



Environmental Product Declaration

ISKO™

For 26630 REP Finished denim fabric 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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THE INTERNATIONAL EPD® SYSTEM



ENVIRONMENTAL PRODUCT DECLARATIONS

This EPD covers the following product group: 26630 REP Finished in accordance with ISO 14025.

UN CPC CODE: 2674, Woven fabrics of synthetic staple fibres, containing 85% or more by weight of synthetic staple fibres.

Owner of the Declaration: ISKO™

Manufacturer: ISKO Division, Sanko Tekstil Isletmeleri San. ve Tic. A.S. Organize Sanayi Bölgesi 3.Cadde 16400 Inegol / Bursa / 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) | Woven, Knitted or Crocheted Fabrics (of Synthetic Fibres) 2012:14 version 2.12 UN CPC 267, 281 |
| 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: Barbara Nebel Contact via: info@environdec.com |
| Verification | Independent verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> 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 Accredited or approved by: The International EPD® System |
| Data Follow Up | Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| LCA Study & EPD Design Conducted By | Semtrio® Sustainability Consulting AND Plaza No:10-12 Kozyatagi 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



PERFORMANCE

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.



GLOBAL RECYCLED STANDARD (GRS)

The GRS is a holistic certification that verifies recycled input material, tracks it from input to the final product, and ensures responsible social, environmental practices and chemical use through production. The desired effect of the GRS is to provide brands with a tool for more accurate labelling, to encourage innovation in the use of reclaimed materials, to establish more transparency in the supply chain, and to provide better information to consumers.



RECYCLED CLAIM STANDARD (RCS)

The RCS is a chain of custody standard that verifies recycled input material that tracks recycled raw materials through the supply chain from input to the final product. The standard was developed through work by the Materials Traceability Working Group, part of Outdoor Industry Association's (OIA) Sustainability Working Group. The RCS uses the chain of custody requirements of the Content Claim Standard (CCS).



26630 REP Finished

ISKO™ denim is the primary ingredient of jeans. The company offers a product range going from stretched fabrics to authentic denim constructions, but all with advanced technical features. In our top-notch denim mill, ISKO™ develops unique textile concepts applying scientific expertise and research to deliver high-performance denim fabrics.

ISKO™'s premium technology guarantees day long comfort and freedom of movement, extreme softness to the feel and touch, all thanks to a range of ISKO™ patents ensuring the highest quality standards and a close attention to responsible innovation.



Technical Specifications*

| Physical Parameter Evaluated | Test Method | Feature | UOM | Actual Value |
|------------------------------|-------------|---------|--------|--------------|
| Skew Movement in Washing | AATCC 179 | Right | % | 2.4 |
| | | Left | % | -1.8 |
| Tensile Strength | ASTM D5034 | Wrap | kg | 103.8 |
| | | Weft | kg | 34.7 |
| Tear Strength | ASTM D1424 | Wrap | g | 6110 |
| | | Weft | g | 1640 |
| CF to Crocking | AATCC 8 | Dry | Rating | 4.5 |
| | | Wet | Rating | 4.5 |
| pH | ISO 3071 | - | - | 7 |
| Stiffness | ISO 12945-2 | - | kg | - |
| Elongation | ASTM D3107 | - | % | - |

*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. Thermal insulation properties are not relevant to disclose and weight per unit is a confidential business information.

Additional Environmental Information

Certifications & Partnerships

ISO 9001:2015 ISO 14001:2015 ISO 27001:2013 ISO 50001 OHSAS 18001:2014

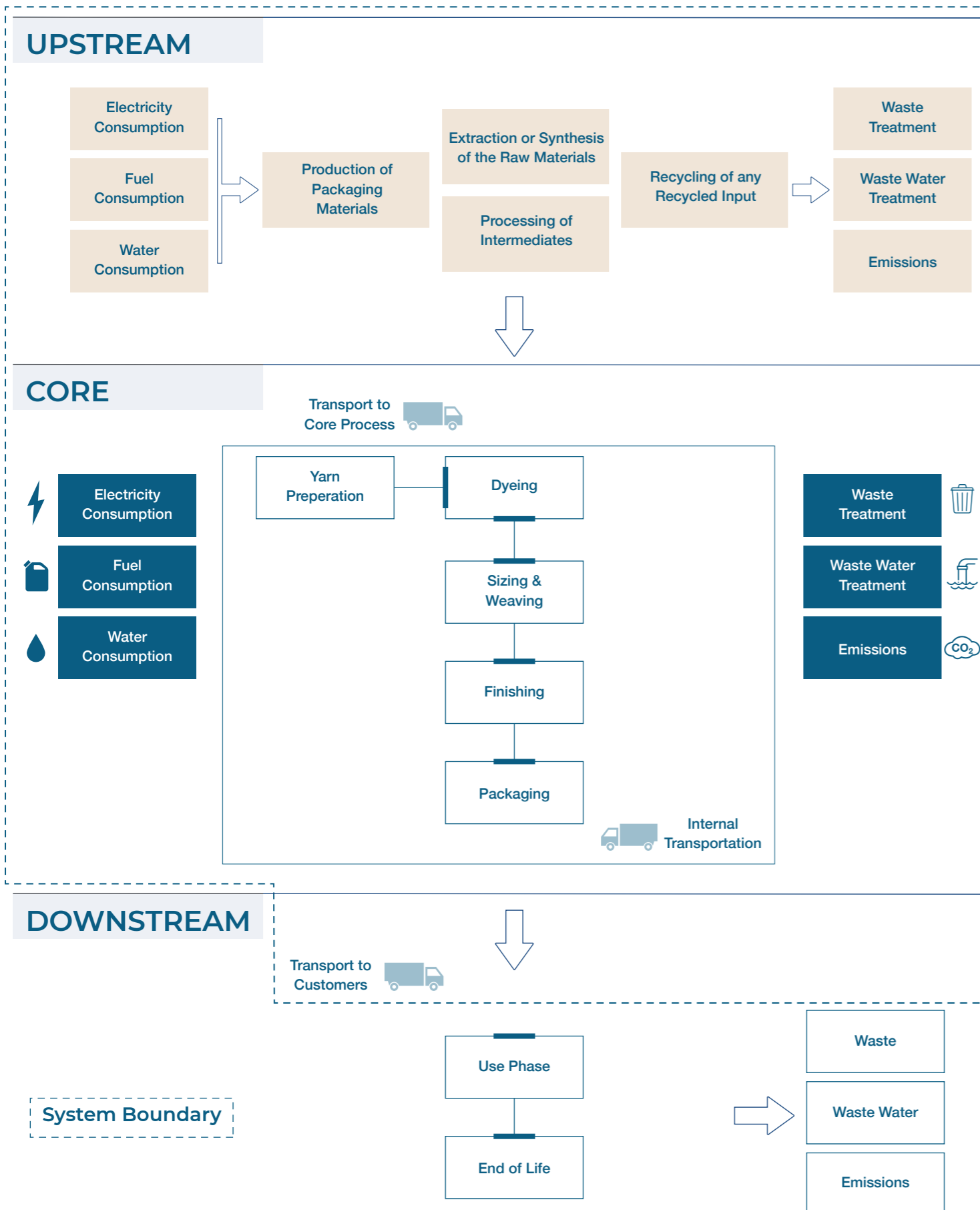
Chemicals used in ISKO™ manufacturing comply with the Regulation (EC) No 1907/2006 of the European parliament and of the council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).



Content Declaration

| Materials | Amount |
|---------------------------|--------|
| Cotton Fibre | < 5% |
| Man-Made Fibres | > 95% |
| Chemicals | Amount |
| Sodium Hydroxide | < 10% |
| Reducing agent | < 10% |
| Sizing Chemical | < 10% |
| Other Organic Chemicals | 5-25% |
| Other Inorganic Chemicals | < 10% |

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 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 man-made fibres, processing into warp and weft yarns, 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 module (from gate-to-customer):** Transportation from preparation to an average retailer (distribution). 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, apparel production (cutting, sewing), use phase (wearing, washing, drying) and end-of-life phases are not evaluated in this LCA study.

| | |
|--------------------------------------|---|
| Geographical scope of the EPD | Worldwide |
| Functional Unit | 1 square meter of denim fabric |
| EPD Type (System Boundary) | Cradle-to-Customer |
| Data Collection | Specific data (primary data) was used for the Core Module and gathered from the ISKO™ Manufacturing Plant. The manufacturing data are monitored and recorded in ISKO™ data collection system specifically per unit of product. Data represents the period from 1st January 2019 to 31th August 2019. For upstream module, selected generic data (secondary data) was applied and was obtained from Ecoinvent v3.5. All databased are in line with ISO 14044 data quality requirements. LCA was modelled in SimaPro v9.0.0.31. |
| Allocation | No allocation conducted for input materials and energy consumption was collected specifically per functional unit. |
| 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 3.05; ReCiPe 2016 Midpoint (H) v 1.02; 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 methods in SimaPro software. |
| Cut-off Rules | Cut-off rule of 1% regarding waste and wastewater treatment was applied. Regarding to 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 1 sqm of 26630 REP Finished

| RESOURCE USE | | | | | | |
|---------------------------------------|-------------------------|-------------------------|-------|------------|-------|------|
| Parameter | Unit | Upstream | Core | Downstream | Total | |
| Primary Energy Resources Renewable | Use as energy carrier | MJ, net calorific value | 0.469 | 1.419 | 0.001 | 1.89 |
| | Use as raw materials | MJ, net calorific value | 0 | 0 | 0 | 0 |
| | TOTAL | MJ, net calorific value | 0.469 | 1.419 | 0.001 | 1.89 |
| Primary Energy Resources Nonrenewable | Use as energy carrier | MJ, net calorific value | 10.6 | 25.8 | 0.146 | 36.5 |
| | Use as raw materials | MJ, net calorific value | 0 | 0 | 0 | 0 |
| | TOTAL | MJ, net calorific value | 10.57 | 25.8 | 0.146 | 36.5 |
| Secondary Material | kg | 0.193 | 0 | 0 | 0.193 | |
| Renewable Secondary Fuels | MJ, net calorific value | 0 | 0 | 0 | 0 | |
| Nonrenewable Secondary Fuels | MJ, net calorific value | 0 | 0 | 0 | 0 | |
| Net use of Fresh Water | m ³ | 0.006 | 0.023 | 2.53E-05 | 0.029 | |

Output Flows for 1 sqm of 26630 REP Finished

| OUTPUT FLOWS | | | | | |
|-------------------------------|------|------------------------|--------------------|-------------------------|-------|
| Parameter | Unit | Upstream Raw Materials | Core Manufacturing | Downstream Distribution | Total |
| Components For Reuse | kg | - | 0 | - | 0 |
| Material For Recycling | kg | - | 0.007 | - | 0.007 |
| Materials For Energy Recovery | kg | - | 0 | - | 0 |
| Exported Energy Electricity | MJ | - | 0 | - | 0 |
| Exported Energy Thermal | MJ | - | 0 | - | 0 |

Potential Environmental Impacts for 1 sqm of 26630 REP Finished

| Environmental Impacts | | | | | | |
|---|-------------------------------------|------------------------|--------------------|-------------------------|----------|----------|
| Parameter | Unit | Upstream Raw Materials | Core Manufacturing | Downstream Distribution | Total | |
| Global Warming Potential (GWP100a) | Fossil | kg CO ₂ eq | 0.587 | 1.80 | 0.009 | 2.39 |
| | Biogenic | kg CO ₂ eq | 0.009 | 0.028 | 0.000 | 0.037 |
| | Land Use and Land Transformation | kg CO ₂ eq | 1.16E-03 | 4.29E-03 | 2.87E-06 | 5.46E-03 |
| | TOTAL | kg CO ₂ eq | 0.597 | 1.83 | 0.009 | 2.44 |
| Acidification Potential | kg SO ₂ eq | 0.003 | 0.007 | 2.18E-05 | 0.010 | |
| Eutrophication Potential | kg PO ₄ ³⁻ eq | 0.001 | 0.003 | 4.74E-06 | 0.004 | |
| Formation Potential of Tropospheric Ozone | kg NMVOC eq | 0.002 | 0.004 | 2.10E-05 | 0.006 | |
| Abiotic Depletion Potential-Elements | kg Sb eq | 4.37E-07 | 2.04E-07 | 2.55E-08 | 6.67E-07 | |
| Abiotic Depletion-Fossil Fuels | MJ | 9.23 | 23.01 | 0.136 | 32.4 | |
| Water Scarcity Potential | m ³ | 0.003 | 0.016 | 1.26E-05 | 0.019 | |
| Freshwater ecotoxicity | PAF.m ³ .day | 2.44E-08 | 6.72E-08 | 2.55E-10 | 9.19E-08 | |
| Human Toxicity, Cancer | cases | 2294 | 7387 | 15.2 | 9696 | |
| Human Toxicity, Non-Cancer | cases | 7.19E-08 | 1.78E-07 | 1.26E-09 | 2.51E-07 | |
| Land Use | m ² a crop eq | 0.004 | 0.011 | 3.79E-04 | 0.015 | |
| Ozone Layer Depletion | kg CFC ⁻¹¹ eq | 1.51E-08 | 1.34E-07 | 1.65E-09 | 1.51E-07 | |

Waste Production for 1 sqm of 26630 REP Finished

| Waste Production | | | | | |
|---------------------|------|----------|----------|------------|----------|
| Parameter | Unit | Upstream | Core | Downstream | Total |
| Hazardous Waste | kg | - | 1.87E-04 | - | 1.87E-04 |
| Non-hazardous Waste | kg | - | 1.39E-03 | - | 1.39E-03 |
| 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

The International EPD® System | The General Programme Instructions
<http://www.environdec.com/tr/The-International-EPD-System/General-Programme-Instructions/>

The International EPD® System / PCR: Woven, knitted or crocheted fabrics (of synthetic fibres) v2.11

Ecoinvent 3.5 database | <http://www.ecoinvent.org>

SimaPro LCA Software | <https://simapro.com>

ISKO™ | <http://www.isko.com.tr>

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>

Third Party Verifier

Nikolay Minkov, Eng. MSc.

LCA and Sustainability Specialist, Independent EPD Verifier
 Schwartzkopfstrasse 3, 10115, Berlin, Germany

E-mail: niks.minkov@gmail.com

Accredited or approved by: The International EPD® System

Owner of the Declaration

ISKO Division

Sanko Tekstil İşletmeleri San. ve Tic. A.Ş. Organize Sanayi Bölgesi 3.Cadde 16400

Ineöl, Bursa | Turkey
www.iskodenim.com



LCA Author & EPD Design

Semtrio Sustainability Consulting AND Plaza No:10-12 Kozyatagi

Istanbul | Turkey
www.semtrio.com



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

ISKO™

HEAD OFFICE

ISKO Division

Sanko Tekstil İşletmeleri San. ve Tic. A.Ş. Organize Sanayi
Bölgesi 3.Cadde 16400 Inegol / Bursa / Turkey

T: +90 224 280 77 00

F: +90 224 714 80 19

E: sustainability@isko.com.tr

E: eozkucuk@isko.com.tr

