Environmental Product Declaration

ISKO™

for NZ-287742 and NZ-288192 denim garment in accordance with ISO 14025

Programme

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

Programme Operator

EPD International AB & EPD Turkey

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EPD® THE INTERNATIONAL EPD® SYSTEM

TURKEY EPD® ENVIRONMENTAL PRODUCT DECLARATIONS

Owner of the Declaration: ISKO™ ISKO Division, Sanko Tekstil Isletmeleri San. ve Tic. A.S. Organize Sanayi Bölgesi 3.Cadde 16400 İnegöl/Bursa/Turkey

Garment Manufacturer: Cross Textiles – Şık Makas Giyim Sanayi ve Ticaret A.Ş. 15 Temmuz Mah, 1507 Sok No:5 Bağcılar /İstanbul/TURKEY

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)	Trousers, shorts and slacks and similar garments 2019:06, version 1.02 UN CPC 282 General Program Instructions 3.01
PCR Review Was Conducted By	The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. Chair of the PCR review: Hüdai Kara Contact via: info@environdec.com
Verification	Independent verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☑ EPD verification
Third Party Verifier	Vladimír Kočí, PhD Šárecká 5, 16000 Prague 6, Czech Republic www.lcastudio.cz Approved by: The International EPD® System Technical Committee, supported by the Secretariat
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 BUDOTEK Teknopark, No 4/21, Umraniye / Istanbul Turkey www.semtrio.com

ISKO™ has the sole ownership, liability and responsibility of this EPD. For further information about this EPD or its content, please contact ***Mrs. Ebru Ozkucuk Guler*** at sustainability@isko.com.tr.

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

OUR DENIM

"Denim fabrics look at people, and we explore our denim world through their lifestyles."

ISKO™, the leading ingredient brand on a global level, is the first denim producer in the world to be recognized with the Nordic Swan and EU Ecolabel certifications. It has a production capacity of 300 million meters of fabric per year, with 2000 state-of-the-art automatic looms. It creates the soul of jeans, the essence of the most popular fashion style that has become universal.

ISKO™'s vision is as international as the love for denim. It can adapt to different contexts and markets, becoming a point of reference for the most famous designers and inspiring new fashion trends.

INNOVATION since 1904

With a global presence and offices in 35 countries, ISKO™ is part of SANKO TEKSTIL, the textile division of SANKO Group.

ISKO™'s route to textiles began in 1904 and in 1989 we opened our 300,000 m2 manufacturing plant, making ISKO™ the world's largest denim manufacturer under one roof.

ISKO Philosophy

PERFORMACE

ISKO™ is the denim specialist, all fabrics are characterized by an advanced technology and the deeply-rooted care for quality, during all the integrated production from yarn to finishing processes.

INNOVATION

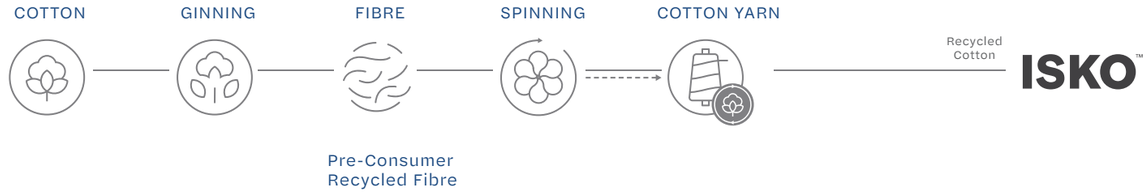
ISKO™'s mission is to always keep in touch with the latest trends and also to anticipate times. ISKO™'s research center is certified by the Turkish government and it consists of more than 25 textile engineers, specialists in creating new denim products.

SUSTAINABLE

Sustainability at ISKO™ we rethink our sourcing strategies and refuse to source more material than we need. Our waste management innovations reduce the environmental performance impact from yarn to fabric production, by using reused and recycled materials.

OUR COMMITMENT

Sustainability is inherent to ISKO's DNA: every day we value responsibility and a 360-degree innovation. This is something we take seriously, and we are dedicated to doing this with beauty, heart, and creativity.



CERTIFIED RECYCLED MATERIALS USAGE

At ISKO™ we blend certified recycled materials with the reused cotton. Producing recycled polyester uses less energy than making virgin polyester and lessens the dependence on petroleum as a raw material. Both factors reduce our overall carbon footprint.

CREATING REUSED COTTON FROM LOSS

When raw cotton is processed into yarn, 10% of it is typically expected to be lost as waste. At this stage ISKO™ differentiates itself as we continually trace, track, and monitor this loss and reuse the cotton by adding it back into the spinning process.

All our reused cotton is Content Claim Standard (CCS) certified.

Product NZ-287742

Content Declaration

Materials in the Product	% in the product	Material Composition
Denim Fabric	> 90%	%60CO %20RUC %20 PRE
Lining	< 4%	%74RCY PES %13RCY CO %13ORJ.CO
Fusing	< 1%	100% Polyester
Paper Labels	< 1%	100% Paper
Metal Accessories	< 2%	100% Metal

-Packaging: PE packaging film is used to cover the end products.

-Classfied as Distribution Packaging: designed for the purposes of transport, handling and/or distribution.

-Chemicals used in ISKO™ and Cross Textiles 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).

Technical Specifications*

Characteristics	Reference Standard	Units	Results
Constructive Characteristics			
Composition	Regulation EU No 1007/2001	%	60% CO 20% RUC 20% PRE
For woven materials: Weave	ISO 3572	-	3/1 RHT
Mass per unit area	(ASTM D3776)	g/m²	378
Width	(ASTM D3774)	cm	160
Dyeing			
Colour Index	-	-	-
Performance Characteristics			
For woven materials: Abrasion strength (Martindale)	ISO 12947-2	grade	-
For woven materials: Tear strength	ASTM D1424	grade	Warp: 4667 gr Weft: 4450 gr
For woven materials: Tensile strength	ASTM D5034	grade	Warp: 74.1 kg Weft: 45 kg
pH of water extract	EN ISO 3071	grade	7
Colour Fastness			
Colour fastness to artificial light: Xenon arc fading lamp test	EN ISO 105 B02	grade	-
Acid and alkaline perspiration	EN ISO 105 E04	grade	-
Dry and wet rubbing	AATCC 8	grade	Dry: 3 - Wet: 1

Product NZ-288192

Content Declaration

Materials in the Product	% in the product	Material Composition
Denim Fabric	> 90%	%78CO %21RCO %1EA
Lining	< 5%	%74RCY PES %13RCY CO %13ORJ.CO
Fusing	< 2%	100% PES
Paper Labels	< 1%	100% Paper
Metal Accessories	< 2%	100% Metal

-Packaging: PE packaging film is used to cover the end products.

-Classfied as Distribution Packaging: designed for the purposes of transport, handling and/or distribution.

-Chemicals used in ISKO™ and Cross Textiles 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).

Technical Specifications*

Characteristics	Reference Standard	Units	Results
Constructive Characteristics			
Composition	Regulation EU No 1007/2001	%	78% CO 21% RCO 1% EL
For woven materials: Weave	ISO 3572	-	3/1 RHT
Mass per unit area	(ASTM D3776)	g/m²	342
Width	(ASTM D3774)	cm	138
Dyeing			
Colour Index	-	-	-
Performance Characteristics			
For woven materials: Abrasion strength (Martindale)	ISO 12947-2	grade	-
For woven materials: Tear strength	ASTM D1424	grade	Warp: 6740 gr Weft: 3170 gr
For woven materials: Tensile strength	ASTM D5034	grade	Warp: 89.9 kg Weft: 36.1 kg
pH of water extract	EN ISO 3071	grade	6.6
Colour Fastness			
Colour fastness to artificial light: Xenon arc fading lamp test	EN ISO 105 B02	grade	-
Acid and alkaline perspiration	EN ISO 105 E04	grade	-
Dry and wet rubbing	AATCC 8	grade	Dry: 2.5 - Wet: 1

UPSTREAM

- Production of Fibres and Yarns
- Production of Chemicals and Dyes
- Denim Fabric Manufacturing
- Production of Packaging Materials
- Recycling of any Recycled Input
- Production of Accesories and Other Materials

CORE

- Transport
- Spreading of the Fabric
- Cutting of the Fabric
- Sewing
- Manuel Processes / Laser
- Washing
- Finishing
- Packaging

DOWNSTREAM

- Transport to an average retailer platform

System Boundary

- Retail
- Customer Travel
- Customer Use
- End-of-Life

Time representativeness: The production data in the LCA study represents the period from 1st January 2021 and 31th January 2021

Database and LCA software used: SimaPro v9.1 software with Ecoinvent v3.6 database

Excluded lifecycle stages: Retail, Customer Travel, Customer Use and End-of-life stages have been excluded in the system boundary and not taken into account in the LCA study.

Geographical scope of the EPD	Worldwide
Functional Unit	1 pair of jeans delivered to an average retailer platform
EPD Type (System Boundary)	Cradle-to-gate with options
Data Quality and Data Collection	Site specific data is collected for the core and upstream processes from Cross Textiles and ISKO™ for the period between 1st January to 31th January 2021. Samples are produced for both products. Specific energy and chemical consumption values are collected from the manufacturing per load per machine. Selected generic data is used for upstream processes and obtained from Ecoinvent v3.6. Specific and selected generic data achieve the ISO 14044 data quality equirements and time representatives. Denim fabric makes the main component of the jeans and impacts caused by denim fabric manufacturing is solely depending on the denim mill. Denim fabric data is collected from the denim mill per individual product.
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. There has been no allocation conducted for the LCA study.
Calculation Methods	All resource use values are calculated from Cumulative Energy Demand V1.11; net use of fresh water has been calculated from SimaPro Inventory result outputs. Potential environmental impacts are calculated with the CML-IA baseline V 3.06; ReCiPe 2016 Midpoint (H) v 1.04; Formation potential of tropospheric ozone (POCP) from LOTOS-EUROS as applied in ReCiPe Midpoint (H) v 1.13, 2008; IPCC 2013 GWP 100a V1.03 and USEtox 2 (recommended + interim) v.1.0 and Water Scarcity indicator from Pfıster et al 2009 v1.02 methods in SimaPro software.
Cut-off Rules	Life Cycle Inventory data for a minimum of 99 % of total inflows to the three life cycle stages have been included. Waste 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. Regarding material and chemical inputs, no cut-off rule has been applied.

More information regarding to ISKO™ and its products is available on www.isko.com.tr.

Resource Use for NZ-287742

Resourse Use							
Parameter		**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Primary Energy Resources Renewable	**Use as energy carrier**	MJ, net calorific value	24.91	0.87	0.863	0.535	27.17
	Use as raw materials	MJ, net calorific value	0	0	0	0	0
	TOTAL	MJ, net calorific value	24.91	0.87	0.863	0.535	27.17
Primary Energy Resources Nonrenewable	**Use as energy carrier**	MJ, net calorific value	68.24	4.9	8.4	19.6	101.14
	Use as raw materials	MJ, net calorific value	0	0	0	0	0
	TOTAL	MJ, net calorific value	68.24	4.9	8.4	19.6	101.14
Secondary Material		kg	0.421	0.021	0	0	0.44
Renewable Secondary Fuels		MJ, net calorific value	0	0	0	0	0
Nonrenewable Secondary Fuels		MJ, net calorific value	0	0	0	0	0
Net use of Fresh Water		m^3	0.464	0.008	0.018	0.004	0.49

Waste Production for NZ-287742

Waste Production						
Parameter	**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Hazardous Waste	kg	0.00064	INA	0.021	0	0.022
Non-hazardous Waste	kg	0.00470	INA	0.187	0	0.191
Radioactive Waste	kg	0	INA	INA	0	0

INA=Indicator Not Available

Potential Environmental Impacts forNZ-287742

Environmental Impacts							
Parameter		**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Global Warming Potential (GWP100a)	Fossil	kg CO_2 eq	4.75	0.29	0.475	1.23	6.75
	Biogenic	kg CO_2 eq	0.12	0.038	0.005	0.016	0.18
	Land Use and Land Transformation	kg CO_2 eq	0.32	0.001	1.31E-04	9.44E-04	0.32
	TOTAL	kg CO_2 eq	5.19	0.333	0.481	1.245	7.24
Acidification Potential (AP)		kg SO_2 eq	0.02	0.011	0.001	0.006	0.04
Eutrophication Potential (EP)		kg PO_4^{3-} eq	0.02	0.001	0.003	0.001	0.02
Photochemical oxidant formation potential (POFP)		kg NMVOC eq	0.01	0.002	0.001	0.008	0.02
Abiotic Depletion Potential-Elements		kg Sb eq	4.47E-05	1.48E-05	7.98E-07	2.85E-05	8.88E-05
Abiotic Depletion Potential-Fossil Fuels		MJ, net calorific value	60.75	4.0	7.2	17.5	89.50
Water Scarcity Potential		m^3 eq	19.96	0.3	0.960	0.091	21.29

Output Flows for NZ-287742

Output Flows						
Parameter	**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Components For Reuse	kg	0	INA	0	0	0
Material For Recycling	kg	0.0234	INA	0.079	0	0.102
Materials For Energy Recovery	kg	0	INA	0	0	0
Exported energy, Electricity	MJ	0	INA	0	0	0
Exported energy, Thermal	MJ	0	INA	0	0	0

INA=Indicator Not Available

Resource Use for NZ-288192

RESOURCE USE							
Parameter		**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Primary Energy Resources Renewable	**Use as energy carrier**	MJ, net calorific value	29.055	0.99	1.039	0.392	31.48
	Use as raw materials	MJ, net calorific value	0	0	0	0	0
	TOTAL	MJ, net calorific value	29.055	0.99	1.039	0.392	31.48
Primary Energy Resources Nonrenewable	**Use as energy carrier**	MJ, net calorific value	78.66	6.4	8.0	14.4	107.4
	Use as raw materials	MJ, net calorific value	0	0	0	0	0
	TOTAL	MJ, net calorific value	78.66	6.4	8.0	14.4	107.4
Secondary Material		kg	0.173	0.020	0	0	0.193
Renewable Secondary Fuels		MJ, net calorific value	0	0	0	0	0
Nonrenewable Secondary Fuels		MJ, net calorific value	0	0	0	0	0
Net use of Fresh Water		m^3	0.528	0.013	0.020	0.003	0.563

Waste Production for NZ-288192

Waste Production						
Parameter	**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Hazardous Waste	kg	0.00055	INA	0.016	0	0.016
Non-hazardous Waste	kg	0.00406	INA	0.210	0	0.214
Radioactive Waste	kg	0	0	INA	0	0

INA=Indicator Not Available

Potential Environmental Impacts for NZ-288192

Environmental Impacts							
Parameter		**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Global Warming Potential (GWP100a)	Fossil	kg CO_2 eq	5.43	0.36	0.455	0.90	7.14
	Biogenic	kg CO_2 eq	0.130	0.035	0.006	0.012	0.182
	Land Use and Land Transformation	kg CO_2 eq	0.366	0.004	1.38E-04	6.93E-04	0.371
	TOTAL	kg CO_2 eq	5.923	0.398	0.461	0.913	7.69
Acidification Potential (AP)		kg SO_2 eq	0.024	0.009	0.001	0.005	0.038
Eutrophication Potential (EP)		kg PO_4^{3-} eq	0.018	0.001	0.003	0.001	0.022
Photochemical oxidant formation potential (POFP)		kg NMVOC eq	0.016	0.002	0.001	0.006	0.025
Abiotic Depletion Potential-Elements		kg Sb eq	5.32E-05	1.50E-05	8.77E-07	2.09E-05	9.00E-05
Abiotic Depletion Potential-Fossil Fuels		MJ, net calorific value	69.97	5.3	6.8	12.8	95.0
Water Scarcity Potential		m^3 eq	22.68	0.5	1.026	0.067	24.3

Output Flows for NZ-288192

Output Flows						
Parameter	**Unit**	**Upstream-Denim Fabric**	**Upstream-Garment Maker**	**Core**	**Downstream**	**Total**
Components For Reuse	kg	0	INA	0	0	0
Material For Recycling	kg	0.0202	INA	0.058	0	0.078
Materials For Energy Recovery	kg	0	INA	0	0	0
Exported energy, Electricity	MJ	0	INA	0	0	0
Exported energy, Thermal	MJ	0	INA	0	0	0

INA=Indicator Not Available

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

ISO 14020: 2000 Environmental labels and declarations — General principles

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/

The International EPD® System | Trousers, shorts and slacks and similar garments 2019:06, version 1.02 UN CPC 282

Ecoinvent 3.6 database | http://www.ecoinvent.org

SimaPro LCA Software | https://simapro.com

ISKO™ | http://www.isko.com.tr

GaBi database | Cotton fiber (organic) (at gin gate) http://www.gabi-software.com/in

Van der Velden, N.M., Patel, M.T., Vogtlander, J.G., 2014 / LCA benchmarking study on textiles made of cotton, polyester, nylon, acryl, or elastane. | International Journal of Life Cycle Assessment 19, 331 - 356.

Environmental Improvement Potential of textiles (IMPRO Textiles) |
https://publications.europa.eu/en/publication-detail/-/publication/f8d0def8-4fd5-4d84-a308-1dfa5cf2e823/language-en

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Accredited or approved by: The International EPD® System

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More information about ISKO™'s approach to sustainability and its corporate social resposibility initiatives available via the CSR Team at sustainability@isko.com.tr

ISKO™

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