The declaration has been prepared following EN 15804:2012 + A2:2019 and ISO 14025 standards and the additional requirements stated in the RTS Guidelines 18.2.2021 and RTS PCR 26.8.2020.

This declaration includes the life cycle stages from cradle to gate with options (modules A1–A5, B1, B4, C1-C4 and D2).



Issue date: 03.04.2025 RTS EPD No: RTS_380_25
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General Information, Declaration scope and verification

1. Owner of the declaration, manufacturer

Scanpole Oy
Hannu Boren
Länsikatu 15, FI-80100 Joensuu, Finland
hannu.boren@scanpole.com

2. Product name and number

Scanpole Copper Oil Utility Pole (Pole+)

3. Place of production

The production data of Scanpole Copper oil (Pole+) utility poles is based on the inventory from the Ilseng (Norway) mills. The secondary inventory is based on ecoinvent system model allocation, cut-off, EN15804 v3.10.

4. Additional information

sales.fi@scanpole.com

5. Product category rules and scope of the declaration

The declaration has been prepared in accordance with EN 15804 + A2:2019 and ISO 14025 standards and additional requirements stated in RTS PCR (Version, 26.8.2020). Product specific category rules have not been applied. EPD of construction products may not be comparable if they do not comply with EN 15804 and seen in a building context.

6. Author of the LCA and declaration

Tarmo Rätty, Juhani Marttila, Kim Lindfors
Natural Resources Institute Finland (Luke),
Latokartanonkaari 9, 00790 Helsinki, Finland, www.luke.fi

7. Verification

This EPD has been verified according to the requirements of ISO 14025:2010, EN 15804:2012 + A2:2019 and RTS PCR protocol by a third party. The verification has been carried out by Mari Kirss from Meetripuu OÜ.

Name and organization of third party verifier:	Place:
Mari Kirss, Meetripuu OÜ	Paide, Estonia
Signature:	Date:
	13.03.20225

8. Declaration issue date and validity

Declaration issue date 03.04.2025, EPD is valid 5 year from verification 03.04.2025 – 02.04.2030

Product Information

9. Products' descriptions

This EPD represents the production of utility poles impregnated with copper oil.

	Treatment	CoC certification
Scanpole Copper Oil (Pole+) Utility Pole	Copper-oil impregnation	PEFC

10. Results of environmental information reported per kilogram

Table 10 Results of environmental information per kilogram														
Impact	Unit	A1-A3	A1	A2	A3	A4	A5	B1	B4	C1	C2	C3	C4	D
GWP-total	kg CO2 eq./kg	-1,15E+00	-1,19E+00	2,48E-02	1,06E-02	6,77E-03	9,95E-03	0,00E+00	-1,14E-04	3,33E-03	8,02E-03	1,34E+00	0,00E+00	-1,37E+00
ADP-minerals&metals**	kg Sb eq./kg	2,34E-03	2,34E-03	3,52E-08	3,00E-08	1,16E-09	4,12E-10	0,00E+00	2,34E-07	1,38E-10	2,74E-10	4,12E-11	0,00E+00	-2,42E-08
ADP-fossil**	MJ, NCV/kg	9,77E-01	2,29E-01	1,65E-01	5,83E-01	8,68E-02	1,30E-01	0,00E+00	1,19E-04	4,35E-02	0,00E+00	0,00E+00	0,00E+00	-2,14E+01
WDP**	m3 world eq. Deprived/kg	7,31E-01	1,99E-03	4,84E-04	7,28E-01	1,45E-04	1,69E-04	0,00E+00	7,31E-05	5,66E-05	1,82E-05	2,66E-04	0,00E+00	-8,39E-01
Biogenic carbon	kg C/kg				3,66E-01									
Secondary materials*	kg /kg	2,32E-04	1,45E-06	1,73E-05	2,13E-04	9,09E-06	2,34E-07	0,00E+00	2,41E-08	7,84E-08	0,00E+00	0,00E+00	0,00E+00	-3,97E-05
* The use of secondary materials in the inventory results from the use of resources in the modules and not from the primary production, construction, use or end of life of the pole. **See disclaimers in Table 20. Abbreviations: GWP total = Global Warming Potential, Climate Change – Total, ADP-fossil = Resource use fossil, ADP-minerals&metals = Resource use, minerals and metals, WPD = Water use (AWARE), Biogenic carbon = Biogenic carbon in product, Secondary materials = Use of secondary materials in product, NCV = Net Caloric Value.														

11. Description of products and their use

Scanpole Copper Oil (Pole+) Utility Poles are basic elements used in overhead distribution networks for electricity, telecommunication, or street lightning. An impregnated utility pole is made of Scots pine (*Pinus Sylvestris* L.) roundwood. The poles are treated with Tanasote® S40, a hot oil -based copper oil solution.

Service life for Copper Oil (Pole+) utility pole is an average 50 years - ranging from 40 to 60 years depending on geographical location of pole and customer specifications.

Environmental impacts of the declared unit (m³) can be converted to different dimensions using the table below.

Length (m)	Diameter at top (mm)	Diameter at bottom (mm)	Volume m ³ /unit
8	150	200	0.240
9	150	195	0.255
9	150	210	0.280
10	150	205	0.284
10	150	220	0.325
10	190	240	0.433
11	150	215	0.346
11	150	230	0.365
11	170	230	0.399
12	150	225	0.377
12	150	230	0.380
12	170	240	0.456
13	150	235	0.429

12. Product standard

EN 14229:2011 Structural timber, Wood poles for overhead lines. NTR class A.

13. Physical properties

	Moisture	Density at u=25 %	Length (m)	Diameter at top (mm)	Diameter at bottom
Scanpole Copper Oil (Pole+) Utility Pole	<28% %	662 kg/m3	8–13	150–190	195–240

The quality requirements are described in the product standard.

14. Raw materials of the product

Product raw materials	Amount	Usability	Origin	Material
Wood, Scots pine (Pinus sylvestris L)	91%	Renewable	Norway	Bio-based
Copper oil (Tanasote S40)	9%	Non-renewable	Germany	Aggregate

15. Substances under European Chemicals Agency's REACH, SVHC restrictions

The product does not contain substances from ECHA's Candidate List of Substances of Very High Concern more than 0.1 % by weight.

Scope of the Life Cycle Assessment

This declaration includes the life cycle stages from cradle to gate with options, modules A1–A3, C, D2 and additional modules A4, A5, B1 and B4. All covered modules are marked with X. Not declared modules are marked as ND.

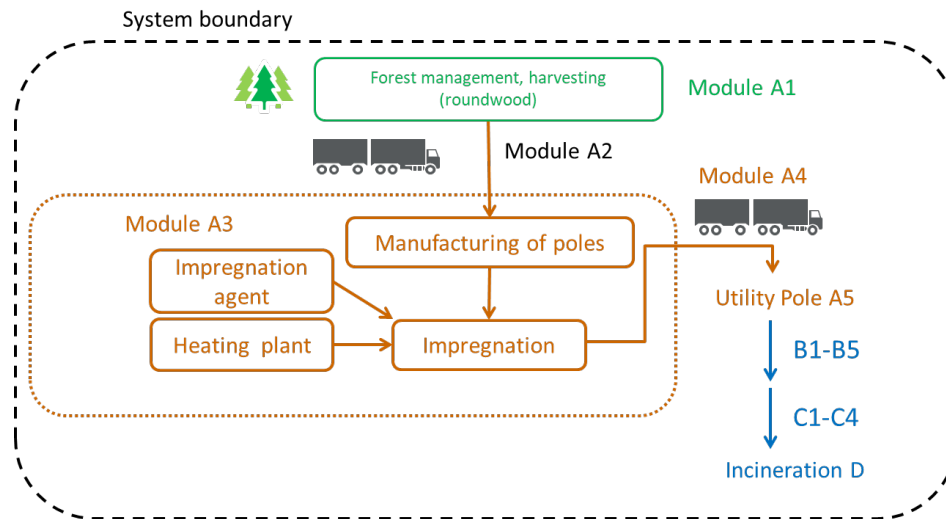
Product stage			Construction process stage		Use stage					End of life stage				Supplementary information beyond the life cycle		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D1	D2	D3
X	X	X	X	X	X	ND	ND	X	ND	X	X	X	X	ND	X	ND
Procurement of sawn wood and preservatives	Transport of raw materials to the production site	Production	Transportation	Construction-installation process	Use	Maintenance	Repair	Replacing	Refurbishment	De-construction	De-construction structure transport	Waste processing	Disposal	Reuse	Recovery	Recycling

This environmental product declaration refers to the copper-impregnated utility pole produced by Scanpole As. Scenario for the modules C and D are valid for processing demolition wood in the country of manufacture. The reference year of the technology is 2022.

16. Declared unit

The declared unit is one nominal m³ of a Scanpole Copper Oil (Pole+) utility pole with 25% moisture content. Results can be converted to the traded dimensions using conversion factors in section 11.

17. System boundaries



18. Cut-off criteria

The inventory accounts the life cycle impacts of all raw materials reported by the manufacturer as well as the final treatment of waste and wastewater. In the case of waste, the limit is set where the waste is converted into a raw material for a new product or a fuel for energy production or disposed.

19. Production and use

Roundwood is transported to the production plant by full trailer trucks. The poles are debarked, sorted, dried, peeled, fabricated and the preservative is applied with a pressure treatment process. Heat needed in the process is produced at an adjacent plant. Electricity is purchased from the grid. Other raw materials, waste and transportation are allocated to the product in volumetric proportions.

Construction site is in Finland or Norway depending on the manufacturing location. Default distance 200 km used for all locations. Construction accounts average machine hours on site. During the use phase, some preservative leaching from the pole into the environment occurs in B1. B4 accounts replacing damaged poles or poles failed in impregnation with new ones. D2 incineration process efficiency is 85 %. Electricity produced by pole incineration replaces residual mix electricity in the country of manufacture

Environmental Impacts and Raw Material use

20. Environmental impacts

Table 20 Environmental impacts (A1-A3)

Impact category	Unit	A1-A3	A1	A2	A3	A4	A5	B1	B4	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	-7,64E+02	-7,88E+02	1,64E+01	7,04E+00	4,48E+00	6,59E+00	0,00E+00	-7,53E-02	2,21E+00	5,31E+00	8,88E+02	0,00E+00	-9,06E+02
GWP-fossil	kg CO2 eq.	1,90E+02	1,10E+02	1,63E+01	6,33E+01	4,48E+00	6,58E+00	0,00E+00	2,01E-02	2,21E+00	5,30E+00	8,76E-02	0,00E+00	-9,04E+02
GWP-biogenic	kg CO2 eq.	-8,55E+02	-8,98E+02	5,18E-02	4,27E+01	1,44E-03	9,98E-04	0,00E+00	-8,55E-02	3,34E-04	6,42E-03	8,88E+02	0,00E+00	-2,03E+00
GWP-luluc	kg CO2 eq.	3,60E-01	2,53E-01	3,29E-03	1,04E-01	2,73E-04	2,25E-04	0,00E+00	3,61E-05	7,53E-05	1,35E-04	8,81E-04	0,00E+00	-5,80E-02
ODP	kg CFC 11 eq.	5,32E-05	5,09E-05	3,49E-07	2,00E-06	9,79E-08	1,03E-07	0,00E+00	5,34E-09	3,44E-08	1,12E-07	3,72E-10	0,00E+00	-1,35E-05
AP	Mol H+ eq.,	1,05E+00	5,45E-01	2,87E-02	4,73E-01	5,40E-03	3,05E-02	0,00E+00	1,08E-04	1,02E-02	6,34E-03	1,06E-04	0,00E+00	-2,18E+00
EP-freshwater	kg P eq	1,31E-01	1,16E-01	6,72E-04	1,42E-02	6,44E-05	5,33E-05	0,00E+00	1,31E-05	1,79E-05	3,96E-05	1,27E-05	0,00E+00	-3,12E-01
EP-marine	kg N eq.	1,12E-01	2,25E-02	6,82E-03	8,29E-02	1,03E-03	1,37E-02	0,00E+00	1,27E-05	4,60E-03	1,40E-03	2,87E-05	0,00E+00	-5,02E-01
EP-terrestrial	mol N eq.	1,32E+00	2,28E-01	7,34E-02	1,02E+00	1,10E-02	1,51E-01	0,00E+00	1,48E-04	5,05E-02	1,51E-02	2,95E-04	0,00E+00	-4,79E+00
POCP	kg NMVOC eq.	1,03E+00	6,70E-01	5,34E-02	3,06E-01	1,12E-02	4,97E-02	0,00E+00	1,09E-04	1,67E-02	1,38E-02	1,10E-04	0,00E+00	-1,55E+00
ADP-minerals&metals	kg Sb eq.	1,55E+00	1,55E+00	2,33E-05	1,98E-05	7,68E-07	2,73E-07	0,00E+00	1,55E-04	9,15E-08	1,81E-07	2,73E-08	0,00E+00	-1,60E-05
ADP-fossil	MJ. LHV	6,47E+02	1,51E+02	1,09E+02	3,86E+02	5,75E+01	8,59E+01	0,00E+00	7,90E-02	2,88E+01	0,00E+00	0,00E+00	0,00E+00	-1,42E+04
WDP	m3, world eq. deprived	4,84E+02	1,32E+00	3,20E-01	4,82E+02	9,57E-02	1,12E-01	0,00E+00	4,84E-02	3,75E-02	1,20E-02	1,76E-01	0,00E+00	-5,55E+02

Disclaimers:

IRP: 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.

ADP-minerals & metals, ADP-fossil and WDP: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

Abbreviations: GWP total = Global Warming Potential, Climate Change – Total, GWP Fossil = Global Warming Potential, Climate change – Fossil, GWP biogenic = Global Warming Potential, Climate change – biogenic, GWP luluc = Global Warming Potential, Climate Change – Land use and LU change, ODP = Ozone depletion, AP = Acidification Potential, EP-freshwater = Eutrophication-freshwater, EP-marine = Eutrophication - marine, EP-terrestrial = Eutrophication - terrestrial, POCP = Photochemical ozone formation, ADP-minerals&metals = Resource use, minerals and metals, ADP-fossil = Resource use fossil, WPD = Water use (AWARE).

21. Additional environmental impacts

Not declared (ND)

22. Use of natural resources

Table 22 Use of natural resources														
Parameter	Unit	A1-A3	A1	A2	A3	A4	A5	B1	B4	C1	C2	C3	C4	D
PERE	MJ	7,85E+03	5,39E+03	1,52E+01	2,44E+03	7,02E+00	1,92E-01	0,00E+00	7,85E-01	6,45E-02	2,56E-01	3,83E+01	0,00E+00	-7,62E+02
PERM	MJ	5,56E+03	4,73E+03	0,00E+00	8,32E+02	0,00E+00	0,00E+00	0,00E+00	5,56E-01	0,00E+00	0,00E+00	-5,56E+03	0,00E+00	0,00E+00
RE Total	MJ	1,34E+04	1,01E+04	1,52E+01	3,28E+03	7,02E+00	1,92E-01	0,00E+00	1,34E+00	6,45E-02	2,56E-01	-5,52E+03	0,00E+00	-7,62E+02
PENRE	MJ	6,46E+02	1,52E+02	1,09E+02	3,85E+02	5,75E+01	8,59E+01	0,00E+00	7,89E-02	2,88E+01	1,14E-03	2,06E-03	0,00E+00	-1,42E+04
PENRM	MJ	1,05E+00	0,00E+00	0,00E+00	1,05E+00	0,00E+00	0,00E+00	0,00E+00	1,05E-04	0,00E+00	0,00E+00	-1,05E+00	0,00E+00	0,00E+00
NRE Total	MJ	6,47E+02	1,52E+02	1,09E+02	3,86E+02	5,75E+01	8,59E+01	0,00E+00	7,90E-02	2,88E+01	1,14E-03	-1,05E+00	0,00E+00	-1,42E+04
RSF	MJ	1,78E-03	5,97E-04	7,15E-05	1,11E-03	3,76E-05	3,08E-05	0,00E+00	1,84E-07	1,03E-05	0,00E+00	0,00E+00	0,00E+00	-1,58E-03
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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net water	m ³	1,13E+01	3,15E-02	1,16E-02	1,13E+01	2,34E-03	2,70E-03	0,00E+00	1,13E-03	9,04E-04	1,40E-03	2,71E-01	0,00E+00	-1,26E+01
SM	kg	1,54E-01	9,58E-04	1,14E-02	1,41E-01	6,02E-03	1,55E-04	0,00E+00	1,60E-05	5,19E-05	0,00E+00	0,00E+00	0,00E+00	-2,63E-02
Abbreviations: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials, PERM = Use of renewable primary energy resources used as raw materials, RE Total= Total use of renewable primary energy resources, PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials, PENRM = Use of non-renewable primary energy resources used as raw materials, NRE Total = Total use of non-renewable primary energy resources, RSF = Use of renewable secondary fuels, NRSF= Use of non-renewable secondary fuels, Net Water = Net use of fresh water, SM = Use of secondary materials.														

23. Biogenic carbon content

Table 23 Biogenic carbon content		
	Unit*	A3
Biogenic carbon content in product	kg C	242,1
Biogenic carbon content in accompanying packaging	kg C	0,00E+00
*1 kg biogenic carbon is equivalent to 44/12 kg of biogenic CO ₂ .		

24. End of life – Waste

Table 24 End of life - Waste														
Parameter*	Unit	A1-A3	A1	A2	A3	A4	A5	B1	B4	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,80E+01	9,79E-02	1,56E-01	1,77E+01	2,12E-02	9,29E-03	0,00E+00	1,80E-03	3,11E-03	1,49E-03	1,79E-03	0,00E+00	-8,86E+01
Non-hazardous waste disposed	kg	5,64E+01	8,26E+00	1,97E+00	4,62E+01	4,44E-01	3,12E-01	0,00E+00	5,72E-03	1,05E-01	1,05E-01	1,70E-02	0,00E+00	-1,58E+03
Radioactive waste disposed	kg	3,50E-04	6,41E-05	1,34E-05	2,73E-04	7,06E-06	4,39E-06	0,00E+00	3,62E-08	1,47E-06	0,00E+00	0,00E+00	0,00E+00	-4,99E-02
*The primary inventory of waste flows is only carried out for module A3. In the other modules, waste flows are related solely to the resource use in the modules.														

25. Output flows

Table 25 Output flows														
Indicator*	Unit	A1-A3	A1	A2	A3	A4	A5	B1	B4	C1	C2	C3	C4	D
Components for re-use	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	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	5,58E-01	2,85E-05	2,32E-04	5,58E-01	1,22E-04	2,19E-06	0,00E+00	5,58E-05	7,35E-07	0,00E+00	0,00E+00	0,00E+00	-2,45E-03
Materials for energy recovery	kg	3,48E-01	5,73E-07	1,03E-06	3,48E-01	5,39E-07	1,22E-07	0,00E+00	3,48E-05	4,08E-08	0,00E+00	0,00E+00	0,00E+00	-5,69E-05
Exported energy - electricity	MJ	3,29E-01	3,88E-02	7,63E-03	2,82E-01	4,01E-03	1,61E-03	0,00E+00	3,34E-05	5,41E-04	0,00E+00	0,00E+00	0,00E+00	-2,85E-01
Exported energy - heat	MJ	1,94E-01	2,01E-02	1,27E-03	1,72E-01	6,67E-04	6,49E-04	0,00E+00	1,95E-05	2,18E-04	0,00E+00	0,00E+00	0,00E+00	-7,08E+00
*The primary inventory of output flows is only carried out for module A3. In the other modules, the output flows are related solely to the resource use in the modules.														

Scenarios and Additional Technical Information

26. Energy in the manufacturing phase

Table 26 Energy in the manufacturing phase, all products			
	Quantity	Data Quality	Type
A3 Electricity, CO2 emission kg CO2 eq. per kWh	0,0069	ecoinvent	Hydro/Nuclear

27. Additional technical information, transportation of products

Table 27 Additional technical information, transport to the building site and installation of the product			
Module	Variable	Value	Data quality
A4	Transport, freight, lorry >32 metric ton, EURO6 RER, Diesel l/km/m3	1,58E-02	Ecoinvent cut-off EN15804
A4	Distance, km	200	Average distance
A4	Capacity utilisation (including empty returns)	49 %	Road
A4	Bulk density of transported products, kg/m ³	6,62E+02	u=25 %
A4	Volume capacity utilisation factor	NA	
A5	Ancillary materials for installation (specified by material)	NA	Product system accounts pole erection only.
A5	Water use, m ³	0,00E+00	Water is not used onsite for erection.
A5	Other Resource use, h	1,76	Machine hours.
A5	Quantitative description of energy type (regional mix) and consumption during the installation process, kg	1,63+E00	Diesel , Ecoinvent Cut-Off, EN15804. GLO regional mix.
A5	Waste materials on the building site before waste processing, generated by the product's installation (specified by type), kg	0,00E+00	Poles are not worked on construction site.
A5	Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route), kg	0,00E+00	
A5	Direct emissions to ambient air, kg.	5,19	Mass of all airborne emission on the construction site, no emissions to ambient soil or water.

28. End-of-life process description in module C

Table 28 End-of-life process description, all products		
Process flow	Unit	Share of declared unit
Collection process specified by type	Collected separately	100 %
	Collected with mixed construction waste	0
Recovery system specified by type	Components for reuse	0
	Material for recycling	0
	Energy recovery	100 %
Disposal specified by type	Loss (mixed waste)	0 %
Assumptions for scenario development	Transportation distance to energy use 100 km.	

29. Additional information

Air, soil, and water impacts during the use phase have not been studied.

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

The chosen end-of-line scenario is currently in use and is the most probable option.

SimaPro 9.6 software was used for LCA with ecoinvent 3.10 EN15804 system model as a generic data source.

SimaPro EN 15804 impact assessment method is based on the EF 3.1 method.

30. References

Standards:

- 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.
- EN15804:2012+A2:2019 Sustainability of construction works. Environmental Product Declarations. Core rules for the product category of construction products.
- RTS PCR 26.8.2020 RTS PCR protocol. Building Information Foundation sr, PT 18 RT EPD Committee
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Data sources:

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