

Environmental Product Declaration

In accordance with ISO 14025 for:

CALIK CLR 501 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

Programme:

The International EPD® System,
www.environdec.com
EPD Turkey, www.epdturkey.org

Programme operator:

EPD International AB & EPD Turkey

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01 | PROGRAMME INFORMATION

Programme Operator EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden
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Regional Office: EPD Turkey, Nef 09 B Blok 7/15
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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®
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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 CLR 501 denim fabric

CALIK CLR 501 is created with a sustainability approach such as investing in ethical, recyclable, eco-friendly and cruelty-free materials and processes, from fibre to yarn, and dye to finish and in this concept this process minimises the chemical and water consumption in the production stages at the mill.

CALIK CLR 501 offers considerable saving values for both Indigo Dyeing and Finishing steps of denim fabric production; decreases water consumption from 10 litres to 6 litres at Indigo Dyeing process per meter of fabric and makes possible to use only 9 grams of chemicals per litre at Finishing process per meter of fabric instead of using 150 grams. It reduces water consumption from 6.4 litres to 1.1 litres at Finishing process and provides comfort stretch and power stretch alternatives.



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	34x23.6
Performance			
Surface fuzzing and pilling	(ISO 12945-2)	Grade	4-5
Determination of pH	(MORAPEX-A)	pH	6
Elasticity	(ASTM D3107)	%	53
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 50°C	(ISO 105 C06)	Grade	4
Colour fastness to water	(ISO 105 E01)	Change in colour	4
The resistance of the colour	General appearance after home laundering	Grade	4-5

*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 1st January 2019 to 31st December 2019.

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

Description of system boundaries: Cradle-to-gate with options

Excluded lifecycle stages: Use of the fabric at garment manufacturing and denim laundry stages, consumer use stage of the fabric (jeans) 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 from the mill for the period between 1st January to 31st 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.

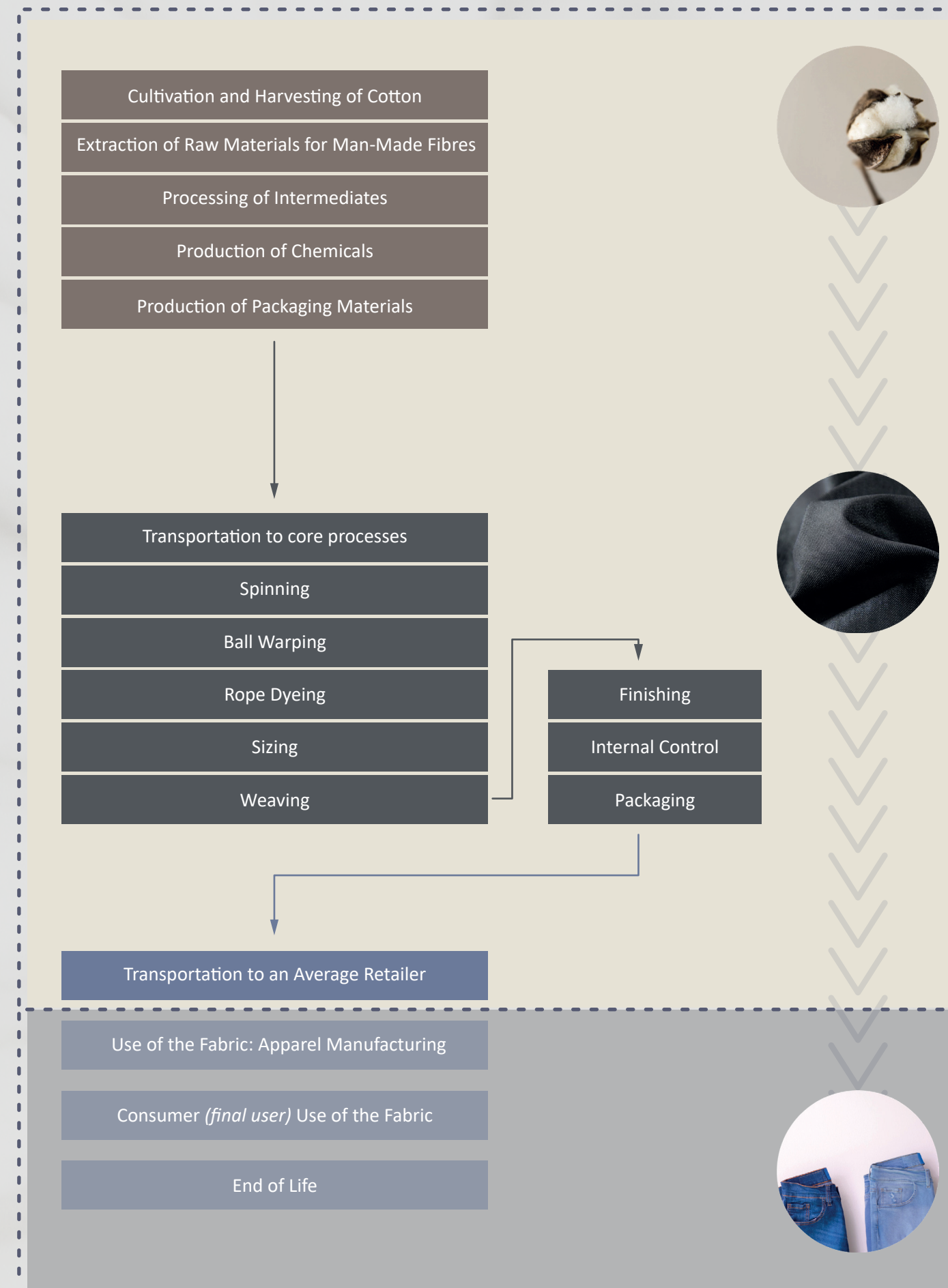
Cut – off rules: Life Cycle Inventory data for a minimum of 99 % of total inflows to the three life cycle stages have been included and a cut-off rule of 1% regarding energy, mass and environmental relevance was applied.



UPSTREAM

CORE

DOWNSTREAM



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

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
Global warming (GWP100a)	Fossil	kg CO ₂ eq	1.56	2.46	0.061	4.08
	Biogenic	kg CO ₂ eq	0.295	0.016	2.76E-04	0.311
	Land use and land transformation	kg CO ₂ eq	0.006	0.007	1.95E-05	0.014
	TOTAL	kg CO ₂ eq	1.86	2.48	0.062	4.40
	Acidification potential (AP)	kg SO ₂ eq	0.013	0.010	1.47E-04	0.023
	Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	0.005	0.003	1.91E-05	0.007
	Formation potential of tropospheric ozone (POCP)	kg NMVOC	0.006	0.005	1.43E-04	0.012
	Abiotic depletion potential – Elements	kg Sb eq	7.11E-06	1.72E-06	1.73E-07	9.01E-06
	Abiotic depletion potential – Fossil fuels	MJ	17.5	30.4	0.920	48.8
	Water scarcity potential	m³	0.542	0.015	8.58E-05	0.557
	Carbon uptake	kg CO ₂ eq	1.74	0.010	2.72E-04	1.75
	Freshwater ecotoxicity	PAF.m³.day	283	508	7.70	798
	Human toxicity, cancer	cases	1.50E-08	1.19E-08	3.72E-10	2.73E-08
	Human toxicity, non-cancer	cases	3.33E-07	1.72E-07	6.48E-09	5.11E-07
	Land use	m²a crop eq	3.34	0.016	0.003	3.36
	Ozone layer depletion (ODP)	kg CFC-11 eq	1.48E-07	1.71E-07	1.12E-08	3.31E-07

Use of resources

RESOURCE USE						
	PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	18.1	2.10	0.010	20.2
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	18.1	2.10	0.010	20.2
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	21.1	33.7	0.991	55.8
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	21.1	33.7	0.991	55.8
	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	0.779	0.028	1.72E-04	0.807

Waste production and output flows

WASTE PRODUCTION					
PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	1.85E-04	9.61E-05	0	2.82E-04
Non-hazardous waste disposed	kg	0.139	1.97E-05	0	1.39E-01
Radioactive waste disposed	kg	1.10E-04	0	0	1.10E-04

OUTPUT FLOWS					
PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	INA	0	0	0
Material for recycling	kg	INA	0.027	0	0.027
Materials for energy recovery	kg	INA	0	0	0
Exported energy, electricity	MJ	INA	0	0	0
Exported energy, thermal	MJ	INA	0	0	0

INA: Indicator Not Assessed

Other environmental indicators

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

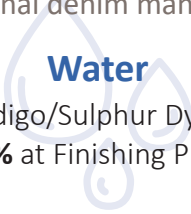
- Freshwater ecotoxicity, PAF.m³.day; Human Toxicity cancer and non-cancer, cases.
Ref: USEtox 2 (recommended + interim) v1.00
- Land Use, m²a crop eq. Ref: ReCiPe 2016 Midpoint (H) v1.03
- Ozone layer depletion, kg CFC-11 eq. Ref: CML baseline v3.05

Additional information

In this section additional information not derived from the LCA-based calculations regarding the production process of CLK CLR 501 is presented.

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

Mean Environmental Saving Values for the new production process of Çalık Denim fabrics comparing to conventional denim manufacturing*



Water

40% at Indigo/Sulphur Dyeing Process
83% at Finishing Process



Chemical

94% at Finishing Process

*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
- 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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