

# EPD – Environmental Product Declaration.

In accordance with ISO 14025 for:  
Craftsman Stretch Shorts 2532 GCYD.

Main fabric GCYD: 60% cotton, 40% recycled polyester. Stretch fabric GSTP: 100% polyester.

## 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:

Vientiane, Laos & Stryj, Ukraine

Programme:

The international EPD<sup>®</sup> system  
[www.environdec.com](http://www.environdec.com)

Programme operator:

EPD international AB

EPD registration number:

S-P-08321

Publication date:

2023-06-01

Validity date:

2028-06-01

Geographical scope:

Global



# 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](http://fristads.com).



Human rights,  
labour, environment,  
anti-corruption



Social compliance



Environment



Chemical regulations



### CRAFTSMAN STRETCH SHORTS 2532 GCYD

Art. no 300866

Large 4-way stretch panels at front and back / 2 CORDURA®-reinforced loose-hanging pockets, one with 2 pockets whereof one with zip, one with 3 smaller pockets and tool loops / 2 front pockets / 2 side pockets, one with zip / 2 CORDURA®-reinforced back pockets with loose bottom / D-ring under loosehanging pocket / Double reinforced crotch seam / Hammer loop / CORDURA®-reinforced folding rule pocket with tool pocket, pen pocket, button and loop for sheath knife / Large leg pocket with snap fastening, waterproof zip pocket, phone pocket and extra pocket with D-ring for id-card holder / OEKOTEX® certified.

**MATERIAL** 60% cotton, 40% recycled polyester, canvas. Stretch 44% PTT (partly bio-based material), 44% polyester, 12% recycled polyester.

**WEIGHT** 330 g/m<sup>2</sup>. Stretch 260 g/m<sup>2</sup>.

**COLOUR** 940 Black

**SIZE** C44-C62

# 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® System<sup>1</sup>. The goal of the present LCA study has been to calculate environmental impact values for Fristads' Craftsman Stretch Shorts 2532 GCYD, to create this Environmental Product Declaration, to be used for communicating environmental performance to customers<sup>2</sup>.

## Scope of the study

The scope of the study is cradle to gate and includes all processes up and until finished garment is transported to customer, 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 data<sup>3</sup> from the Ecoinvent database<sup>4</sup>. The declared unit of the study is 1 (one) garment in size C52, in accordance with the Product Category Rules (PCR)<sup>5</sup>.

## Data collection

The inventory for the LCA study was carried out during 2021-2023. The data for the textile processing was provided by the Fristads' suppliers. Data for the production was collected by Fristads' staff<sup>6,7,8,9,10</sup>. 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. For assembly, electricity consumption has been allocated by production time.

## 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 downstream 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.

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<sup>11,12</sup>. 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:

2021-2023

### Database(s) and LCA software used:

SimaPro version 9.3.0.3<sup>13</sup>  
ecoinvent version 3.8<sup>4</sup>

### 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, Miljögiraff AB,  
Övre Hövik 25 B, SE-430 84 Göteborg, Sweden  
(daniel@miljogiraff.se)

# System diagram.

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

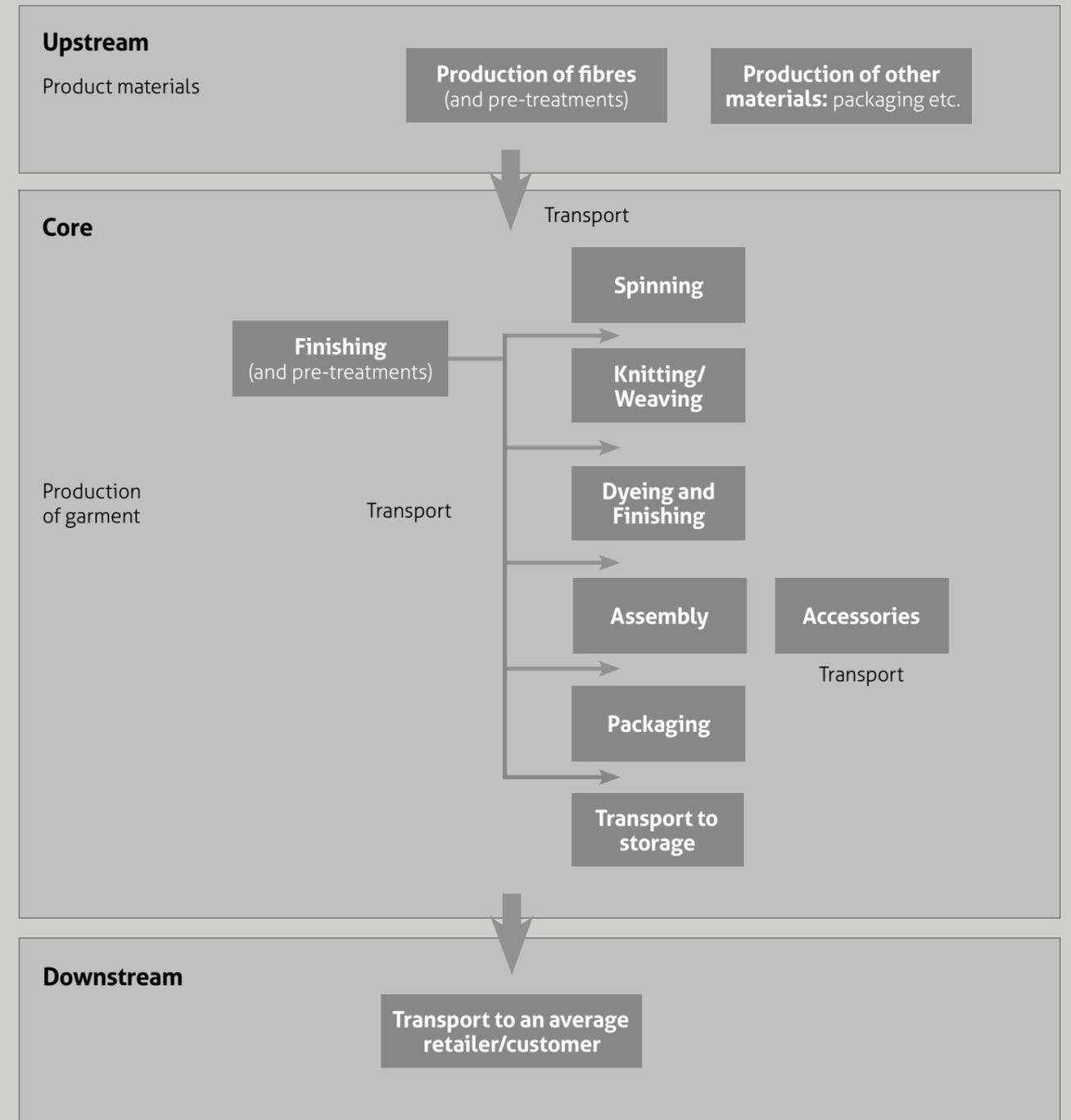


Figure 1. The system boundaries include upstream, core and downstream processes.

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

<sup>2</sup> Rosengren, L., Lindström, F. (2023). *Life cycle assessment of Fristads workwear – Craftsman stretch GCYD collection.*

<sup>3</sup> 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).

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

<sup>5</sup> 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.

<sup>6</sup> Anonymous. (2021). *Facility H for spinning, weaving, dyeing, and finishing.*

<sup>7</sup> Anonymous. (2023a). *Facility M for spinning, weaving, dyeing, and finishing.*

<sup>8</sup> Anonymous. (2023b). *Facility D for spinning, weaving, dyeing, and finishing.*

<sup>9</sup> Anonymous. (2023c). *Facility S for cut and sew.*

<sup>10</sup> Anonymous. (2023d). *Facility O for cut and sew.*

<sup>11</sup> EPD International. (2021b). *S-P-03882 HIGH VIS GREEN CRAFTSMAN STRETCH TROUSERS CLASS 1 2640/CLASS 2 2641 GPLU AND HIGH VIS CRAFTSMAN STRETCH TROUSERS CLASS 2 2707 PLU.*

<sup>12</sup> EPD International. (2021b). *S-P-03882 HIGH VIS GREEN CRAFTSMAN STRETCH TROUSERS CLASS 1 2640/CLASS 2 2641 GPLU AND HIGH VIS CRAFTSMAN STRETCH TROUSERS CLASS 2 2707 PLU.*

<sup>13</sup> PRÉ Consultants. (2022). *SimaPro 9.3.0.3.* Retrieved from <http://www.pre-sustainability.com/simapro>.

## Content declaration

### Craftsman Stretch Shorts 2532 GCYD.

Content Declaration	%	Environmental/Hazardous properties
Main fabric GCYD	49,7	60% cotton, 40% recycled polyester
Stretch fabric GSTP	18,2	100% polyester (12% recycled)
Detail fabric FBLA	11,1	65% polyester, 35% cotton
Reinforcement ADKN	11,2	100% polyamide
GTT Pocket lining	1,6	100% polyester
Sewing thread	3,8	100% polyester
Care and size labels	0,2	100% polyester
Rubber label	0,3	100% synthetic rubber
D-ring	0,3	100% polyoxymethylene
Velcro	0,1	100% polyamide
Metal trims	1,7	100% brass
Ribbons	1,1	100% polyester
Zipper	0,7	100% recycled polyester

### Packaging

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

## Environmental performance

### Craftsman Stretch Shorts 2532 GCYD. Declared unit size C52.

#### Potential environmental impact

Parameter	Unit	Upstream	CORE	Downstream	Total	
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	4,03	7,83	0,104	12,0
	Biogenic	kg CO <sub>2</sub> eq.	-1,11	0,211	1,17	0,271
	Land use and land change	kg CO <sub>2</sub> eq.	0,213	0,00163	0,0000407	0,215
	<b>Total</b>	kg CO <sub>2</sub> eq.	3,13	8,04	1,27	12,4
Acidification potential (AP)	mol H+ eq.	0,0490	0,0392	0,000421	0,0886	
Eutrophication potential (EP) - Fresh water	kg P eq.	0,00231	0,00123	0,0000668	0,00355	
Eutrophication potential (EP) - Marine	kg N eq.	0,0532	0,00751	0,000127	0,0608	
Eutrophication potential (EP) - Terrestrial	mol N eq.	0,158	0,0788	0,00138	0,238	
Photochemical ozone creation potential (POCP)	kg NMVOC eq.	0,0159	0,0225	0,000424	0,0388	
Abiotic depletion potential (ADP) for fossil resources	MJ	58,3	93,6	1,57	153	
Abiotic depletion potential (ADP) for minerals/metals (non-fossil resources)	kg Sb eq.	0,000196	0,00000483	0,00000360	0,000201	
Water deprivation potential (WDP)	m <sup>3</sup> depriv.	46,0	1,01	0,00469	47,0	
Ozone depletion potential (ODP)	kg CFC 11 eq.	0,00000400	0,000000612	0,000000240	0,00000464	
Particulate matter (Disease inc.)	Disease inc.	0,000000344	0,000000464	0,0000000895	0,000000817	

#### Use of resources

Parameter	Unit	Upstream	CORE	Downstream	Total	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	62,7	101	1,66	165
	Used as raw materials	MJ, net calorific value	5,16	0	0	5,16
	<b>Total</b>	MJ, net calorific value	67,9	101	1,66	170
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	17,5	5,58	0,0221	23,1
	Used as raw materials	MJ, net calorific value	15,4	0	0	15,4
	<b>Total</b>	MJ, net calorific value	32,9	5,58	0,0221	38,5
Secondary material	kg	0,221	0	0	0,221	
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 <sup>3</sup>	4,62	0,0239	0	4,64	

## Product characteristics

### Product characteristics

Characteristic	Test method	Results GCYD
Composition	Regulation EU No 1007/2011	60% cotton 40% polyester
Weave	ISO 3572	Twill 2/1
Mass per unit area	EN 12127	330 g/m <sup>2</sup>
Width	EN 1773	150 cm
Colour index		
Abrasion strength	ISO 12947-2	50000 rubs
Tear strength	ISO 13937-2	Warp: 40 N Weft: 30 N
Tensile strength	ISO 13934-1	Warp: 1800 N Weft: 1000 N
Seam slippage	ISO 13936-2	Warp: 3 mm Weft: 3 mm
Pilling test (Martindale) after 5000 rubs	EN ISO 12945-2	4
Dimensional change to washing	EN ISO 6330 EN ISO 5077	Warp: ±3% Weft: ±3%
pH of water extract	EN ISO 3071	4–7,5
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: Cotton 4 Polyester 4 Viscose 4
Acid and alkaline perspiration	EN ISO 105 E04	Alkaline and acid Color change: 4  Color staining: Cotton 4 Polyester 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	0,00148	0,198	0	0,199
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 C52, 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-08321
Published:	2023-06-01
Valid until:	2028-06-01
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:	2021-2023
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 <a href="http://www.environdec.com">www.environdec.com</a> . The review panel may be contacted via <a href="mailto:info@environdec.com">info@environdec.com</a> . 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, Miljögraff AB, ( <a href="mailto:daniel@miljogiraff.se">daniel@miljogiraff.se</a> )  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. (2021). *Facility H for spinning, weaving, dyeing, and finishing*.  
 Anonymous. (2023a). *Facility M for spinning, weaving, dyeing, and finishing*.  
 Anonymous. (2023b). *Facility D for spinning, weaving, dyeing, and finishing*.  
 Anonymous. (2023c). *Facility S for cut and sew*.  
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 Rosengren, L., Lindström, F. (2023). *Life cycle assessment of Fristads workwear – Craftsman stretch GCYD collection*.

## Contact information

Parameter	Unit
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