



# Environmental Product Declaration

for **Smart Rigid Jeans** trousers  
in accordance with ISO 14025

## 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

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EPD Registration Number: S-P-01790



THE INTERNATIONAL EPD® SYSTEM



ENVIRONMENTAL PRODUCT DECLARATIONS



EPD for 90-100% cotton & 0-10% polyester jeans



# 01 PROGRAMME INFORMATION

## Programme Operator

EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden  
E-mail: [info@environdec.com](mailto:info@environdec.com)

Regional Office: EPD Turkey, Nef 09 B Blok 7/15 Kağıthane/ Istanbul, Turkey  
[www.epdturkey.org](http://www.epdturkey.org)

## Product Category Rules (PCR)

Trousers, shorts and slacks and similar garments  
2019:06, version 1.01  
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](http://www.environdec.com).  
Chair of the PCR review: Hüdai Kara Contact via: [info@environdec.com](mailto:info@environdec.com)

## Verification

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

EPD process certification  EPD verification

## Third Party Verifier

Nikolay Minkov, Eng. MSc.  
LCA and Sustainability Specialist, Independent EPD Verifier  
Schwartzkopffstrasse 3, 10115, Berlin, Germany  
E-mail: [niks.minkov@gmail.com](mailto:niks.minkov@gmail.com)  
Accredited or approved by: The International EPD® System

## Data Follow Up

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

YES  NO

## LCA Study & EPD Design Conducted By

Semtrio Sustainability Consulting  
AND Plaza No:10-12 Kozyatagi Istanbul/Turkey  
[www.semtrio.com](http://www.semtrio.com)

**UN CPC Class:** 2823

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**Owner of the Declaration: Martelli**  
**Manufacturer: Sanko Tekstil İşletmeleri San. ve Tic. A.S. Martelli Şubesi**  
**Organize Sanayi Bölgesi 3. Cadde No:13, İnegöl/Bursa, Turkey**

Martelli has the sole ownership, liability and responsibility of this EPD. For further information about this EPD or its content, please contact Mr. Burak Can at [bcan@martelli.com.tr](mailto:bcan@martelli.com.tr)

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

A woman with blonde hair, wearing a black leather jacket, a grey top, blue jeans with rips, and brown boots, is walking on a sandy path. She has a large brown backpack. The path is bordered by a rustic wooden fence. In the background, there is a beach, the ocean, and a cloudy sky. The entire image has a semi-transparent dark grey overlay.

02

**MARTELLI**  
**WHERE COLLECTIONS**  
**BECOME REALITY**

## DISCOVER MARTELLI

Martelli is an exclusive denim production, washing and finishing facility. Creating limited-edition sample runs for ISKO and exclusive collections for deluxe labels.

With a facility over 25 000 square meters and a team of over 300 research and development specialists, Martelli Turkey is capable to cover 30 000 pieces of denim in their laundry per month.

## HISTORY

As a denim laundry with more than 50 years of experience, Martelli is known for its creativity and innovation in denim finishing and garment dyeing. In 2004 Martelli Turkey was established by a joint-venture between Martelli Group and ISKO. Over the years Martelli Turkey and Martelli Italy have worked closed and shared their knowledge to renovate and challenge itself to add value to the products and denim and the fashion world. Martelli Turkey is now operating as an exclusive denim laboratory for ISKO.

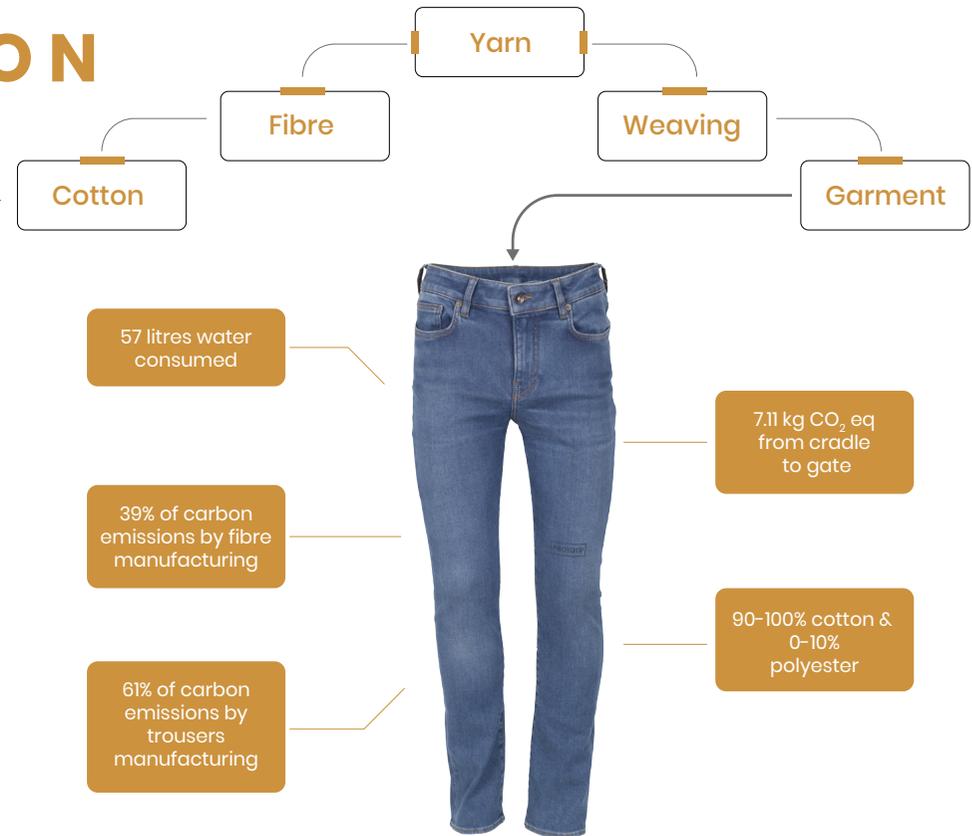




03 PRODUCT INFORMATION

# PRODUCT INFORMATION

**Smart Rigid Jeans** process is applied to obtain a mid vintage denim look. With this process, a more slub and effect character of denim fabric can be seen.



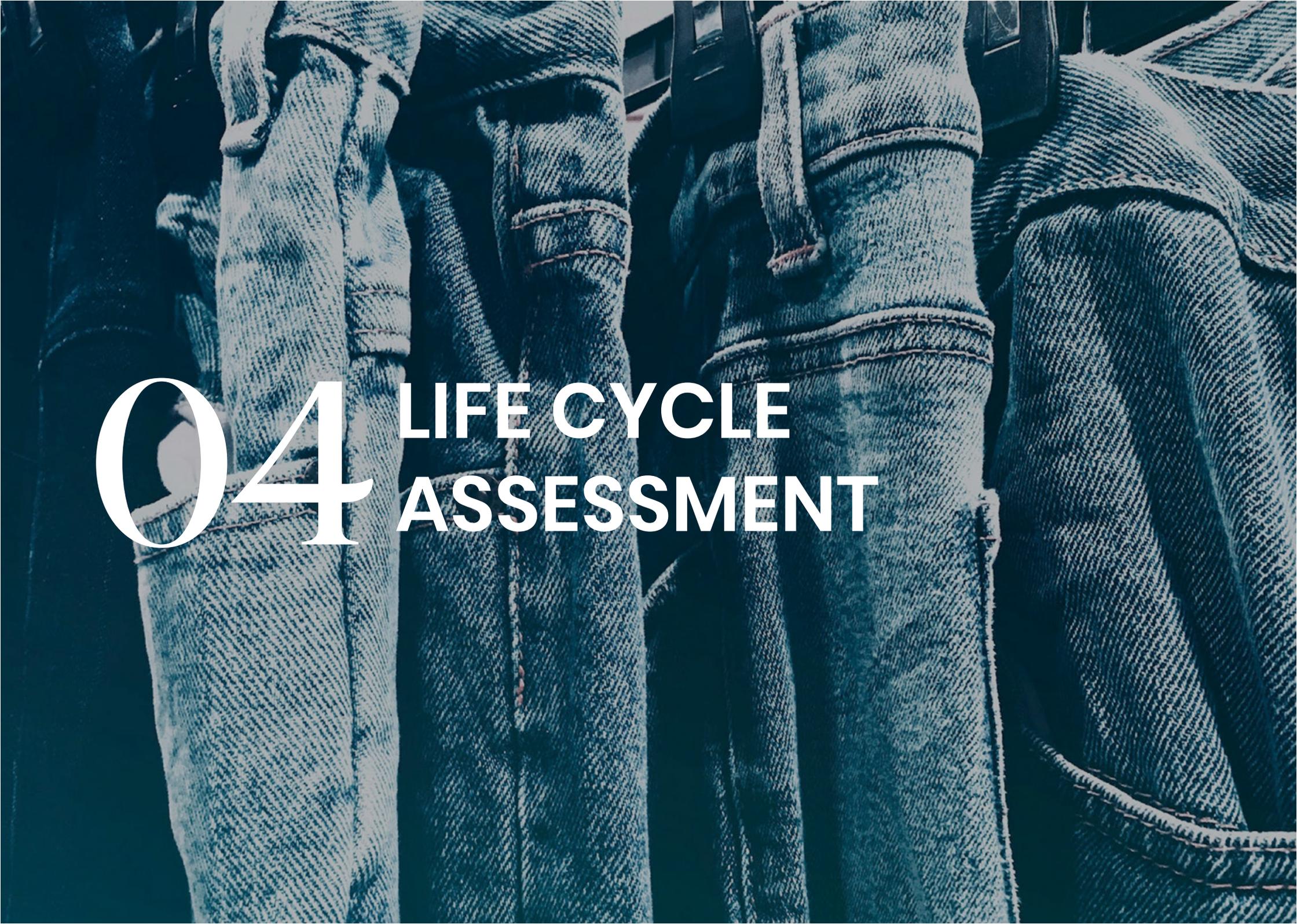
Product Characteristics*	Test Method	Units
For woven materials: Abrasion Strength	EN ISO 12947-2	Over 20000 rubs
For woven materials: Tear Strength	ASTM D1424	Warp: 4725 kg Weft: 5079kg
For woven materials: Tensile Strength	ASTM D5034	Warp: 45.52 kg Weft: 29.33 kg
Voluntary: For woven materials: Seam Slippage	ASTM D1683	7 kg (min)
pH of water extract	ISO 3071	7.2
Colour fastness to artificial light: Xenon arc fading lamp test	EN ISO 105 B02	6
Acid and Alkaline Perspiration	EN ISO 105 E04	4.5
Dry and Wet Rubbing	AATCC 8	Dry: 4.0 Wet: 2.5

Materials in the Product	% in the product	Material Composition	Compliance with REACH
Fabric	92.4%	90-100% cotton 1-10% polyester	✓
Paper Labels	0.79%	100% Paper	✓
Metal Accessories	6.8%	100% Metal	✓

Chemicals used in Martelli manufacturing comply with the 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).

**Packaging:** PE packaging film is used to cover the end products. Classified as Distribution Packaging; designed for the purposes of transport, handling and/or distribution.

*\*The functional unit does not take into account all technical, functional and aesthetic properties of the product. For comparability of products based on the same PCR, these aspects shall also be considered. Weave, Mass per unit area, Width are not disclosed due to being trade secrets.*



**04 LIFE CYCLE  
ASSESSMENT**

# LIFE CYCLE ASSESSMENT

The International EPD® System has adopted an LCA calculations procedure, which is separated into three different life cycle stages:

- **Upstream module (from cradle-to-gate):** Harvesting of cotton, extraction of man-made fibres, production of yarns and production of fabric, extraction and production of the chemicals.
- **Core module, manufacturing processes (from gate-to-gate):** Transportation of raw materials to the core, manufacturing processes, impacts generated by fuel burned, impacts due to the electricity production and transport with in the production plant.
- **Downstream Processes (from gate-to-grave):** Transportation from preparation to an average retailer. Use phase and end of life phase are excluded from the system boundary due to the aim of the EPD is to be used as B2B communication. The impacts of the downstream processes are negligible as being lower than 1% in the entire system boundary and not declared separately in the EPD.

## Geographical scope of the EPD

Worldwide

## Declared Unit

The declared unit is defined as 1 pair of trousers.

## EPD Type (System Boundry)

Cradle-to-customer

## Data Collection

Specific data (primary data) was used for the Core Module and gathered from the Martelli Manufacturing Plant. The only main material in the end product is fabric and LCA information has been provided by the fabric manufacturer and inserted into Simapro. Data represents the period from 1<sup>st</sup> January 2019 to 31<sup>st</sup> August 2019. For secondary data Ecoinvent v3.5 datasets were used. LCA was modelled in SimaPro v9.0.0.31.

## Allocation

No allocation conducted for input materials and energy consumption was collected specifically per declared unit.

## Cut-Off Rules

Waste and wastewater generated from core presses have been excluded due to the cut-off rule. Impacts caused by treatment operations have been calculated lower than 1% environmental relevance. Transportation to core processes was found negligible <1% for all categories.

## Calculation Methods

All resource use values are calculated from Cumulative Energy Demand V1.11 in SimaPro outputs; net use of fresh water from SimaPro Inventory results. Potential environmental impacts are calculated with the CML-IA baseline V 3.05, Acidification potential from CML non-baseline V 3.04, Formation potential of tropospheric ozone (POCP) from LOTOS-EUROS as applied in ReCiPe Midpoint (H) v 1.13 2008, methods in SimaPro software.

UPSTREAM

- Electricity Consumption
- Fuel Consumption
- Water Consumption

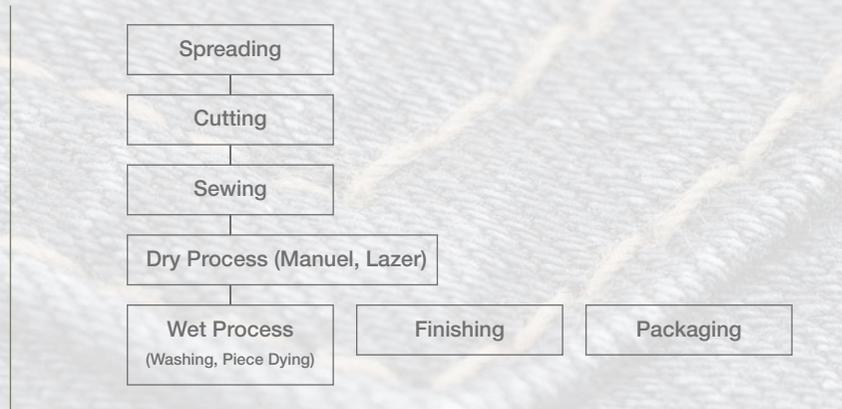


- Waste Treatment
- Wastewater Treatment
- Emissions

Transport to Core Process

CORE

- Electricity Consumption
- Fuel Consumption
- Water Consumption

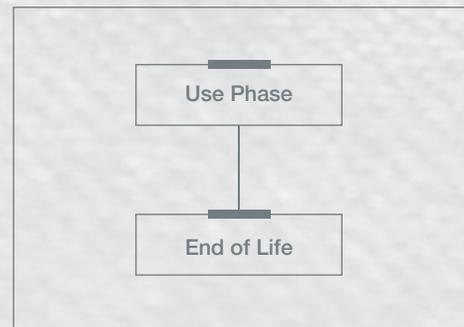


- Waste Treatment
- Wastewater Treatment
- Emissions

Transport to Customers

System Boundary

DOWNSTREAM



- Waste
- Wastewater
- Emissions



# 05 ENVIRONMENTAL PERFORMANCE

Resource Use

Parameter		Unit	Upstream	Core	Total
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	15.83	4.88	20.71
	Used as raw materials	MJ, net calorific value	0.00	0.00	0.00
	TOTAL	MJ, net calorific value	15.83	4.88	20.71
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	40.7	58.7	99.3
	Used as raw materials	MJ, net calorific value	0	0	0
	TOTAL	MJ, net calorific value	40.67	58.7	99.3
Secondary material	kg	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	
Net use of fresh water	m <sup>3</sup>	0.618	0.057	0.675	

Output Flows

Parameter	Unit	Upstream	Core	Total
Components for reuse	kg	-	0	-
Material for recycling	kg	-	0.042	0.042
Materials for energy recovery	kg	-	0	-
Exported energy, electricity	MJ	-	0	-
Exported energy, thermal	MJ	-	0	-

Environmental Impacts

Parameter		Unit	Upstream	Core	Total
Global warming Potential (GWP100a)	Fossil	kg CO <sub>2</sub> eq	2.81	4.30	7.11
	Biogenic	kg CO <sub>2</sub> eq	0.250	0.081	0.331
	Land use and land transformation	kg CO <sub>2</sub> eq	0.011	0.016	0.027
	Total	kg CO <sub>2</sub> eq	3.07	4.39	7.5
Abiotic depletion (elements)	kg Sb eq	1.10E-05	7.71E-07	1.17E-05	
Abiotic depletion (fossil fuels)	MJ	34.3	52.0	86	
Photochemical oxidation	kg NMVOC eq	0.009	0.009	0.018	
Acidification	kg SO <sub>2</sub> eq	0.023	0.018	0.041	
Eutrophication	kg PO <sub>4</sub> <sup>3-</sup> eq	0.004	0.002	0.006	
Water scarcity	m <sup>3</sup> eq	21.1	1.208	22.3	

Waste Production

Parameter	Unit	Upstream	Core	Total
Hazardous waste	kg	-	0.006	0.006
Non-hazardous waste	kg	-	0.008	0.008
Radioactive waste	kg	-	0.00	0.00

- 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 v3.01
- The International EPD® System | Trousers, shorts and slacks and similar garments. 2019:06, version 1.01
- **Ecoinvent 3.5** | <http://www.ecoinvent.org>
- **SimaPro LCA Software** | <https://simapro.com>
- **Martelli Denim** | [www.martellidenim.com](http://www.martellidenim.com)
- **LCA Report for Martelli Denim**

## Third Party Verifier

Nikolay Minkov, Eng. MSc.

LCA and Sustainability Specialist, Independent EPD Verifier

Schwartzkopffstrasse 3, 10115, Berlin, Germany

E-mail: [niks.minkov@gmail.com](mailto:niks.minkov@gmail.com)

Accredited or approved by: The International EPD® System



## Owner of the Declaration

Sanko Tekstil İşletmeleri San. ve Tic. A.Ş. Martelli Şubesi

Havaalanı Cd. No:13, 16400 Süleymaniye Osb/İnegöl/Bursa, Turkey

[www.martellidenim.com](http://www.martellidenim.com)



## LCA Author & EPD Design

Semtrio Sustainability Consulting AND Plaza No:10-12 Kozyatagi

Istanbul | Turkey

[www.semtrio.com](http://www.semtrio.com)



Sanko Tekstil İşletmeleri San. ve Tic. A.Ş. Martelli Şubesi  
*Organize Sanayi Bölgesi 3. Cadde, No:13, İnegöl/Bursa, Turkey*

[Info@martellidenim.com](mailto:Info@martellidenim.com)

+90 224 714 85 17

+90 224 714 85 11

