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Metsä Tissue Product CO₂ Footprint Study 2026



Product Carbon Footprint (PCF) 2026

Background and goal

- Our customers have increasing need for CO₂ data for Scope 3 emission reporting, certification and audit processes and product-level sustainability communication.
- Our goal is to provide Metsä Tissue's customers with transparent, reliable and comprehensive numerical information on the potential climate impact of our products.
- Metsä Tissue's Product Carbon Footprint (PCF) study was conducted by Etteplan Finland Oy and verified by RISE Research Institutes of Sweden.
- All 8 Metsä Tissue mills were included in the study.
- System boundary of the study was **cradle-to-gate**.

Methodology and data

- Life Cycle Assessment (LCA) methodology was performed according to the international life cycle assessment standards ISO 14040, ISO 14044, and carbon footprint standard ISO 14067.
- Impact assessment according to EF 3.1 which is the latest Life Cycle Impact Assessment (LCIA) method developed by the European Commission.
- Primary data used in this study represent operations under the control of Metsä Tissue i.e. the measured or calculated operational data of the production mills of Metsä Tissue. Data for the study was collected in H1/2025 and the data quality was assessed to be good.
- The Product CO₂ data can be publicly shared by our stakeholders, e.g., on customer's web page & newsletters

Disclaimers

This product carbon footprint provides information exclusively on Metsä Tissue's own products and services. Data and other information are not intended to be comparable with other calculations or results due to potential differences in methodology, data sources, and assumptions.

The Impact Data presented are estimates and indicative only. They reflect the situation at the time of data collection and are based on certain assumptions and approximations. They do not constitute a promise, representation, or warranty of any kind, express or implied, including any warranty of fitness for a particular purpose or an agreed quality of our products.

We disclaim any liability for damages or losses arising from reliance on the accuracy, completeness, or suitability of the Environmental Evaluation and Impact Data or any other information provided herein, to the fullest extent permitted by applicable law.

01.09.2026



The data is collected from period: 01.2026-08.2026

*Pulp Qualities:
VF= Virgin Fibre
MX= Mixed Fibre
RC= Recycled Fibre

Product description	External number	Pulp quality	Production location	KATRIN WEBSITE		kg CO2e/CP (kg)	Case / Trading Unit (TU) weight (kg)	KATRIN WEBSITE	
				kg CO2e/ton (kg)	Consumer Pack (CP) weight (kg)			kg CO2e per transport pack/case	
Katrin Hand Towel Non Stop M2 Z-folded	100521	VF	Mariestad	930,69	0,32	0,29	4,82	4,35	
Katrin S Coreless	448257	MX	Mariestad	921,18	0,58	0,53	7,32	6,31	
Katrin M Coreless	448311	MX	Mariestad	924,11	1,58	1,45	10	8,73	
HATO KATRIN PLUS 2P 20x200 ZZ PEFx	35311	VF	Krapkowice (NEW)	999,62	0,38	0,37	7,59	7,33	
Katrin S Coreless Natural White	475505	RC	Mariestad	846,68	0,52	0,43	6,59	5,21	
Katrin Toilet 360	102930	RC	Mariestad	809,64	1,28	1,03	9,02	7,21	
Katrin Plus Hand Towel Non Stop M2 Z-folded Wide	100576	VF	Mariestad	930,25	0,41	0,38	6,26	5,66	
Katrin Plus Hand Towel Non Stop L2 W-folded	100484	VF	Mariestad	933,84	0,39	0,35	5,85	5,32	
Katrin Toilet 640	111505	RC	Mariestad	809,82	1,25	1	8,81	7,04	
Katrin Non Stop M2	99320	VF	Mariestad	932,28	0,35	0,32	5,29	4,8	
Katrin System Towel M 2	58198	MX	Mariestad	1056,94	1,64	1,72	10,3	10,31	
Katrin Kitchen 200	220955	RC	Mariestad	853,54	1,45	1,22	11,65	9,79	
Katrin M Coreless Natural	476512	RC	Mariestad	849,96	1,54	1,31	9,75	7,84	
Katrin Kitchen 95	96190	RC	Mariestad	850,18	0,96	0,8	6,75	5,62	
Katrin Toilet 400	104834	MX	Mariestad	870,79	0,93	0,8	6,58	5,63	
Katrin Toilet 200	181402	MX	Mariestad	866,94	0,73	0,62	5,88	4,98	
Katrin Plus System Toilet LP	87365	VF	Mänttä	654,46	0,27	0,18	10,33	6,38	
Katrin Plus Toilet 360	181003	VF	Nyboholm	975,93	1,2	1,16	8,43	8,11	
Katrin Plus S Coreless	475218	VF	Mariestad	1012,84	0,57	0,57	7,23	6,85	
Katrin Gigant S	117873	RC	Mariestad	811,39	0,65	0,52	7,84	6,3	
Katrin XL Brown	463918	RC	Mariestad	811,91	8,53	6,93	8,58	6,93	
Katrin Gigant S 2	106101	VF	Mänttä	485,85	0,64	0,31	7,78	3,73	
Katrin Gigant M	102060	RC	Mariestad	815,15	1,05	0,85	6,33	5,12	
Katrin Gigant L 2	63338	MX	Mariestad	828,3	1,22	1,01	7,34	6,04	
PO_HATO KATRIN PLUS 1P S 20x300 ZZ PEFx	83114	VF	Krapkowice (NEW)	998,13	0,35	0,34	7,11	6,84	
Katrin Plus M Coreless	475355	VF	Mariestad	1015,79	1,44	1,46	9,17	8,75	
Katrin Plus Kitchen 75	225960	VF	Pauliström	889,91	0,86	0,76	6,98	6,07	
Katrin Plus XL	452233	VF	Mariestad	934,04	9,64	9,01	9,7	9,01	
Lambi White Toilet 5x8p	54343	VF	Mariestad	944,74	0,83	0,77	4,16	3,86	
Katrin Hand Towel Non Stop L2 W-folded	100729	VF	Mariestad	930,69	0,32	0,29	4,82	4,35	
Katrin Plus Toilet 285	38411	VF	Mariestad	923,27	1,04	0,95	7,29	6,62	
Katrin Plus System Towel M2	58167	VF	Mariestad	1143,76	1,47	1,67	9,31	10,02	
HATO KATRIN PLUS NS M2 EASY FLUSH	98484	VF	Mänttä	566,11	0,3	0,17	6,38	3,49	
Katrin Plus Gigant S 2	108925	VF	Mariestad	856,08	0,59	0,5	7,14	6,04	
Katrin Plus S 2 Coreless	464806	VF	Mariestad	1011,8	0,5	0,5	6,36	5,96	
Katrin Kitchen 360	2467	VF	Mariestad	1015,92	1,09	1,1	6,58	6,6	
Katrin Plus M 2 Coreless	448610	VF	Mariestad	1016,08	1,55	1,56	9,83	9,38	
Katrin Plus Gigant M 2	109724	VF	Mariestad	860,45	1,12	0,96	6,75	5,77	
Katrin Plus Toilet 250	79933	VF	Mariestad	921,75	0,89	0,81	6,24	5,65	

KATRIN ZZ 2PLY WHITE 20x200	35298	RC	Krapkowice (NEW)	925,52	0,38	0,34	7,59	6,79
Katrin Plus L 2 Blue	447226	VF	Mänttä	555,13	#SAKNAS!	#SAKNAS!	#SAKNAS!	#SAKNAS!
Lambi Classic white kitchen 5x4p	99122	VF	Pauliström	1028,56	0,54	0,47	2,74	2,37
INWI KATRIN L 1200	463864	RC	Mariestad	811,91	7,11	5,77	7,16	5,77
Katrin Hand Towel Non Stop M2	61617	RC	Raubach	1719,62	0,26	0,44	6,64	11,06
Katrin Plus XL 2 1000	453815	VF	Raubach	2141,9	3,39	6,56	6,83	13,13
KATRIN SYSTEM Toilet paper.	103424	VF	Krapkowice (NEW)	1172,57	0,29	0,33	11,19	11,97
Serla Handy Household Sheet 135 pcs	87877	VF	Mänttä	600,69	0,3	0,18	6,37	3,7
Katrin M 2 blue laminated	464414	VF	Mänttä	551,45	1,21	0,66	7,33	3,98
Katrin System Towel m 2 blue	98514	VF	Mänttä	629,41	1,61	1,01	10,12	6,05
Katrin Plus Toilet 400 EasyFlush.	96039	VF	Mänttä	551,48	1,29	0,71	6,5	3,54
Katrin Plus Easy Flush Non Stop 2	38893	VF	Mänttä	563,75	0,37	0,2	6,64	3,61
KATRIN PLUS Folded Toilet paper 250	56156	VF	Krapkowice (NEW)	1074,18	0,18	0,17	7,4	6,93
Lambi Home Towel Household Sheet 120pcs	87037	VF	Mänttä	542,27	0,31	0,17	6,66	3,54
Katrin Industrial Towel L2 1000 Blue Laminated	464118	VF	Raubach	2141,9	2,81	6,02	5,66	12,04
HAND White Box Coreless M 70% PEFC certified DNVSE-PE	108206	VF	Mariestad	1022,01	1,24	1,12	7,47	6,73
HAND White Box Coreless S 12x1 205	108176	VF	Mariestad	1017,97	0,46	0,41	5,82	4,92
Toilet Gigant M White Box	108145	MX	Mariestad	982,34	0,97	0,89	5,88	5,35
TOTI White Box Gigant S 12x1 2P	108114	MX	Mariestad	980,34	0,49	0,44	5,93	5,33
HATO KATRIN PLUS ONE STOP L3	344010	VF	Mänttä	542,52	0,37	0,2	8,37	4,23
Katrin Non Stop 2	95223	VF	Mänttä	561,91	0,3	0,16	5,37	2,89
Katrin One Stop L2 LP	87334	VF	Mänttä	541,14	0,33	0,18	7,44	3,72
Katrin Plus Non Stop L 2 LP	87129	VF	Mänttä	563,98	0,3	0,16	6,31	3,43
Katrin Plus Non Stop L 3 narrow	87099	VF	Mänttä	566,67	0,31	0,17	6,68	3,66
Katrin Plus Non Stop M 2	87181	VF	Mänttä	564,18	0,3	0,17	6,38	3,48
Katrin Plus One Stop M 2 LOW PAL	87303	VF	Mänttä	542,18	0,36	0,19	8,13	4,09
Lambi Classic white kitchen 5x4p	92239	VF	Pauliström	1026,08	0,48	0,48	2,46	2,42
Katrin Plus C-fold 2	92512	VF	Mänttä	556,44	0,34	0,19	5,45	2,96



The data is collected from period: 01.2026-
08.2026

KATRIN WEBSITE

Product description	External number	Manufacturing country	kg CO2e per transport pack/case	Single Unit weight (kg)	kg CO2e/Single Unit (kg)	Case / Trading Unit weight (kg)	kg CO2e/TU (kg)2
Katrin Liquid Soap Neutral 1000 ml	88110	DK	11,38	1,09	1,85	6,72	11,38
Katrin Foam Soap Neutral 1000 ml	3136	DK	5,78	1,09	0,93	6,77	5,78
Katrin Liquid Soap Fresh 1000 ml	86511	DK	12,23	1,10	1,86	7,22	12,23
Katrin Head <(>&<)> Body soap 1000 ml	47550	DK	12,24	1,10	1,87	7,23	12,24
DISP INCL. KATRIN HAND TOWEL M WHITE	77410	RO	4,37	1,55	3,67	1,85	4,37
Katrin Foam Soap Fresh 1000 ml	86450	DK	6,08	1,08	0,92	7,13	6,08
DISP INCL. KATRIN HAND TOWEL M BLACK	77434	RO	4,96	1,55	4,17	1,85	4,96
DISP KATRIN SYSTEM HAND TOWEL ROLL WHITE	82094	SK	9,42	2,94	8,10	3,42	9,42
DISP INCL. KATRIN CENTERFEED S WHITE	82209	FR	2,52	1,00	2,13	1,18	2,52
DISP KATRIN FLOOR DISPENSER BLACK METAL	54909	IT	10,35	3,85	9,05	4,40	10,35
DISP INCL. KATRIN CENTERFEED M WHITE	82216	FR	4,37	1,61	3,49	2,02	4,37
DISP KATRIN FOLDED HAND TOWEL XL BLACK	89741	FR	5,82	3,06	4,87	3,66	5,82
Katrin System Toilet Dispenser White	77496	RO	2,52	0,90	2,09	1,08	2,52
Katrin Table Top Dispenser	66872	RO	9,54	0,52	1,25	3,93	9,54
Katrin Inclusive Gigant L Toilet Roll Dispenser- Black	82186	FR	2,72	1,28	2,17	1,61	2,72
DISP INCL. KATRIN SOAP 1000ML WHITE	77373	RO	1,20	0,45	1,03	0,54	1,24
Katrin System Hand Towel Roll Dispenser - Black	82070	SK	8,81	2,94	7,58	3,42	8,81
DISP INCL. KATRIN GIGANT L WHITE	82148	FR	3,47	1,28	2,77	1,61	3,47
DISP KATRIN STAINLESS STEEL HAND TOWEL M	988366	ES	8,30	2,20	8,30	2,20	8,30
DISP INCL. KATRIN SOAP 1000ML BLACK	77397	RO	1,29	0,45	1,10	0,52	1,29
SOAP KATRIN LIQUID FRESH 500ML	86542	DK	10,74	0,56	0,80	7,50	10,74
DISP KATRIN WHITE METAL HAND TOWEL M	988113	ES	6,15	2,20	6,15	2,20	6,15
Katrin Foam Soap Neutral 500 ml.	37780	DK	5,96	0,55	0,48	6,82	5,96
Katrin Head and Body 500 ml, Fragrance Arctic Breeze	47543	DK	10,76	0,56	0,80	7,51	10,76
DISP INCL. KATRIN CENTERFEED S BLACK	82247	FR	2,07	1,00	1,75	1,18	2,07
Katrin Foam Soap 500 ml for Touchfree Dispenser, Fragrance G	86573	DK	5,89	0,55	0,47	6,85	5,89
DISP KATRIN WALL DISPENSER BLACK METAL	54930	IT	5,76	2,04	5,20	2,26	5,76
DISPENSER KATRIN INCLUSIVE GIGANT S WHITE	82117	FR	2,12	0,80	1,79	0,94	2,12
BIN WITH LID KATRIN 50L WHITE	91912	IT	3,98	2,10	1,65	5,06	3,98
Katrin Centerfeed dispenser stainless steel	993100	ES	12,79	3,10	10,75	3,69	12,79
Katrin Waste Bin - Steel	900771	ES	15,32	4,20	15,32	4,20	15,32
DISP KATRIN SYSTEM HAND TOWEL HYB. WHITE	84739	SK	9,47	3,01	8,11	3,51	9,47
Katrin Liquid Soap Neutral 500 ml	57870	DK	10,74	0,56	0,80	7,50	10,74
BIN WITH LID KATRIN 50L BLACK	92285	IT	3,98	2,10	1,65	5,06	3,98

DISP KATRIN FOLDED HAND TOWEL XL WHITE	89727	FR	7,27	3,06	6,08	3,66	7,27
DISP KATRIN WHITE METAL WASTE BIN	900788	ES	11,27	4,20	11,27	4,20	11,27
DISP KATRIN GIGANT L STAINLESS STEEL	992967	ES	8,33	2,10	8,33	2,10	8,33
Katrin Foam Soap Neutral 500 ml for Touchfree Dispenser	48410	DK	5,88	0,55	0,47	6,85	5,88
SOAP KATRIN LIQUID FRESH 500ML TOUCHFREE	86603	DK	10,03	0,56	0,80	6,96	10,03
DISP KATRIN STAINLESS STEEL SOAP	993063	ES	5,41	1,00	4,51	1,20	5,41
DISP KATRIN WHITE METAL GIGANT L	997016	ES	6,16	2,10	6,16	2,10	6,16
DISP KATRIN STAINLESSHYGIENEBIN	993155	ES	7,32	1,80	7,32	1,80	7,32
Katrin System Toilet Dispenser Black	77519	RO	2,71	0,90	2,25	1,08	2,71
Katrin Inclusive Centerfeed M Dispenser - Black	82254	FR	3,10	1,61	2,48	2,02	3,10
Katrin Gigant S Dispenser - White Metal	989516	ES	4,79	1,60	4,79	1,60	4,79
DISP KATRIN GIGANTBOX S STAINLESS STEEL	989660	ES	6,40	1,60	6,40	1,60	6,40
DISP KATRIN FOLDED HAND TOWEL S BLACK	88966	RO	3,19	1,01	2,47	1,31	3,19
DISP KATRIN FOLDED HAND TOWEL S WHITE	88942	RO	2,75	1,01	2,13	1,31	2,75
BIN WITH LID KATRIN 25 LITRE NG BLACK	92261	IT	3,23	1,99	1,40	4,57	3,23
Katrin Hand Sanitizing Gel 1000 ml	89346	DK	9,01	1,09	1,46	6,72	9,01
BIN WITH LID KATRIN 25 LITRE NG WHITE	91899	IT	3,23	1,99	1,40	4,57	3,23
Katrin Foam Soap 500 ml, Fragrance Green	86481	DK	6,48	0,55	0,48	7,42	6,48
DISP KATRIN WHITE METAL SOAP	982517	ES	3,91	1,00	3,26	1,20	3,91
Katrin Inclusive Lady Hygiene Bin 8 Litre - Black	92223	IT	1,65	1,02	1,40	1,20	1,65
Katrin Inclusive Soap Dispenser 500 ml - White	77335	RO	0,94	0,32	0,75	0,40	0,94
Katrin Liquid Soap Neutral 500 ml for Touchfree Dispenser	48441	DK	9,85	0,56	0,79	6,96	9,85
DISP INCL. KATRIN LADY HYG. BIN 8L WHITE	91851	IT	2,45	1,02	2,08	1,20	2,45
DISPENSER KATRIN HYGIENE BAG HOLDER NG WHITE	91875	IT	0,32	0,09	0,27	0,11	0,32
DISP INCL. KATRIN GIGANT S BLACK	82155	FR	1,73	0,80	1,46	0,94	1,73
DISP KATRIN SYSTEM HAND TOWEL HYB. BLACK	84753	SK	7,99	3,01	6,84	3,51	7,99
Katrin Inclusive Soap Dispenser 500 ml - Black	77359	RO	1,00	0,32	0,80	0,40	1,00
DISPENSER KATRIN HYGIENE BAG HOLDER NG BLACK	92247	IT	0,21	0,06	0,16	0,08	0,21
Katrin Industrial Waste Bag Holder - Black Metal	54954	IT	1,93	0,87	1,63	1,03	1,93
Katrin Hand Sanitizing Gel for Touchfree Dispenser 500 ml -	48533	DK	8,81	0,55	0,70	6,88	8,81
KATRIN Industrial Holder for interfolded wipes	54961	IT	2,42	1,04	2,14	1,18	2,42

Critical Review Statement

Life cycle assessment study “Carbon footprint study of Metsä Tissue products”

Review background

This document forms the critical review statement for the Etteplan Technical LCA report “Carbon footprint study of Metsä Tissue products” version 2.0, dated 19th January, 2026. The report was prepared by Etteplan (Finland), and was commissioned and funded by Metsä Tissue Oy. Together with the report it was also revised an Excel calculator named “MT Reference product PCF calculator 2025 v1.0”. The aim in this case was to check that the model applied was mathematically correct and consistently delivered appropriate results.

The critical review has been performed by an independent team consisting of:

- Michael Sturges (lead reviewer) - RISE Research Institutes of Sweden / RISE Innventia AB, Sweden – a life cycle assessment practitioner with specific experience of environmental studies relating to the forest industries and pulp and paper sector.
- Pietro Bartocci (reviewer) - RISE Research Institutes of Sweden / RISE Processum AB, Sweden – a life cycle assessment practitioner with specific experience of environmental studies relating to the biorefinery sector.

Critical review process

The review was performed based on the requirements of ISO14044:2006 Section 6.2, i.e., critical review by internal or external experts.

The critical review was performed on the first draft of the goal and scope initial presentation, the LCA report and the final LCA report developed by the consultant Etteplan and provided comments on the following stages of the study:

- Goal and scope;
- Primary and secondary life cycle inventory data selected for the modelling;
- Finalised LCIA results and sensitivity scenario;
- Interpretation and conclusions.

Comments were provided using a MS Excel feedback template on each of the selected stages. The Etteplan LCA team was composed by Heli Kumpulainen and Leinonen Lassi. The Etteplan team responded to the comments and provided its feedback, also describing subsequent changes to the data, models and report, by using the appropriate section of the feedback template. The

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reviewers considered these responses and changes and were satisfied that appropriate clarifications and actions had been provided.

Result of the critical review

Subsequently, the study and the calculator were found to be in conformance with ISO 14040:2006 and ISO 14044:2006.

Opinion of the reviewers

The reviewers find the study's level of quality, detail and transparency to be appropriate considering the goal and scope. In particular, they appreciate the completeness of the approach adopted in evaluating the different impacts linked with the product in object of analysis. The results of the study are calculated using LCA for Experts software adopting EF-compliant methods with the latest EF3.1 methodology.

Subsequently, the reviewers consider the results and conclusions to be a sound and fair reflection of the potential environmental impacts of the studied product. The reviewers also agree that the data quality is deemed overall good.

The RISE consultants have evaluated the calculator and concludes the following:

- all significant unit processes within the boundaries have been considered;
- the equations and the model that underpin the calculator are appropriate and the results that are generated are correct and reliable;
- to claim full compliance more detailed reporting of the systems and data would be required to accompany results, but the assurance process confirms that the methods and data applied to calculate the product carbon footprints of Metsä products are in line with the ISO norms: ISO 14040 and ISO 14044;
- the model has been appropriately parametrized so as to facilitate future updates as new data becomes available (e.g., new data relating to energy consumption per unit of production, updated background dataset for fuels and chemicals, etc.). On this basis, it is the opinion of the critical reviewers that, the results of the calculator which are based solely on updates to the material/energy flows and updating of background datasets (and do not require any fundamental changes to the model structure) can also be considered covered by this critical review statement, as long as the updates have been implemented by a suitably competent individual within Metsä and have been subject to internal validation.

Opportunities to improve the study are represented by the following:

- the fact that the study covers only the cradle-to-gate life cycle stages;
- proxies from Sphera or Ecoinvent datasets were used to model bleaching chemicals, Yankee coating, deinking chemicals, defoamers, enzymes, wet strength agents, glue, and films and foils;
- recycled fibres are modelled with secondary data.
- primary data represents H1/2025 not full year data.
- the simplified material groups are wide and can cause uncertainty to the study.
- the studied paper mills have different supply chains and specific chemicals they use for optimal paper production. For example, with flocculants, there are multiple chemicals that can be used to achieve similar goals, like polyaluminium chloride or polyacrylamide.
- the allocation method used for modelling recycled fiber in the baseline attributes 50% of the environmental impacts from the virgin pulp production system and 50% of the impacts from the deinking stage.

Given the above mentioned opportunities to improve and the limitations indicated in the section of the LCA report: “Conclusions, limitations, and recommendations”, it is the belief of the reviewers that the LCA team has done all that was possible to address these and reduce uncertainty in the study. In conclusion, it is the opinion of the review panel that the report provides useful and realistic information for stakeholders interested in this topic.

Critical review sign-off

The reviewers certify that the statement provided is a fair reflection of their assessment and views of the study: “Carbon footprint study of Metsä Tissue products”.

Signed:



Dated: 3rd March 2026

Michael Sturges, RISE Research Institutes of Sweden / RISE Innventia AB, Sweden (lead reviewer)

Signed:



Dated: 3rd March 2026

Pietro Bartocci, RISE Research Institutes of Sweden / RISE Processum AB, Sweden (reviewer)