



EPD – Environmental Product Declaration.

In accordance with ISO 14025 for:
Scania Trousers, Male. 65% Recycled polyester, 35% lyocell.

General information

Owner of the EPD:

Fristads AB Prognosgatan 24, 504 64 Borås, Sweden
Contact person: Lisa Rosengren, Head of R&D Raw Material
lisa.rosengren@fristads.com
www.fristads.com

Location of production site:

Antananarivo, Madagascar & Stryj, Ukraine

Programme:	The international EPD [®] system www.environdec.com
Programme operator:	EPD international AB
EPD registration number:	S-P-07634
Publication date:	2023-02-10
Validity date:	2028-02-10

Geographical scope:	Global
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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 TROUSERS, MALE

Art. no 300193

Part of Fristads Green collection / 2 front pockets / 2 back pockets / Double crotch seam / 2 thigh pockets / Leg pocket with extra pockets / Loop for folding ruler inside leg pocket / Leg pocket with flap and velcro fastening, mobile phone pocket and extra pocket with flap and velcro fastening, D-ring under flap / CORDURA® reinforced leg ends / Adjustable leg length with 5 cm hem allowance / Leasing-laundry tested according to ISO 15797 / OEKO-TEX® certified / RFID chip.

MATERIAL 65% recycled polyester, 35% lyocell.

WEIGHT 260 g/m².

COLOUR F540 Dark Navy.

SIZE C44-C66, D84-D120

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 Fristads' Scania Trousers male, 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 trousers is one garment in size C50.

Data collection

The inventory for the LCA study was carried out during 2021-2022. The data for the textile processing was provided by the Fristads' suppliers. Data for confectioning was collected by Fristads' staff^{6, 7, 8, 9}. 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^{10, 11, 12}. 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:

Fabric EPD data: 2018

All other data collected: 2021-2022

Database(s) and LCA software used:

SimaPro version 9.3.0.3¹³

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:

Katrin Molina-Besch, Miljögiraff AB,
Övre Hövik 25 B, SE-430 84 Göteborg, Sweden
under the guidance of Marcus Wendin, Miljögiraff AB
(marcus@miljogiraff.se)

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

² Rosengren, L., Steenari, M. (2022). *Life cycle assessment of Fristads workwear - Scania trousers and shorts*.

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. (2020). PCR 2019:06 Trousers, shorts, slacks and similar garments. : UN CPC 282. Product Category Rules according to ISO 14025. Version 1.02. Stockholm, Sweden.

⁶ Anonymous. (2021a). *Facility C Weaving, dyeing & finishing*.

⁷ Anonymous. (2021b). *Facility D for zipper production*.

⁸ Anonymous. (2022a). *Facility A for confectioning*.

⁹ Anonymous. (2022b). *Facility B for heat transfer print production*.

¹⁰ EPD International. (2019b). *S-P-01701 GREEN TROUSERS 2688 GRT AND TROUSERS 2552 STFP GREEN TROUSERS WOMAN 2689 GRT AND TROUSERS WOMAN 2554 STFP*.

¹¹ EPD International. (2021b). *S-P-03881 HIGH VIS GREEN TROUSERS CLASS 1 2649/2652 GPLU AND HIGH VIS STRETCH TROUSERS CLASS 2 2712 PLU*.

¹² EPD International. (2021c). *S-P-03884 EPD HIGH VIS GREEN SHORTS CLASS 2 2650 GPLU AND HIGH VIS STRETCH SHORTS CLASS 1 2059 PLU*.

¹³ 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.

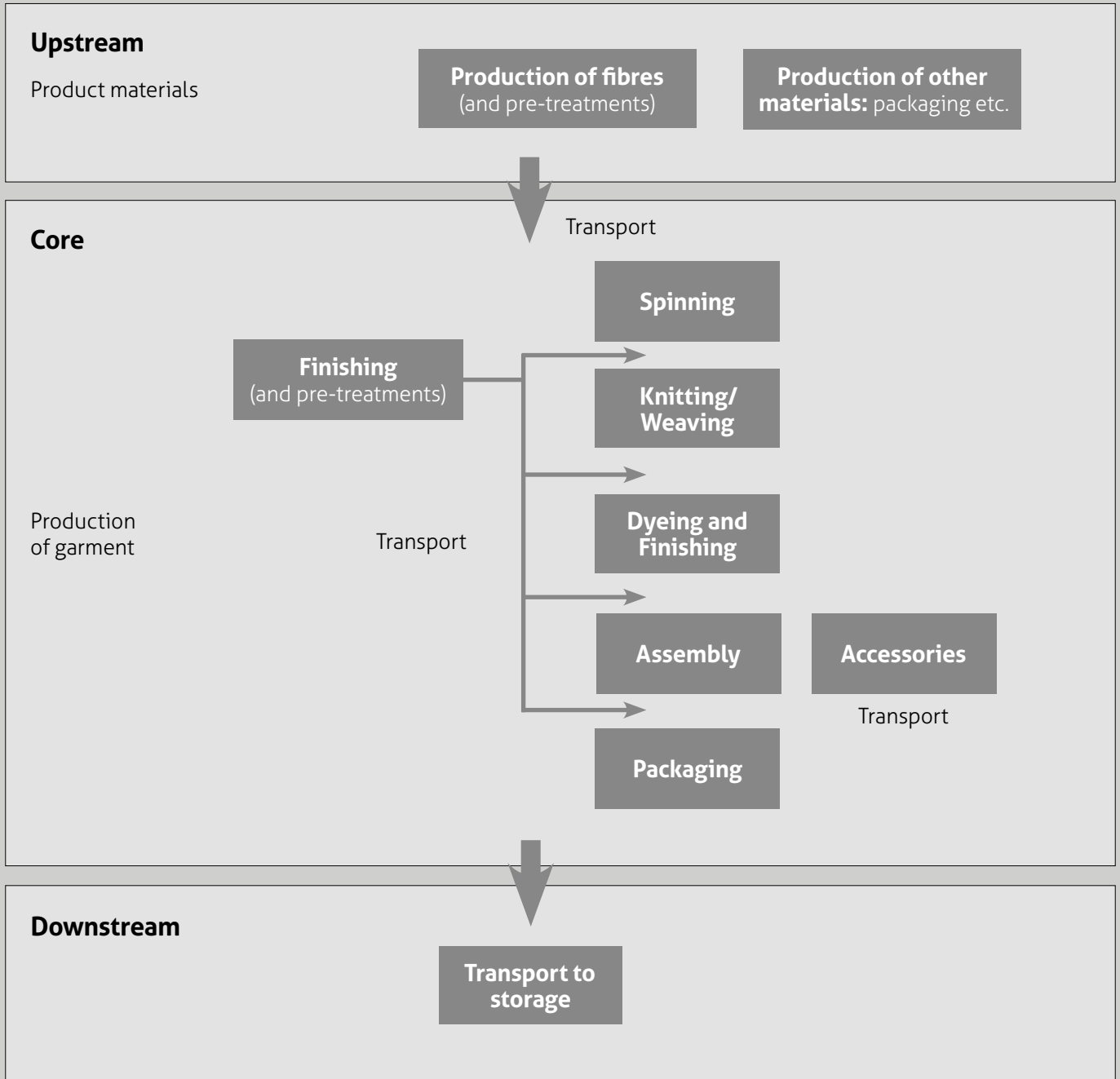


Figure 1. The system boundaries include upstream, core and downstream processes.

Content declaration

Scania Trousers, Male.

Content Declaration	%	Environmental/Hazardous properties
Main fabric GRT	79,2	65% Recycled polyester, 35% Lyocell
Detail fabric GRTL	13,8	65% Recycled polyester, 35% Lyocell
Cordura trims	3,5	100% Polyamid
Thread polyester	0,3	100% Polyester
Metal trims	0,6	96% Zinc, 4% Aluminium
Zipper recycled PES	0,3	100% Recycled polyester
Care and size labels	1,7	100% Polyester
Heat transfer	0,1	60% Polyurethane, 40% Polyester adhesive
Ribbon rPES	0,6	100% Recycled polyester

Packaging

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

Environmental performance

Scania Trousers, Male. Declared unit size C50.

Potential environmental impact

Parameter		Unit	Upstream	CORE	Downstream	Total
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	3,03	4,77	0,15	7,95
	Biogenic	kg CO ₂ eq.	0,0523	-0,0537	0,0000336	-0,00137
	Land use and land change	kg CO ₂ eq.	0,00511	0,0616	0,0000877	0,0668
	Total	kg CO ₂ eq.	3,09	4,78	0,150	8,02
Acidification potential (AP)		mol H ⁺ eq.	0,0129	0,0348	0,00277	0,0505
Eutrophication potential (EP) - Fresh water		kg P eq.	0,000695	0,000925	0,00000859	0,00163
Eutrophication potential (EP) - Marine		kg N eq.	0,00307	0,00821	0,000725	0,0120
Eutrophication potential (EP) - Terrestrial		mol N eq.	0,0265	0,0715	0,00803	0,106
Photochemical ozone creation potential (POCP)		kg NMVOC eq.	0,0075	0,0176	0,00212	0,0272
Abiotic depletion potential (ADP) for fossil resources		MJ	71,2	34,7	2,07	108
Abiotic depletion potential (ADP) for minerals/metals (non-fossil)		kg Sb eq.	0,00567	0,000312	0,000000408	0,00598
Water deprivation potential (WDP)		m ³ depriv.	0,686	0,807	0,0057	1,50
Ozone depletion potential (ODP)		kg CFC 11 eq.	0,000000499	0,000000845	0,0000000313	0,00000138
Particulate matter (Disease inc.)		Disease inc.	0,000000141	0,000000246	0,00000000949	0,000000396

Use of resources

Parameter		Unit	Upstream	CORE	Downstream	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	37,1	74,0	2,20	113
	Used as raw materials	MJ, net calorific value	0	0	0	0
	Total	MJ, net calorific value	37,1	74,0	2,20	113
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	3,19	10,2	0,0198	13,4
	Used as raw materials	MJ, net calorific value	2,20	0	0	2,20
	Total	MJ, net calorific value	5,39	10,2	0,0198	15,6
Secondary material		kg	0,460	0	0	0,460
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	0,000840	0,0540	0	0,0548

Product characteristics

Product characteristics

Characteristic	Test method	Results GRT
Composition	Regulation EU No 1007/2011	65% polyester 35% lyocell
Weave	ISO 3572	Twill 2/1
Mass per unit area	EN 12127	260 g/m ²
Width	EN 1773	153 cm
Colour index		
Abrasion strength	ISO 12947-2	40000 rubs
Tear strength	ISO 13937-2	Warp: 35 N Weft: 30 N
Tensile strength	ISO 13934-1	Warp: 1300 N Weft: 900 N
Seam slippage	ISO 13936-2	Warp: 1 mm Weft: 1 mm
Pilling test (Martindale) after 5000 rubs	EN ISO 12945-2	4
Dimensional change to washing	EN ISO 6330 EN ISO 5077	Warp: ±2% Weft: ±2%
pH of water extract	EN ISO 3071	6
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: Cotton 4 Polyester 4 Viscose 4
Acid and alkaline perspiration	EN ISO 105 E04	Alkaline and acid Color change: 4-5 Color staining: Cotton 4-5 Polyester 4-5
Dry and wet rubbing	EN ISO 105 X12	Dry : 4 Wet : 2

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	0,681	0,0640	0	0,745
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 C50, which is in the middle of Fristads' size range. Results may vary depending on the garment size within the size range.

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-07634
Published:	2023-02-10
Valid until:	2028-02-10
Product Category Rules:	PCR 2019:06 Trousers, shorts, slacks and similar garments. Version 1.02
Product group classification:	UN CPC 282
Reference year for data:	2021-2022
Geographical scope:	Global

Product category rules (PCR): PCR 2019:06 Trousers, shorts, slacks and similar garments, Version 1.02, 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: Katrin Molina-Besch, Miljögiraff AB (katrin@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. (2021a). *Facility C Weaving, dyeing & finishing.*
- Anonymous. (2021b). *Facility D for zipper production.*
- Anonymous. (2022a). *Facility A for confectioning.*
- Anonymous. (2022b). *Facility B for heat transfer print production.*
- EPD International. (2019a). *S-P-01703 Tecawork™ Ecogreen workwear fabrics: EG 225, EG 260 and EG 310.*
- EPD International. (2019b). *S-P-01701 GREEN TROUSERS 2688 GRT AND TROUSERS 2552 STFP GREEN TROUSERS WOMAN 2689 GRT AND TROUSERS WOMAN 2554 STFP.*
- EPD International. (2020). *PCR 2019:06. Trousers, shorts and slacks and similar garments: UN CPC 282. Product Category Rules according to ISO 14025. Version 1.02.* Stockholm, Sweden.
- EPD International. (2021a). *General Programme Instructions for the International EPD® System version 4.0.*
- EPD International. (2021b). *S-P-03881 HIGH VIS GREEN TROUSERS CLASS 1 2649/2652 GPLU AND HIGH VIS STRETCH TROUSERS CLASS 2 2712 PLU.*
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- PRé Consultants. (2022). *SimaPro 9.3.0.3.* Retrieved from <http://www.pre-sustainability.com/simapro>

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Programme operator:	EPD International AB info@environdec.com