Environmental Product Declaration

In accordance with ISO 14025 for:

CALIK DNV-616 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

EPD registration number:
S-P-04121

Publication date:
2021-11-25

Valid until:
2026-11-24

EPD TURKEY ENVIRONMENTAL PRODUCT DECLARATIONS

EPD THE INTERNATIONAL EPD® SYSTEM

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
www.epdturkey.org

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®
Via Leonardo Fea 35
10148 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.*
1. Organize Sanayi Bolgesi 2. Cadde No:6
44900 Yeşilyurt, Malatya / TURKEY

Contact information: *Ayşe Korkmaz Genç*
Ayse.KorkmazGenc@calikdenim.com

Name and location of production site: Malatya/Turkey

02 | PRODUCT INFORMATION

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 DNV-616 denim fabric**

Authentic look combined with the advantages of today's technologies. Distinctive twill lines, Open-end look achieved without hairiness, dull shade and itchy touch. Salt and pepper effect.

Not only rigid and comfort stretch, but also provides power stretch. Extra marble look alternatives with new slubs and constructions. Also with different colour options (purple, navy) which get very well authentic effect by laundering

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 100%
Width and Length	ASTM D3774	cm	157cm x 100cm
Performance			
Surface fuzzing and pilling	(ISO 12945-2)	Grade	4-5
Determination of pH	(MORAPEX-A)	pH	4-7.5
Elasticity	(ASTM D3107)	%	18-24%
Dimensional change the washing (Warp)	(AATCC 135)	%	0/-3.5
Dimensional change the washing (Weft)		%	-0.5/-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 CO6)	Grade	CC:4 CS:4
Colour fastness to water	(ISO 105 E01)	Change in colour	CC:4-5 CS:4-5
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 m² packaged denim fabric delivered to an average retailer platform.

Time representativeness: The production data in the LCA study represents the period from 1st October 2021 to 1st November 2021.

Database and LCA software used: SimaPro v9.2 software with Ecoinvent v3.7.1 database

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

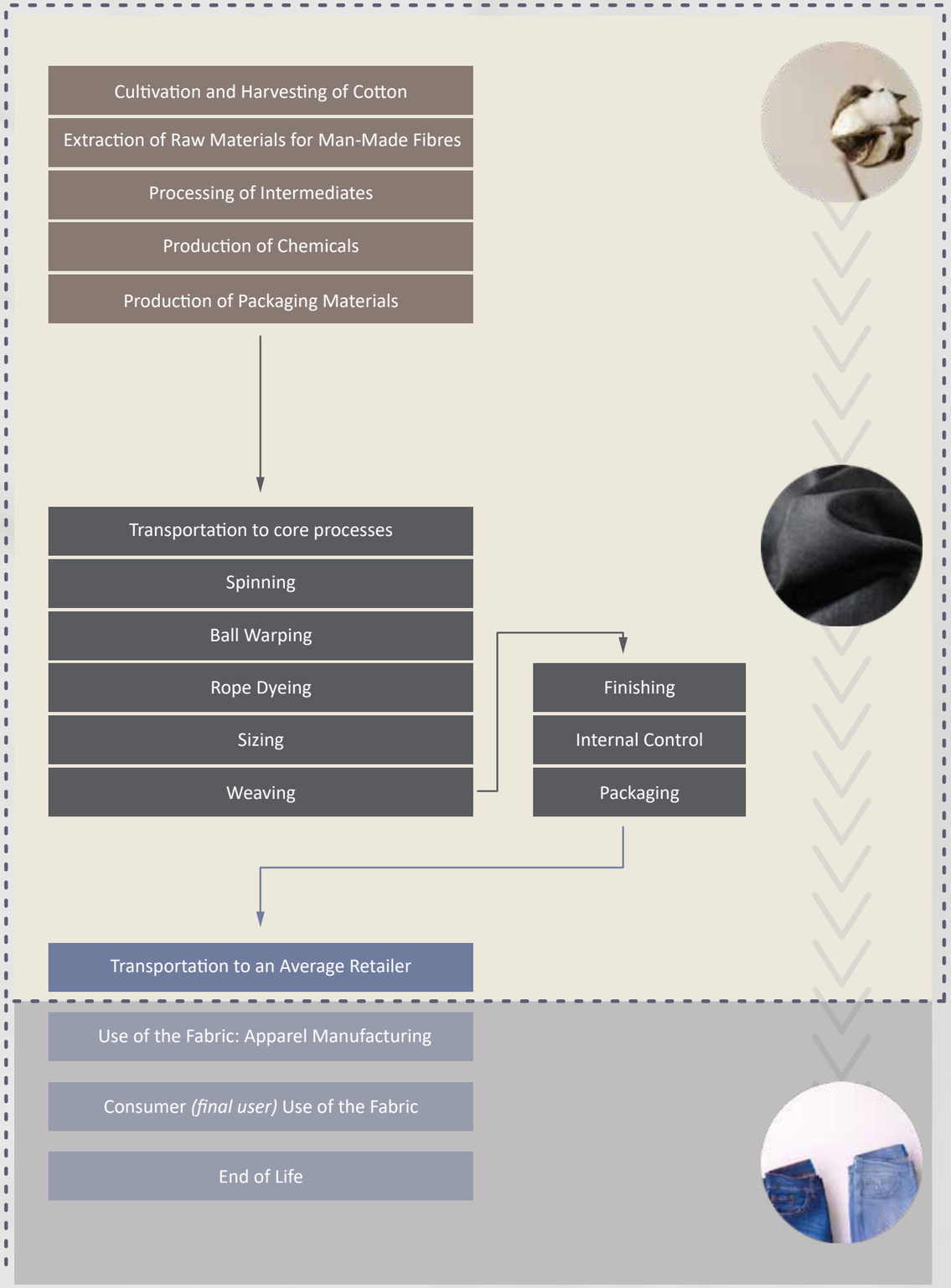
Excluded lifecycle stages: Use of the fabric at garment manufacturing and denim laundry stages, consumer use stage of the fabric (jeans) and end of life stages have been excluded in the system boundary and not taken into account in the LCA study.

Data quality and data collection: Site specific data is collected for the core processes from the mill for the period between 1st October 2021 and 1st November 2021. Selected generic data is used for upstream processes and obtained from Ecoinvent v3.7.1. 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.

02 | PRODUCT INFORMATION
Environmental Product Declaration



System Boundary

03 | CONTENT DECLARATION

Composition	Amount
Natural Fibres	100%
Synthetic Fibres	-
Regenerated Fibres	-
Sizing Chemical, kg	0.00194
Sodium Hydroxide, kg	0.0084
Pigments and Dye Stuff, kg	0.01649
Chemical, Organic, kg	0.084
Chemical, Inorganic, kg	0.00485
Reducing Agent, kg	0.0038

- : Fabric doesn't include of this type of fibre.

The product CALIK DNV-616 includes 50% cotton and also 50% organic cotton.
Organic cotton cultivation is made in Turkey, however, due to lack of organic cotton cultivation data, datasets are obtained from Ecoinvent v3.7.1.

Packaging

PE film is used for packaging for the purposes of transport, handling and/or distribution of the fabric.
No recycled content included in the packaging materials.

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.

04 | ENVIRONMENTAL PERFORMANCE

Potential environmental impact

ENVIRONMENTAL IMPACTS						
	PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Global warming (GWP100a)	Fossil	kg CO_2 eq	0.61	1.84	0.122	2.57
	Biogenic	kg CO_2 eq	0.016	0.027	7.94E-04	0.044
	Land use and land transformation	kg CO_2 eq	0.143	0.010	4.62E-05	0.153
	TOTAL	kg CO_2 eq	0.77	1.87	0.122	2.77
Acidification potential (AP)		kg SO_2 eq	0.008	0.008	3.03E-04	0.016
Eutrophication potential (EP)		kg PO_4^{3-} eq.	0.025	0.004	3.76E-05	0.029
Formation potential of tropospheric ozone (POCP)		kg NMVOC	0.004	0.004	3.00E-04	0.009
Abiotic depletion potential – Elements		kg Sb eq	6.35E-06	4.18E-06	4.36E-07	1.10E-05
Abiotic depletion potential – Fossil fuels		MJ	6.6	22.2	1.788	30.6
Water scarcity potential		m^3	8.150	1.628	6.16E-03	9.785
Carbon uptake		kg CO_2 eq	-1.59	-0.012	-5.67E-04	-1.60
Freshwater ecotoxicity		PAF.m^3.day	435	450	16.52	901
Human toxicity, cancer		cases	3.88E-09	2.47E-08	2.17E-09	3.08E-08
Human toxicity, non-cancer		cases	-9.35E-07	1.53E-07	1.23E-08	-7.70E-07
Land use		m^2a crop eq	4.44	0.018	0.005	4.46
Ozone layer depletion (ODP)		kg CFC-11 eq	6.16E-08	1.01E-07	2.11E-08	1.84E-07

Use of resources

RESOURCE USE						
	PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	18.51	3.24	0.021	21.77
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	18.51	3.24	0.021	21.77
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	7.47	25.0	1.92	34.4
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	7.47	25.0	1.92	34.4
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	0.411	0.135	1.14E-03	0.547

04 | ENVIRONMENTAL PERFORMANCE

Waste production and output flows

WASTE PRODUCTION					
PARAMETER	**UNIT**	**Upstream**	**Core**	**Downstream**	**TOTAL**
Hazardous waste disposed	kg	0	8.07E-05	0	8.07E-05
Non-hazardous waste disposed	kg	0	1.66E-05	0	1.66E-05
Radioactive waste disposed	kg	0	0	0	0

OUTPUT FLOWS					
PARAMETER	**UNIT**	**Upstream**	**Core**	**Downstream**	**TOTAL**
Components for reuse	kg	INA	0	0	0
Material for recycling	kg	INA	0.023	0	0.023
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 v3.06

Additional information

In this section additional information not derived from the LCA-based calculations regarding the production process of CALIK DNV-616 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 certification to ZDHC requirements.

Ø ZDHC
Zero Discharge of Hazardous Chemicals

05 | REFERENCES & CONTACT

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
- Ecoinvent v3.7.1 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 2018:08 V1.02

Contact

Third party verifier:

Ing. Luca Giacomello, PMP®

Via Leonardo Fea 35

10148 Torino- Italy

Giacomello
Technical and Environmental Consulting

Owner of the Declaration:

ÇALIK DENİM TEKSTİL SANAYİ VE TİCARET A.Ş.

1. Organize Sanayi Bolgesi 2. Cadde No:6 44900 Yeşilyurt, Malatya / TURKEY

www.calikdenim.com

ÇALIK DENIM

LCA Practitioner & EPD Design:

Semtrio Sustainability Consulting

BUDOTEK Teknopark, No 4/21, Umraniye Istanbul Turkey

www.semtrio.com

SEMTRIO

PASSION FOR DENIM
PASSION FOR LIFE™

ÇALIK DENIM

ÇALIK DENIM

1. Organize Sanayi Bolgesi 2. Cadde No:6
44900 Yeşilyurt, Malatya / TURKEY

Tel. +90 (212) 459 26 26 pbx
Fax: +90 (212) 677 41 17