

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021 for:

T-Foil Standard 100 / Robust 100

from

TECCA



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



General information

Programme information

Programme:	The International EPD [®] System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product category rules (PCR): <i>Construction products, 2019:14, version 1.2.5</i>	
PCR review was conducted by: The Technical Committee of the International EPD [®] System. A full list of members available on www.environdec.com . The review panel may be contacted via info@environdec.com . Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee and if so were excused from the review.	
LCA accountability: Kaisa Kuusela & Emma Salminen, Etteplan Finland Oy	
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier	
Third-party verifier: <i>Martin Erlandsson, IVL Swedish Environmental Res. Inst.</i>	
Approved by: The International EPD [®] System	
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: TECCA AB

Contact: Marilyn Lindh

Description of the organisation: TECCA AB is a Nordic market leader developing premium solutions for building material retailers and prefabricated housing industry with focus on climate shell and protective products. Product solutions are developed from the perspective of high standards within extensive quality assurance and testing processes. The total offer also contains customized supply chain and logistics solutions. TECCA AB is owned by Volati – a Swedish industrial group formed in 2003.

Product-related or management system-related certifications: TECCA AB maintains ISO 9001 and 14001 certificates.

Name and location of production site(s): For additional information about TECCA, please visit the company web site at <https://www.teccaworld.com/>

Contact information: TECCA AB, Nydalavägen 14, 574 35 Vetlanda; Sweden; Telephone: +46 (0) 383-599 00

Product information

Product name: T-Foil Standard 100 / Robust 100

Product identification: Technically defined by EN 13984:2013 (Flexible sheets for waterproofing. Plastic and rubber vapour control layers).

Product description: T-Foil Standard 100 / Robust 100 is a plastic sheet or film for damp proofing. The product is available in different versions, Standard and Robust, and is used for vapor control layers in building constructions. It can be applied to ground, floors, walls and roofs to prevent moisture from passing into buildings. All T-Foil 100 products are produced with durability in specified constructions for at least 100 years (RISE Research Institutes of Sweden AB 2023).

	Unit	T-Foil Standard 100	T-Foil Robust 100
Film thickness	mm	0.16	0.20
Product mass	g/m ²	148	185

UN CPC code: 30102015 - Plastic foil

Geographical scope: Modules A1–A5 are modelled to represent Europe, Finland and Sweden. The end-of-life modules C1–C4 are modelled to represent Sweden.

LCA information

Declared unit: One square meter (1 m²)

T-Foil Standard 100 is the representative product for which the indicator results are presented. The results may be converted to represent T-Foil Robust 100 by multiplying with the conversion factor presented in the table below. The conversion factor applies to all indicator results and all declared modules.

	Unit	T-Foil Standard 100	T-Foil Robust 100
Declared unit	m ²	1.0	
Conversion factor	-	1.0	1.25

Reference service life: When properly installed, the service lifetime of the T-Foil 100 plastic film is 100 years as a default (RISE Research Institutes of Sweden AB 2023).

Time representativeness: Manufacturing data is based on year 2022.

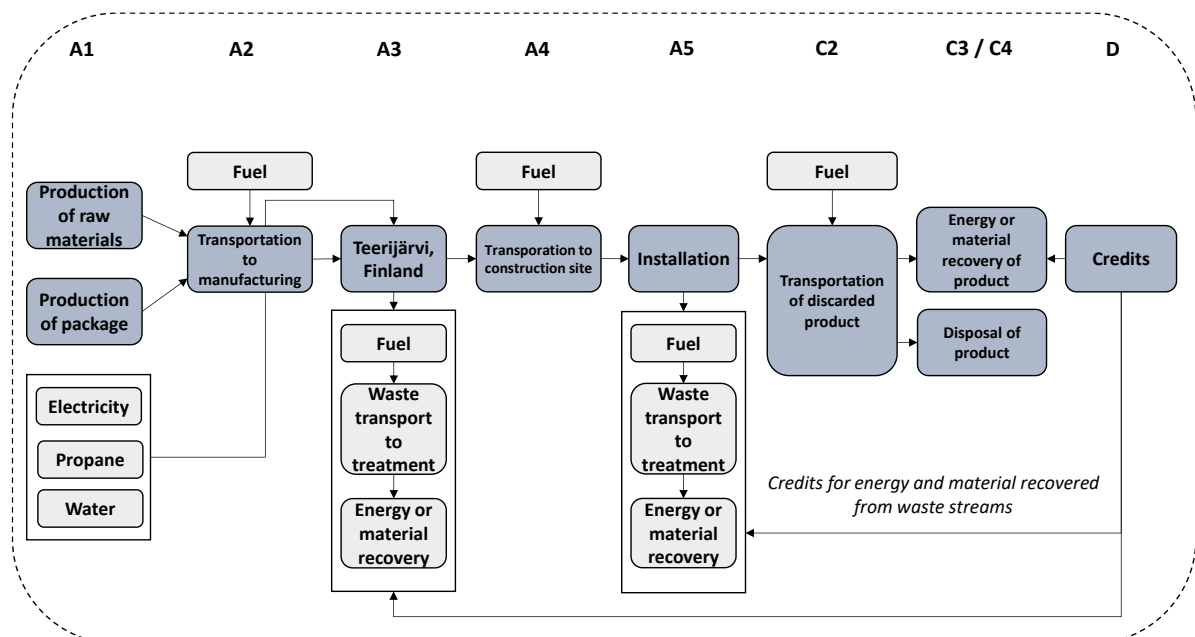
Database(s) and LCA software used: LCA for Experts software (version 10.7), Sphera Professional 2023 and Ecoinvent 3.8 databases.

Description of system boundaries:

b) Cradle to gate with options, modules C1–C4, module D and with optional modules A4–A5.

This EPD covers the product stage (A1–A3), the construction process (A4–A5), end-of-life stage (C1–C4) and benefits beyond the system boundary due to energy and material recovery at EoL stage (D). The use stage (B1-B7) is not relevant for the product in question since no environmental impacts are generated in that phase (e.g. no replacement or refurbishment of the product is needed).

System diagram:



More information:

Product description can be found from:

- T-Foil Standard 100: <https://www.teccaworld.com/produkter/tak/angsparr/t-foil-standard-100>

Name and contact information of the LCA practitioners: Kaisa Kuusela & Emma Salminen, Etteplan Finland Oy. Contact details: firstname.lastname@etteplan.com

Information presented in this EPD is based on an LCA study (Etteplan Finland Oy 2023). Environmental impacts are calculated separately for each product thicknesses (T-Foil Standard 100 / Robust 100).

Name and address of the manufacturer of T-Foil: Ab Rani Plast Oy, address: Tehtaantie 6, 68700 Teerijärvi, Finland

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	FI	FI, SE	SE	-	-	-	-	-	-	-	SE	SE	SE	SE	SE
Specific data used	10.6%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Single product, no variation							-	-	-	-	-	-	-	-	-	-
Variation – sites	One site, no variation							-	-	-	-	-	-	-	-	-	-

Use stage is not relevant for the product. No environmental impacts are generated in that stage.

Scenarios and additional technical information

Scenario information for transportation to building site (A4)	Description, T-Foil Standard 100 (0.16 mm)	Description, T-Foil Robust 100 (0.20 mm)
Fuel consumption	Truck: 0.03 l/tkm (diesel) Ship: 0.013 l/tkm (heavy fuel oil)	
Distance	Truck: 845 km Ship: 302 km	
Capacity utilisation (including empty returns)	Truck: 43.75 % Ship: not determined	
Mass of transported product	0.148 kg	0.185 kg
Volume capacity utilisation factor	Not applicable	

Scenario information for installation (A5)	Description, T-Foil Standard 100 (0.16 mm)	Description, T-Foil Robust 100 (0.20 mm)
Ancillary materials for installation	Not determined (tape/staples excluded)	
Water use	Not determined	
Other resource use	Not determined	
Energy consumption and type	Not determined	
Material loss of product during installation (kg)	0.00148	0.00185
Materials to recycling (kg)	0.0049	0.0061
Materials for energy recovery (kg)	0.0039	0.0049
Materials for disposal (kg)	0	0
Direct emissions to ambient air, soil and water	Not determined	

Scenario information for end-of-life (C)	Description, T-Foil Standard 100 (0.16 mm)	Description, T-Foil Robust 100 (0.20 mm)
Collected separately (kg)	0.038	0.048
Collected with mixed construction waste (kg)	0.110	0.137
Material to re-use (kg)	0	0
Material for recycling (kg)	0.038	0.048
Material for energy recovery (kg)	0.110	0.137
Material for final deposition (kg)	0	0
Transportation to end-of-life processing	Truck, Euro 5, 28 - 32t gross weight / 22t payload capacity; 90.9 % utilisation rate; 100 km distance.	

Content information

T-Foil Standard 100

Product components	Weight, g	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Low-density polyethylene (LDPE)	144.7	0	0
Colour masterbatch	0.3	0	0
UV substance masterbatch	3.0	0	0
TOTAL	148	0 wt. %	0 wt. %
Packaging materials	Weight, g	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Cardboard core	2.6		
Wood pallet	4.4		
Packaging film	0.4		
TOTAL	7.4	5.0 wt. %	0.43

T-Foil Robust 100

Product components	Weight, g	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Low-density polyethylene (LDPE)	180.9	0	0
Colour masterbatch	0.4	0	0
UV substance masterbatch	3.7	0	0
TOTAL	185	0%	0 wt. %
Packaging materials	Weight, g	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Cardboard core	3.2		
Wood pallet	5.5		
Packaging film	0.5		
TOTAL	9.2	5.0 wt. %	0.43

The product does not contain dangerous substances from the candidate list of SVHC.

Results of the environmental performance indicators

The results represent **1 m² of T-Foil Standard 100**. To convert the results of any module or indicator to represent **1 m² of T-Foil Robust 100**, multiply the result with factor **1.25**.

Mandatory impact category indicators according to EN 15804

Results per 1 m ² of T-Foil Standard 100									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	3.39E-01	2.55E-02	6.00E-03	0.00E+00	9.51E-04	3.50E-01	0.00E+00	-2.19E-01
GWP-biogenic	kg CO ₂ eq.	2.08E-03	6.76E-05	7.13E-04	0.00E+00	2.81E-06	9.69E-05	0.00E+00	1.32E-03
GWP-luluc	kg CO ₂ eq.	1.67E-04	1.97E-04	4.84E-06	0.00E+00	8.81E-06	1.36E-06	0.00E+00	-1.33E-05
GWP-total	kg CO ₂ eq.	3.42E-01	2.57E-02	6.71E-03	0.00E+00	9.63E-04	3.50E-01	0.00E+00	-2.18E-01
ODP	kg CFC 11 eq.	1.38E-11	3.05E-15	4.42E-15	0.00E+00	1.24E-16	1.36E-13	0.00E+00	-4.76E-13
AP	mol H ⁺ eq.	5.01E-04	8.82E-05	3.30E-06	0.00E+00	3.29E-06	4.95E-05	0.00E+00	-1.52E-04
EP-freshwater	kg P eq.	7.47E-07	7.87E-08	4.11E-08	0.00E+00	3.48E-09	9.35E-08	0.00E+00	-4.83E-07
EP-marine	kg N eq.	1.50E-04	3.91E-05	1.35E-06	0.00E+00	1.51E-06	1.11E-05	0.00E+00	-5.50E-05
EP-terrestrial	mol N eq.	1.58E-03	4.38E-04	1.40E-05	0.00E+00	1.69E-05	2.01E-04	0.00E+00	-5.51E-04
POCP	kg NMVO C eq.	4.67E-04	1.01E-04	2.83E-06	0.00E+00	2.97E-06	3.18E-05	0.00E+00	-1.49E-04
ADP-minerals&metals*	kg Sb eq.	2.15E-08	1.44E-09	6.27E-10	0.00E+00	6.26E-11	1.17E-09	0.00E+00	-1.29E-08
ADP-fossil*	MJ	1.23E+01	3.41E-01	2.24E-02	0.00E+00	1.30E-02	1.95E-01	0.00E+00	-5.82E+00
WDP*	m ³	5.54E-03	2.64E-04	5.47E-04	0.00E+00	1.15E-05	3.31E-02	0.00E+00	-1.70E-02
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Additional mandatory and voluntary impact category indicators

Results per 1 m ² of T-Foil Standard 100									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	3.42E-01	2.57E-02	6.01E-03	0.00E+00	9.63E-04	3.50E-01	0.00E+00	-2.19E-01
PM	Disease incidences	3.99E-09	7.60E-10	2.63E-11	0.00E+00	1.95E-11	3.33E-10	0.00E+00	-1.30E-09
IRP*	kBq U235 eq.	3.05E-02	8.98E-05	1.27E-04	0.00E+00	3.63E-06	4.00E-03	0.00E+00	-8.43E-02
ET-f**	CTUe	5.36E+00	2.41E-01	4.44E-03	0.00E+00	9.20E-03	8.58E-02	0.00E+00	-1.30E+00
HTP-c**	CTUh	1.35E-10	4.87E-12	3.42E-13	0.00E+00	1.88E-13	4.62E-12	0.00E+00	-5.86E-11
HTP-n**	CTUh	5.99E-09	2.60E-10	1.67E-11	0.00E+00	1.15E-11	1.47E-10	0.00E+00	-1.11E-09
SQI**	Pt (points)	1.01E+00	1.21E-01	2.92E-02	0.00E+00	5.41E-03	6.68E-02	0.00E+00	-1.62E+00
Acronyms	GWP-GHG = Global Warming Potential greenhouse gases; PM = Particulate matter; IRP = Ionizing radiation potential; ET-f = Ecotoxicity freshwater; HTP-c = Human toxicity potential cancer; HTP-n = Human toxicity potential non-cancer; SQI = Soil quality index (Land use)								

* Disclaimer: This impact category deals mainly with the eventual impact of low dose ionizing radiation of 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.

** Disclaimer: 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.

Resource use indicators

Results per 1 m ² of T-Foil Standard 100									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE*	MJ	9.25E-01	2.13E-02	6.43E-03	0.00E+00	9.43E-04	9.23E-02	0.00E+00	-2.01E+00
PERM*	MJ	1.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT*	MJ	1.04E+00	2.13E-02	6.43E-03	0.00E+00	9.43E-04	9.23E-02	0.00E+00	-2.01E+00
PENRE*	MJ	5.51E+00	3.42E-01	2.25E-02	0.00E+00	1.30E-02	1.96E-01	0.00E+00	-5.82E+00
PENRM*	MJ	6.84E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT*	MJ	1.23E+01	3.42E-01	2.25E-02	0.00E+00	1.30E-02	1.96E-01	0.00E+00	-5.82E+00
SM	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
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
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

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

FW	m ³	1.55E-03	2.34E-05	3.30E-05	0.00E+00	1.03E-06	8.07E-04	0.00E+00	-2.85E-03
Acronyms	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; PERT = 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; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

* Disclaimer: Energy stored in materials is not balanced out over the life cycle (from modules A to C) but is instead reported as primary energy used as material, even though it is lost from the product system under study, why this has to be considered in any further assessment or use of the reported results.

Waste indicators

Results per 1 m ² of T-Foil Standard 100									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	9.43E-10	1.06E-12	6.94E-10	0.00E+00	4.03E-14	2.01E-12	0.00E+00	-2.23E-10
Non-hazardous waste disposed	kg	5.17E-03	4.90E-05	1.50E-04	0.00E+00	1.98E-06	5.69E-03	0.00E+00	-3.20E-03
Radioactive waste disposed	kg	2.95E-04	6.04E-07	7.67E-07	0.00E+00	2.43E-08	2.41E-05	0.00E+00	-7.28E-04

Output flow indicators

Results per 1 m ² of T-Foil Standard 100									
Indicator	Unit	A1-A3	A4	A5	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
Material for recycling	kg	1.69E-02	0.00E+00	3.05E-03	0.00E+00	0.00E+00	3.85E-02	0.00E+00	0.00E+00
Materials for energy recovery	kg	2.24E-04	0.00E+00	5.85E-03	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00
Exported energy, electricity	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
Exported energy, thermal	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

References

General Programme Instructions of the International EPD[®] System. Version 4.0.

PCR 2019:14. Construction products. Version 1.2.5

Etteplan Finland Oy. 2023. Life cycle assessment of T-Foil 100 plastic films for environmental product declaration. Confidential LCA report.

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