

# Environmental Product Declaration

*In accordance with ISO 14025 for:*

CALIK DNT 502 denim fabric  
*from*

# CALIK DENIM

*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](http://www.environdec.com)*

**Programme:**

The International EPD® System,  
[www.environdec.com](http://www.environdec.com)  
EPD Turkey, [www.epdturkey.org](http://www.epdturkey.org)

**Programme operator:**

EPD International AB & EPD Turkey

**EPD registration number:**

S-P-01910

**Publication date:**

2020-07-27

**Valid until:**

2025-07-12



## 01 | PROGRAMME INFORMATION

**Programme Operator** EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden  
E-mail: info@environdec.com

Regional Office: EPD Turkey, Nef 09 B Blok 7/15  
Kağıthane/ Istanbul, Turkey  
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### Product category rules (PCR):

Woven Knitted and Crocheted Fabrics of Naturals Fibres (Except Silk), for Apparel Sector, 2018:08, version 1.02

UN CPC 265 (except 2651), UN CPC 266, UN CPC 281

### PCR review was conducted by:

The Technical Committee of the International EPD® System. A full list of members available on www.envrondec.com. Chair of the PCR review: Barbara Nebel Contact via: info@envrondec.com

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification

☒ EPD verification

### Third party verifier:

Ing. Luca Giacomello, PMP®  
Corso Gamba 36 C  
10144 Torino- Italy

### Approved by:

The International EPD® System Technical Committee,  
supported by the Secretariat

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ YES

☒ NO

### LCA Study & EPD Design Conducted By:

Semtrio Sustainability Consulting  
BUDOTEK Teknopark, No 4/21, Umraniye / Istanbul Turkey  
www.semtrio.com

*Çalık Denim has the sole ownership, liability, and responsibility for the EPD.*

*EPDs within the same product category but from different programmes may not be comparable.*

### Owner of the EPD: ÇALIK DENİM TEKSTİL SANAYİ VE TİCARET A.Ş.

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**Name and location of production site:** Malatya/Turkey

## 02 | COMPANY INFORMATION

We ***dream*** with passion.

We ***live*** with passion.

We ***create*** change ***with passion***.

***We have a “Passion for Denim, Passion for Life”...***

***...to make a positive impact for a better life.***



Çalık Denim, one of the global actors in denim fabric production, is also among the two hundred companies that export the most in Turkey. The story of Çalık Denim which holds a special place in the history of the Group as the first industrial investment of the Çalık Holding, started in Malatya, in 1987. Established with an investment of \$111 million, the company has grown up to have a production capacity of 55 million meters per year in a covered area of 407 thousand square meters, employing over 2 000 people.

Within the first decade of its foundation the company began operating the ring spinning facility in 1997 and by 2003, it became an integrated plant having added gabardine/velvet fabrics to its range of products. Over the years the company became a science center by combining its broad knowledge in fabrics with new technologies through R&D. Today, Çalık Denim's R&D Center paves the way producing game-changing fabrics for Turkish and global textile industries.



THE STORY OF OUR PURPOSE

We have been pursuing a passion... Ever since Çalık Denim was founded, we have remained on our committed path of making positive impact, creating and pioneering meaningful change in life, in our industry and in the world, we live in. We followed this instinct that had become a part of our corporate culture, the tighter we held it... Up until today, we have sustained and expanded our passion with countless solid steps, collaborations and our keen efforts on truthful innovations.

Walking on our path ever since, as of 2019, we have put our sustainability purpose into words:

*Passion for Denim, Passion for Life...  
...is our purpose to make a positive impact for a better life.*



Çalık Denim is passionate to provide a credible assurance and to ensure that entire production is certified under the below-stated standards.





Product name: CALIK DNT 502 denim fabric

CALIK DNT 502 a ground-breaking innovation developed with sustainability approach by considering whole supply chain of a denim garment manufacture. **Fabrics are produced at the mill with rinse, rinse+ enzyme and bleach wash effects.**

Heavy wash effects can be obtained by laundering with less water, less chemicals, less energy at the garment manufacturing stage. **CALIK DNT 502 just the right address for new laundry technologies** in terms of resource efficiency and achieving target authentic look.

It creates significant resource saving values for both fabric production and **garment washing steps**; contributes to the protection of our planet.



-  **UN CPC code:** 26620 Woven fabrics of cotton, containing 85% or more by weight of cotton, weighing more than 200 g/m²
-  **Geographical scope:** Global

Technical Specification\*

	Reference Standard	Unit	Results
Characteristic			
Composition	Regulation (EU) No 1007/2011	%	Natural Fibres 90-99%, Synthetic Fibres 3-8%
Width and Length	EN 1773:1998	cm	45.4x24.4
Performance			
Surface fuzzing and pilling	(ISO 12945-2)	Grade	4-5
Determination of pH	(MORAPEX-A)	pH	6
Elasticity	(ASTM D3107)	%	55
Dimensional change the washing (Warp)	(AATCC 135)	%	-0.1
Dimensional change the washing (Weft)		%	-18.4
Colour Fastness			
Colour fastness to artificial light: Xenon arc fading lamp test	(ISO 105 B02)	Grade	4-5
With commercial household detergent at 50oC	(ISO 105 CO6)	Grade	4
Colour fastness to water	(ISO 105 E01)	Change in colour	4-5
The resistance of the colour	General appearance after home laundering	Grade	3-4

\*Thermal insulation properties are not relevant and weight per unit are not declared due to being trade secret.



## LCA Information

**Functional unit:** The functional unit is 1 sqm packaged denim fabric delivered to an average retailer platform.

**Time representativeness:** The production data in the LCA study represents the period from 1<sup>st</sup> January 2019 to 31<sup>st</sup> December 2019.

**Database and LCA software used:** SimaPro v9.00.31 software with Ecoinvent v3.5 database

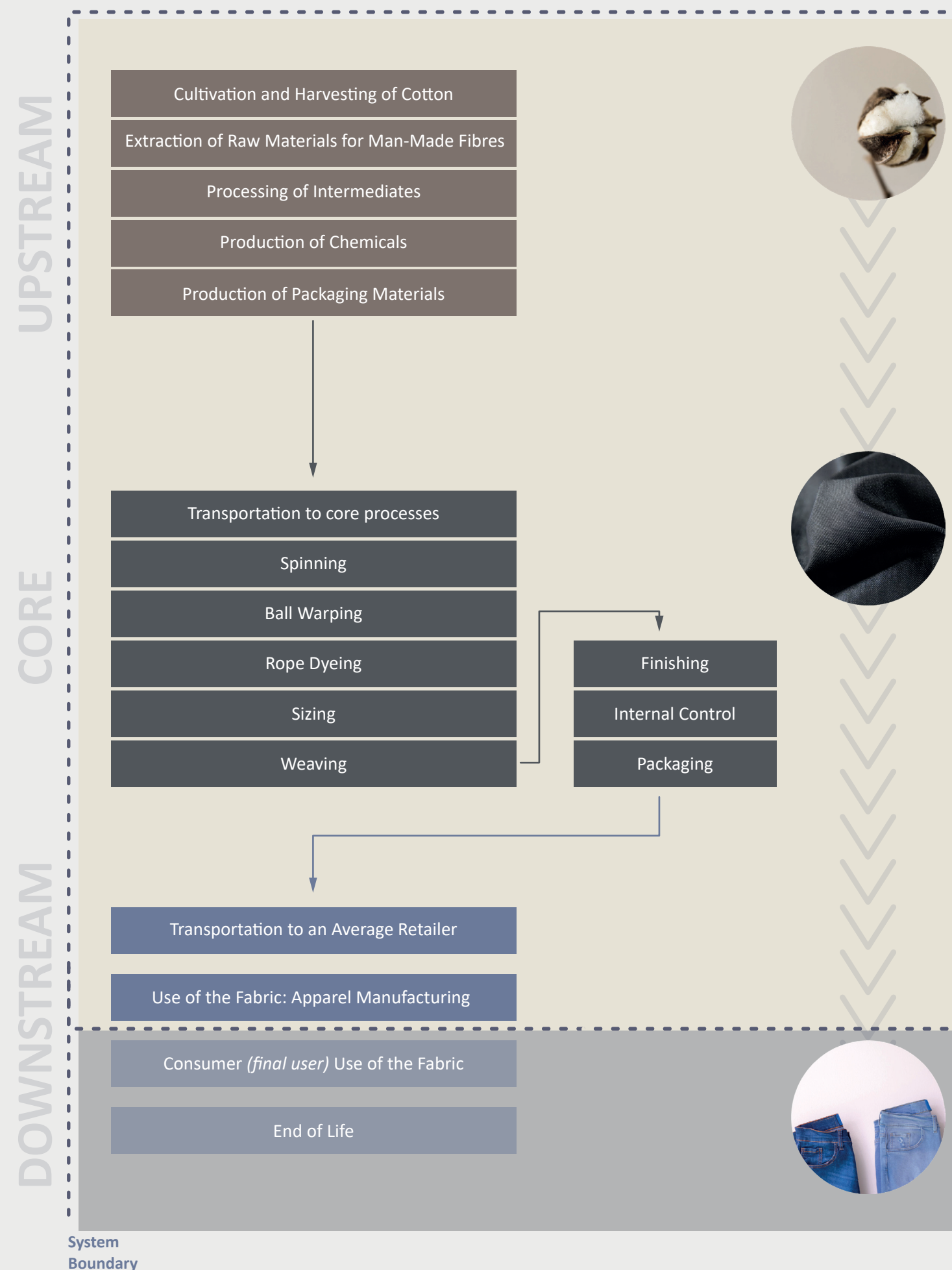
**Description of system boundaries:** The System boundary includes Upstream, Core and Downstream processes with a Cradle-to-gate with options approach. Use stage (garment manufacturing/laundry) of the fabric is included in the system boundary in order to present the environmental impacts caused by garment manufacturing stage.

**Excluded lifecycle stages:** The consumer (end user) use stage of the fabric and end of life stages have been excluded in the system boundary and not taken into account in the LCA study.

**Data quality and data collection:** Site specific data is collected for the core processes and for the use stage (garment manufacturing/laundry) from the mill for the period between 1<sup>st</sup> January to 31<sup>st</sup> December 2019. Selected generic data is used for upstream processes and obtained from Ecoinvent v3.5. Specific and selected generic data achieve the ISO 14044 data quality requirements and time representatives.

**Allocation:** Allocation was avoided by dividing the unit process into two or more sub-processes and collecting the environmental data related to these sub-processes.

**Cut – off rules:** Life Cycle Inventory data for a minimum of 99 % of total inflows to the three life cycle stages have been included and a cut-off rule of 1% regarding energy, mass and environmental relevance was applied.





Composition	Amount
Natural Fibres	90-99%
Synthetic Fibres	3-8%
Sizing Chemical, kg	5-15%
Sodium Hydroxide, kg	<1%
Pigments and Dye Stuff, kg	5-10%
Chemical, Organic, kg	30-40%
Chemical, Inorganic, kg	1-5%
Reducing Agent, kg	1-5%

Packaging

PE film is used for packaging for the purposes of transport, handling and/or distribution of the fabric.



Access [The GREEN PRINT BOOK](#) to see more about Çalık Denim’s sustainability path with the latest innovations and connected to the intrinsic values of environmental respect.

Potential environmental impact

ENVIRONMENTAL IMPACTS						
PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL
				Transport to Retailer	Garment Manufacturing	
Global warming (GWP100a)	Fossil	kg CO <sub>2</sub> eq	1.83	2.61	0.061	6.78
	Biogenic	kg CO <sub>2</sub> eq	0.322	0.017	2.76E-04	0.369
	Land use and land transformation	kg CO <sub>2</sub> eq	0.008	0.008	1.95E-05	0.017
	TOTAL	kg CO <sub>2</sub> eq	2.16	2.63	0.062	7.17
Acidification potential (AP)		kg SO <sub>2</sub> eq	0.014	0.010	1.47E-04	0.032
Eutrophication potential (EP)		kg PO <sub>4</sub> <sup>3-</sup> eq	0.005	0.004	1.91E-05	0.010
Formation potential of tropospheric ozone (POCP)		kg NMVOC	0.007	0.006	1.43E-04	0.017
Abiotic depletion potential – Elements		kg Sb eq	8.03E-06	2.04E-06	1.73E-07	1.08E-05
Abiotic depletion potential – Fossil fuels		MJ	23.2	32.5	0.920	85.0
Water scarcity potential		m³	0.587	0.021	8.58E-05	0.642
Carbon uptake		kg CO <sub>2</sub> eq	1.89	0.011	2.72E-04	1.910
Freshwater ecotoxicity		PAF.m³.day	323.454	529.907	7.70	1258
Human toxicity, cancer		cases	1.70E-08	1.34E-08	3.72E-10	3.89E-08
Human toxicity, non-cancer		cases	3.74E-07	1.84E-07	6.48E-09	7.06E-07
Land use		m²a crop eq	3.62	0.018	0.003	3.65E+00
Ozone layer depletion (ODP)		kg CFC-11 eq	1.68E-07	1.84E-07	1.12E-08	5.84E-07

Use of resources

RESOURCE USE						
PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL
				Transport to Retailer	Garment Manufacturing	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	19.7	2.28	0.010	22.6
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	19.7	2.28	0.010	22.6
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	27.7	36.0	0.991	96.3
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	27.7	36.0	0.991	96.3
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		m³	0.846	0.039	1.72E-04	0.979

Waste production and output flows

WASTE PRODUCTION						
PARAMETER	UNIT	Upstream	Core	Transport to Retailer	Garment Manufacturing	TOTAL
Hazardous waste disposed	kg	1.99E-04	1.00E-04	0	0	2.99E-04
Non-hazardous waste disposed	kg	0.150	2.05E-05	0	0	0.150
Radioactive waste disposed	kg	1.18E-04	0	0	0	1.18E-04

OUTPUT FLOWS						
PARAMETER	UNIT	Upstream	Core	Transport to Retailer	Garment Manufacturing	TOTAL
Components for reuse	kg	INA	0	0	0	0
Material for recycling	kg	INA	0.028	0	0	0.028
Materials for energy recovery	kg	INA	0	0	0	0
Exported energy, electricity	MJ	INA	0	0	0	0
Exported energy, thermal	MJ	INA	0	0	0	0

INA: Indicator Not Assessed

Other environmental indicators

According to the PCR following environmental indicators are included in the LCA study:

- Freshwater ecotoxicity, PAF.m³.day; Human Toxicity cancer and non-cancer, cases. Ref: USEtox 2 (recommended + interim) v1.00
- Land Use, m²a crop eq. Ref: ReCiPe 2016 Midpoint (H) v1.03
- Ozone layer depletion, kg CFC-11 eq. Ref: CML baseline v3.05

Additional information

In this section additional information not derived from the LCA-based calculations regarding DNT 502 denim fabric.

Entire production at Çalık Denim mill is in compliance with REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). The fabric declared in this EPD achieved compliance certification to ZDHC requirements.

Compared to the raw fabric, on which conventional washing processes are applied during fabric manufacturing, **CALIK DNT 502** offers considerable water saving values at the garment manufacturing/laundry stage.

Mean Saving Values at Garment Manufacturing/Laundry Stage for the garment made of **CLK DNT 502** denim fabric\*

Water Savings

- up to **44%** rinse look
- up to **15%** rinse+enzyme look
- up to **32%** bleached look

\*CLK GreenPrint Book, values show the optimum saving amounts.

References

- Çalık Denim / <http://calikdenim.com/corporate/>
- ISO 14040: 2006 Environmental management-- Life cycle assessment-- Principles and framework
- ISO 14044: 2006 Environmental management-- Life cycle assessment-- Requirements and guidelines
- ISO 14025: 2006 Environmental labels and declarations-- Type III environmental declarations-- Principles and procedures
- The International EPD® System / [www.environdec.com](http://www.environdec.com)
- The International EPD® System / The General Programme Instructions / <http://www.environdec.com/tr/The-International-EPD-System/General-Programme-Instructions/>
- Ecoinvent 3.5 database / <http://www.ecoinvent.org/>
- SimaPro LCA Software / <https://simapro.com/>
- The International EPD® System / PCR WOVEN KNITTED AND CROCHETED FABRICS OF NATURALS FIBRES (EXCEPT SILK), FOR APPAREL SECTOR / <https://www.environdec.com/PCR/Detail/?Pcr=13246>

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