

EPD – Environmental Product Declaration.

In accordance with ISO 14025 for:
Scania LS T-shirt Production, 100% organic cotton

General information

Owner of the EPD:

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Location of production site:

Delães, Portugal

Programme:	The international EPD [®] system www.environdec.com
Programme operator:	EPD international AB
EPD registration number:	S-P-07632
Publication date:	2023-02-09
Validity date:	2028-02-09
Geographical scope:	Global

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.



A green
revolution.

Committed to sustainability.

In 2019 Fristads became the first clothing producer in the world to introduce a new standard for measuring the total environmental impact of a garment – from choice of material to delivery of the finished garment.

With three own factories in Europe and sales in more than 20 countries, there are many people around the world working for us – and we care for each and every one of them. These are fine words of course, and we stand firmly behind them. Injustices, unreasonable working hours, low wages, corruption – these are all issues that we resist, where we are constantly on our guard. We work hard to exert our influence wherever our products are made.

We have set high requirements for the companies that want to be our suppliers, at all stages. We give consideration to all the details in the chain, from human rights to environmental impact. It's our duty.

Our work with sustainability is based on the 10 principles in the UN's Global Compact, which forms the basis for our Code of Conduct. We respect and promote human rights according to the United Nations Declaration of Human rights and the Core Conventions of the International Labour Organisation. As a member of amfori BSCI (Business Social Compliance Initiative), we pursue a constructive and open dialogue among our business partners and stakeholders to reinforce the principles of a socially responsible business.

We are certified according to ISO 14001 and work constantly to improve our environmental performance. We monitor the use of chemicals in our products throughout our supply chain. Our Restricted Substance List, shared among all suppliers, reflects the latest EU harmonized legislation which includes REACH, pops regulation, Biocide Regulation and Product Safety Regulation, and is updated regularly based on the guidance of our partner RISE, the Swedish Chemical Group. Furthermore, most of our products are OEKO-TEX® certified.

These efforts are rarely visible from the outside. But, we know they make a difference. For this reason, they are extremely important for us as we strive to make a better world to live in, a world we can proudly leave for the generations that follow us.

Read more at fristads.com.



Human rights,
labour, environment,
anti-corruption



Social compliance



Environment



Chemical regulations



SCANIA



SCANIA LS T-SHIRT PRODUCTION

Art. no 300274

Part of Fristads Green collection / Organic cotton / Round neck / With EPD (Environmental Product Declaration) / OEKO-TEX® certified / RFID chip.

MATERIAL 100% organic cotton.

WEIGHT 195 g/m².

COLOUR F586 Navy/Grey.

SIZE XS-5XL.

LCA information – Life cycle assessment.

Life Cycle Assessment is a method for analysing the environmental impact of a product throughout its life-cycle, from the extraction of raw materials (the cradle) to handling the waste (the grave).

Goal of the study

An LCA study has been conducted in accordance with ISO 14044 and the requirements stated in the General Programme Instructions by The International EPD® System¹.

The goal of the present LCA study has been to calculate environmental impact values for Scania T-shirt long sleeve. To create this Environmental Product Declaration, to be used for communicating environmental performance to customers².

Scope of the study

The scope of the study is cradle to gate and includes all processes up until the garment is manufactured and transported to Fristads' warehouse in Sweden, see Figure 1. Retail, use and end-of-life processes are not included in this EPD. All material and resource consumption is tracked back to the point of raw material extraction, mainly by using cradle-to-gate data³ from the Ecoinvent database⁴. The functional unit of the study is 1 (one) garment, in accordance with the Product Category Rules (PCR)⁵. The declared unit for t-shirts is one garment in size M.

Data collection

The inventory for the LCA study was carried out during 2022. The data for the textile processing was provided by the Fristads' suppliers. Data for confectioning was collected by Fristads' staff^{6,7}. The collected data cover all steps of the system boundary.

Allocation

Whenever it has been necessary to partition the system inputs and outputs, mass criteria have been used in accordance with the PCR. Such situations have for example been when the share of energy and water consumption, or the wastewater treatment of an entire production plant has been allocated to the specific fabric based on the total production volume of the plant.

Cut-off rules

The PCR states that life cycle inventory data for a minimum of 99 % of total inflows to the three life cycle stages (up-stream, core and down-stream modules) shall be included and a cut-off rule of 1% regarding energy, mass and environmental relevance shall apply.

Assumptions and limitations

Some general assumptions have been made around transport vehicles to enable use of database data from Ecoinvent to represent primary data. Transport distances are assumed based on Google Maps distances between locations given by Fristads' suppliers. It is assumed that similar

vehicles are used throughout Asia and throughout Europe respectively. Country electricity mix datasets have been used for electricity based on the fact that production sites are using country electricity net.

Generally, the LCA data should be used with precaution if interpreted for any other purpose than this EPD.

Data quality

The data quality has been considerably increased by the experience from making a similar study in the past^{8,9,10}. Generic data, selected generic data and proxy data has been used. It has been investigated and secured in the study that proxy data does not contribute more than 10% to the total impact of each environmental impact category, in accordance with the PCRs.

Additional information about the LCA study

Time representativeness:

2022

Database(s) and LCA software used:

SimaPro version 9.3.0.3¹¹
ecoinvent version 3.8⁴

Calculation methods

The potential environmental impact for all impact categories have been calculated with the EN 15804+A2 method as implemented in SimaPro. Use of resources are calculated with the method Cumulative Energy Demand v1.11.

Description of system boundaries:

Cradle-to-gate

LCA practitioner:

The LCA has been conducted by the Raw Material team at Fristads.

Third party reviewer:

Daniel Böckin, Miljögraff AB,
Övre Hövik 25 B, SE-430 84 Göteborg, Sweden
under the guidance of Marcus Wendin, Miljögraff AB
(marcus@miljogiraff.se)

¹ EPD International. (2021a). *General Programme Instructions for the International EPD® System version 4.0*.

² Rosengren, L. and Lindström, F. (2022). *Life cycle assesment report Fristads workwear - Scania organic cotton tops*.

³ Cradle-to-gate = all processes from cradle (mining site, forest etc.) to gate (until the goods is produced and ready for delivery at the factory gate).

⁴ Ecoinvent. (2021). *Ecoinvent (3.8)*. Ecoinvent. <https://ecoinvent.org/the-ecoinvent-database/>

⁵ EPD International. (2019). *PCR 2019:07 T-shirts, tops, singlets and other vests: UN CPC 282. Product Category Rules according to ISO 14025. Version 1.01*. Stockholm, Sweden.

⁶ Anonymous. (2022a). *Supplier A for spinning, knitting, dyeing, and finishing, and garment manufacturing*.

⁷ Anonymous. (2022b). *Facility B for heat transfer print production*.

⁸ EPD International. (2022a). *S-P-01759 EPD Fristads GREEN SWEATSHIRT 7989 GOS AND COTTON SWEATSHIRT 7016 SMC*.

⁹ EPD International. (2020b). *S-P-01760 EPD Fristads GREEN T-SHIRT 7988 GOT AND ACODE HEAVY T-SHIRT 1912 HSI*.

¹⁰ EPD International. (2021b). *S-P-03878 High Vis Green jacket class 2 4067/4068 GPLU and High Vis jacket class 3 4026 PLU*.

¹¹ PRé Consultants. (2022). *SimaPro 9.3.0.3*. Retrieved from <http://www.pre-sustainability.com/simapro>

System diagram.

The system boundaries of this EPD are decided by the Product Category Rules (PCR) and illustrated by Figure 1.

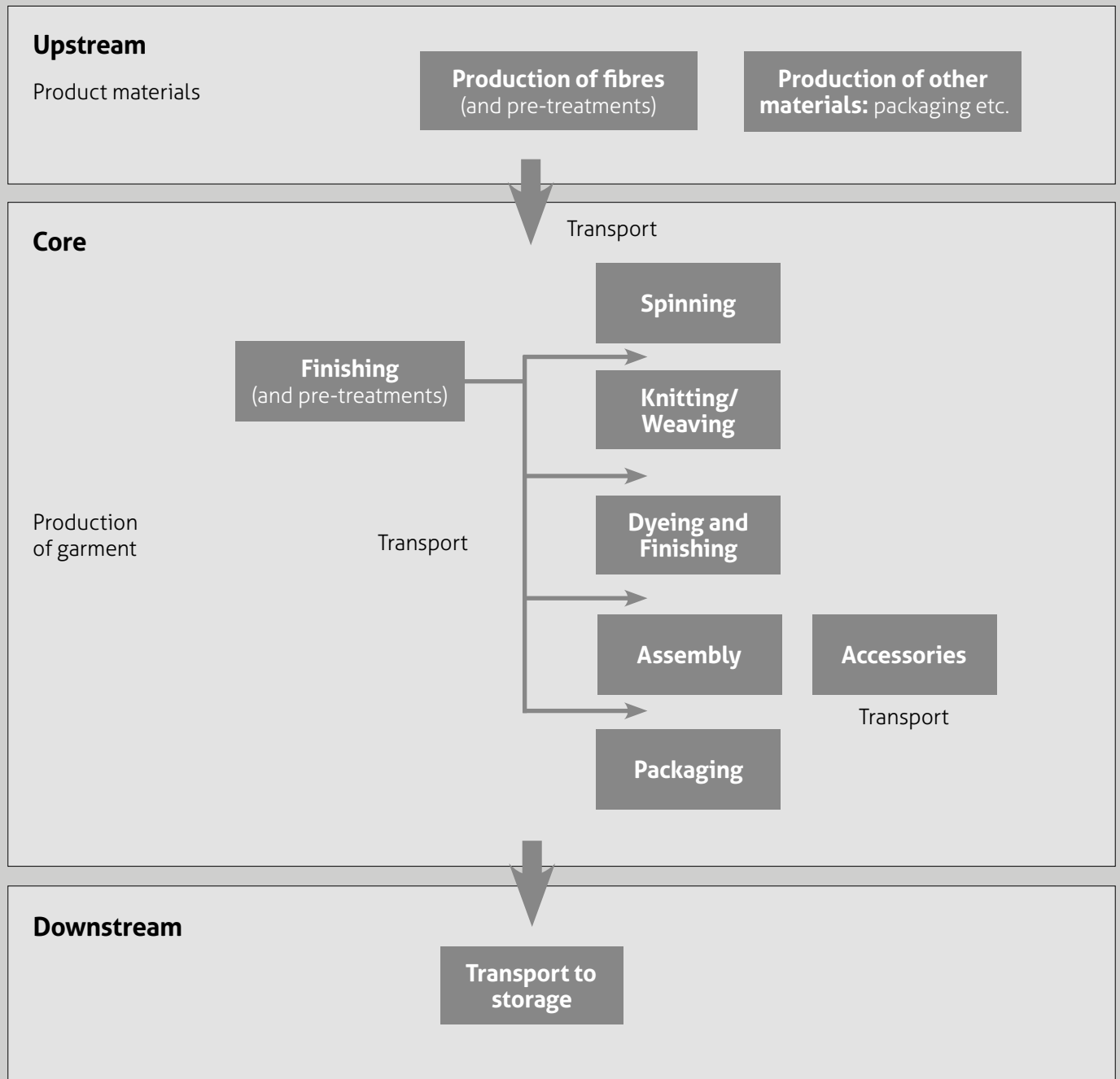


Figure 1. The system boundaries include upstream, core and downstream processes.

Content declaration

Scania LS T-shirt Production.

Content Declaration	%	Environmental/Hazardous properties
Main fabric GOT	84,8	100% cotton (organic)
GOT rib	11,9	95% cotton (organic), 5% elastane
Heat transfer	0,2	60% polyurethane, 40% polyester adhesive
Sewing thread	0,2	100% polyester
Care and size labels	1,4	100% polyester
Paper trims	1,2	100% paper

Packaging

Distribution packaging: Cardboard box. Pallets are excluded from the calculations.

Environmental performance

Scania LS T-shirt Production. Declared unit size M.

Potential environmental impact

Parameter		Unit	Upstream	CORE	Downstream	Total
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	0,625	0,397	0,151	1,17
	Biogenic	kg CO ₂ eq.	-0,679	0,0751	0,000129	-0,604
	Land use and land change	kg CO ₂ eq.	0,00133	0,00796	0,0000594	0,00935
	Total	kg CO ₂ eq.	-0,0527	0,480	0,151	0,579
Acidification potential (AP)		mol H ⁺ eq.	0,00367	0,00291	0,000614	0,00719
Eutrophication potential (EP) - Fresh water		kg P eq.	0,0000288	0,000133	0,00000974	0,000172
Eutrophication potential (EP) - Marine		kg N eq.	0,00107	0,000787	0,000185	0,00204
Eutrophication potential (EP) - Terrestrial		mol N eq.	0,0165	0,00618	0,00202	0,0247
Photochemical ozone creation potential (POCP)		kg NMVOC eq	0,00248	0,00171	0,000619	0,00481
Abiotic depletion potential (ADP) for fossil resources		MJ	3,87	5,39	2,29	11,6
Abiotic depletion potential (ADP) for minerals/metals (non-fossil resources)		kg Sb eq.	0,000000640	0,00000277	0,000000526	0,00000394
Water deprivation potential (WDP)		m ³ depriv.	10,1	0,617	0,00685	10,7
Ozone depletion potential (ODP)		kg CFC 11 eq.	0,000000160	0,0000000455	0,0000000350	0,000000241
Particulate matter		Disease inc.	0,0000000238	0,0000000379	0,0000000131	0,0000000748

Use of resources

Parameter		Unit	Upstream	CORE	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4,12	5,78	2,43	12,3
	Used as raw materials	MJ, net calorific value	7,19	0	0	7,19
	Total	MJ, net calorific value	11,3	5,78	2,43	19,5
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	0,338	1,74	0,0323	2,11
	Used as raw materials	MJ, net calorific value	0,460	0	0	0,460
	Total	MJ, net calorific value	0,798	1,74	0,0323	2,57
Secondary material		kg	0	0	0	0
Renewable secondary fuels		MJ, net calorific value	0	0	0	0
Non-renewable secondary fuels		MJ, net calorific value	0	0	0	0
Net use of fresh water		m ³	0,318	0,00985	0	0,328

Product characteristics

Product characteristics

Characteristic	Test method	Results GOT
Composition	Regulation EU No 1007/2011	100% cotton
Knit	ISO 8388	Single Jersey
Mass per unit area	EN 12127	195 g/m ²
Width	EN 1773	165-185 cm
Colour index	-	-
Bursting strength	ISO 13938	Exceed 450 kPa
Pilling test (Martindale) after 5000 rubs	EN ISO 12945-2	4
Stretch properties	EN 14704-1	Extension at 15 N Lengthwise: 30,2% Widthwise: 74,8% Residual extension after 1min relax: Lengthwise: 8% Widthwise: 22,7% Residual extension after 30 min relax: Lengthwise: 5% Widthwise: 17,7%
Dimensional change to washing	EN ISO 6330 EN ISO 5077	Lengthwise: ±7% Widthwise: ±7%
pH of water extract	EN ISO 3071	4,0-7,5
Colour fastness to artificial light: Xenon arc fading lamp test	EN ISO 105 B02	4
Colour fastness to Washing	EN ISO 105 C06	Color change: 4 Color staining: Acetate 4 Cotton 3 Nylon 4 Polyester 4 Acrylic 4 Viscose 4
Acid and alkaline perspiration	EN ISO 105 E04	Alkaline and acid Color change: 4-5 Color staining: Acetate 4 Cotton 4 Nylon 4 Polyester 4 Acrylic 4 Viscose 4
Dry and wet rubbing	EN ISO 105 X12	Dry: 4 Wet: 2-3

Waste production and output flows

Waste production

Parameter	Unit	Upstream	CORE	Downstream	Total
Hazardous waste disposed	kg	0	0	0	0
Non-hazardous waste disposed	kg	0,242	0,253	0	0,495
Radioactive waste disposed	kg	0	0	0	0

Additional information

Our garments are OEKO-TEX® certified at garment level and we have a well-established programme to monitor chemical safety compliance.

The results in this EPD is for the declared unit size M, which is in the middle of Fristads' size range. Results may vary depending on the garment size within the size range.

Appendix

The products in the appendix have been modelled like the declared product and the difference in environmental impact between declared product and appendix products have been calculated. The difference between declared product and appendix products is less than 10% in all environmental impact categories.

Garment name	Art no	Description
Scania LS T-shirt Production, female	300275	Scania collection
Scania LS T-shirt Quality Gate	300294	Scania collection
Scania LS T-shirt Team Leader	300299	Scania collection



Article no 300275



Article no 300294



Article no 300299

Programme-related information and verification

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.

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
EPD registration number:	S-P-07632
Published:	2023-02-09
Valid until:	2028-02-09
Product Category Rules:	PCR 2019:07 T-shirts, tops, singlets and other vests, Version 1.01
Product group classification:	UN CPC 282
Reference year for data:	2022
Geographical scope:	Global

Product category rules (PCR): PCR 2019:07 T-shirts, tops, singlets and other vests, Version 1.01, UN CPC 282.
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 . Chair of the PCR review: Hüdai Kara, Metsims Sustainability Consulting.
Independent third-party verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification
Third party verifier: Daniel Böckin, Miljögiraff AB (daniel@miljogiraff.se) under the guidance of Marcus Wendin, Miljögiraff AB (marcus@miljogiraff.se) 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

References

Anonymous. (2022a). *Supplier A for spinning, knitting, dyeing, and finishing, and garment manufacturing.*

Anonymous. (2022b). *Facility B for heat transfer print production.*

Ecoinvent. (2021). *Ecoinvent (3.8). Ecoinvent. <https://ecoinvent.org/the-ecoinvent-database/>*

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EPD International. (2020b). *S-P-01760 EPD Fristads GREEN T-SHIRT 7988 GOT AND ACODE HEAVY T-SHIRT 1912 HSJ.*

EPD International. (2021a). *General Programme Instructions for the International EPD® System version 4.0.*

EPD International. (2021b). *S-P-03878 High Vis Green jacket class 2 4067/4068 GPLU and High Vis jacket class 3 4026 PLU.*

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Rosengren, L. and Lindström, F. (2022). *Life cycle assesment report Fristads workwear - Scania organic cotton tops.*

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