

Environmental Product Declaration



In accordance with ISO 14025:2010 for:

**Steel Wire Rod for further processing to steel products & special steels,
except construction steel products**

from

Diler Demir Celik Endustri ve Ticaret A.S.



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
Licensee:	EPD Türkiye
EPD registration number:	EPD-IES-0017503
Publication date:	2025-03-31
Valid until:	2028-03-30

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Programme information

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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
PCR: PCR 2015:03 Version 2.1.1 - Basic Iron or Steel Products & Special Steels, Except Construction Steel Products Product Category Classification: UN CPC 412, 4124 and 4126
PCR review was conducted by: The Technical Committee of the International EPD® System, Chaired by Hudai Kara. A full list of members available on www.environdec.com . The review panel may be contacted via info@environdec.com .
Life Cycle Assessment (LCA)
LCA accountability: CARES Pembroke House, 21 Pembroke Road, Sevenoaks, Kent, TN13 1XR UK www.carescertification.com
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Dr Jane Anderson, Director, ConstructionLCA Ltd, jane@constructionlca.co.uk Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third-party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

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

Company information

Owner of the EPD:

Diler Demir Celik Endustri ve Ticaret A.S.

Contact:

Mr Murat Guney, (+90) 262 5026000, MuratGuney@dilerhld.com

Description of the organisation:

Diler was first established as a rolling mill in Karabük in 1954 in order to meet the rapidly increasing construction steel demand of the country.

DILER started to carry out its activities in Gebze Dilovası since 1978 and later on, the facility was integrated by adding a steel mill. Wire-Rod Rolling Mill, which was established at a distance of ~2 km from the factory site, was put into operation in 2008. Currently, the facility consists of many auxiliary units such as dust collecting, compressed air, water facilities and workshops, especially the steel mill, bar rolling mill, wire-rod rolling mill and oxygen facility.

Today, DILER continues to grow with its 1000 employees who believe in this business and is proud to be one of the preferred manufacturers of steel products.

Product-related or management system-related certifications:

Diler Demir Celik Endustri ve Ticaret A.S. holds following certifications:

ISO 9001: 2015 QMS from CARES

IATF 16949 - Automotive Quality Management System

ISO 14001:2015 EMS from CARES

ISO 45001:2018 OHSMS from CARES

ISO 50001:2018 Energy Management System Certification

ISO/IEC 27001:2022 Information Security Management Systems

CARES SCS (Sustainable Constructional Steel) Scheme Certification

CARES BES 6001 Framework Standard for Responsible Sourcing Certification

Name and location of production site:

Dilovasi Organize Sanayi Bolgesi, 1. Kisim, Dicle Cd. No: 30, Dilovasi, Kocaeli 41455 Turkey

Product information

Product name:

Steel Feedstock Coil for further processing to steel products & special steels, except construction steel products

Product identification:

Steel wire rod is non-alloy or low-alloy steel product. Steel wire rod (according to product standards listed in References) that is obtained from steel scrap, melted in an Electric Arc Furnace (EAF) followed by hot rolling.

Steel wire rod coil is produced as a feedstock for further processing into bar, coil or other products for direct use or further processing into steel products in various forms according to steel standards listed in Reference section.

Product description:

Processing and proper use of steel wire rod depends on the application and should be made in accordance with generally accepted practices, standards and manufacturing recommendations.

UN CPC code:

UN CPC 412 – Products of iron and steel

UN CPC 4124 – Bars and rods, hot-rolled, of iron or steel

UN CPC 4126 – Bars, rods, angles, shapes and sections, cold-processed or further worked, of iron or steel; angles, shapes and sections, hot-rolled, hot-drawn or extruded, of alloy steel; steel wire

Geographical scope: Turkey

Products under study are produced

LCA information

The Life Cycle Impact Assessment (LCIA) has been carried out using the characterisation method described in EN 15804+A2. The characterisation factors from Environmental Footprint v3.0 (EF 3.0) was applied.

Declared unit:

1 tonne (1000 kg) of steel wire rod product at the manufacturer gate.

Reference service life:

Not applicable

Time representativeness:

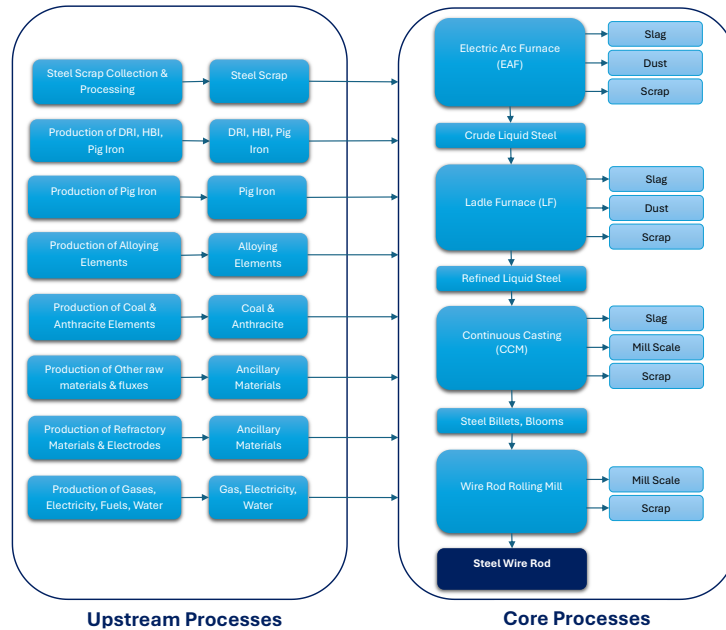
Manufacturing data of the period 2023-01-01 to 2023-12-31 has been provided by Diler Demir Celik Endustri ve Ticaret A.S.

Database(s) and LCA software used:

LCA Software: CARES EPD Tool version 2.8

Database: Background data are consistently sourced from the LCA FE (GaBi) Dataset Documentation (Sphera 2023.1). The primary data collection was thorough, considering all relevant flows and these data was verified by CARES during the audit conducted in May 2024.

System diagram:



Description of system boundaries: “cradle-to-gate”

The system boundary of the EPD follows the PCR 2015:03 Version 2.1.1. This covers in upstream: extraction and production of raw materials, transportation of raw materials during the production chain and to the steel manufacturing facility in upstream processes; and in core processes: manufacturing of carbon, low alloy or alloy steel wire rods, wastes and co-products generated during manufacturing processes and their treatment, emissions to air and releases to water, emission impacts from non-renewable contributors in the consumption mix of national grid electricity used.

Impacts and aspects related to losses/wastage are considered in the modules in which the losses/wastage occur.

Excluded lifecycle stages:

Downstream processes for EPDs following this PCR are excluded since the LCA study shall follow the principles.

Data Sources and Quality

The selection of the background data for electricity generation is in line with the PCR 2015:03 Version 2.1.1. Country or region-specific power grid mixes are selected from LCA FE (GaBi) Dataset Documentation (Sphera 2023.1); thus, consumption grid mix of Turkey has been selected to suit specific manufacturing location.

Data Quality: Background data are consistently sourced from the LCA FE (GaBi) Dataset Documentation (Sphera 2023.1). The primary data collection was thorough, considering all relevant flows and these data have been verified by CARES.

The selection of data and the data quality requirements have been provided according to the requirements of BS EN 15941:2024.

Data quality level and criteria of the UN Environment Global Guidance on LCA database development:

Geographical Representativeness	: Good
Technical Representativeness	: Very good
Time Representativeness	: Good

Allocation:

Slag and Mill Scale are produced as co-products from the steelmaking and rolling processes. Impacts are allocated between the steel, the slag and the mill scale based on economic value. The revenue generated from mill scale and slag are less than 1% in relation to the product based on current market prices, these co-products are of definite value and are freely/readily traded in reality. For this reason, economic allocation has been applied to the processes where these co-products arise.

Production losses of steel during the production process are recycled in a closed loop offsetting the requirement for external scrap. Specific information on allocation within the background data is given in the LCA FE (GaBi) Dataset Documentation (Sphera 2023.1).

Cut-off Criteria

On the input side all flows entering the system and comprising more than 1% in total mass or contributing more than 1% to primary energy consumption are considered. All inputs used as well as all process-specific waste and process emissions were assessed. For this reason, material streams which were below 1% (by mass) were captured as well. In this manner the cut-off criteria according to the PCR requirements are fulfilled).

The mass of steel wire or strap used for binding the product coil is less than 1 % of the total mass of the product.

Content declaration

Product

Product components	tonnes	%	Environmental / hazardous properties
Fe	0.97	97	Steel feedstock coil products do not cause adverse health effects under normal conditions of use. Steel feedstock coil products do not include biogenic materials. No risks to the environment and living organisms are known to result from the mechanical destruction of the steel feedstock coil product itself.
C, Mn, Si, V, Ni, Cu, Cr, Mo and others	0.03	3	
TOTAL	1.00	100	

Packaging

Distribution packaging:

The steel feedstock coil products are packed with steel wire or straps to bind the products, either of the steel ties and products do not include any biogenic materials.

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:

The total recycled content of the wire rod is 92.7% calculated from the manufacturing data as per the requirements of the 14021:2016/Amd:2021.

Results of the environmental performance indicators

Impact category indicators

PARAMETER		UNIT	Upstream	Core	TOTAL
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	5.81E+02	5.98E+02	1.18E+03
	Biogenic	kg CO ₂ eq.	-1.01E+00	9.78E-01	-3.40E-02
	Land use and land transformation	kg CO ₂ eq.	2.73E-01	5.46E-02	3.28E-01
	TOTAL	kg CO ₂ eq.	5.80E+02	5.99E+02	1.18E+03
Ozone layer depletion (ODP)		kg CFC 11 eq.	6.18E-07	2.36E-09	6.20E-07
Acidification potential (AP)		mol H ⁺ eq.	2.79E+00	5.64E+00	8.43E+00
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	5.54E-04	3.87E-04	9.41E-04
	Aquatic marine	kg N eq.	5.00E-01	4.30E-01	9.30E-01
	Aquatic terrestrial	mol N eq.	6.33E+00	4.80E+00	1.11E+01
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	1.75E+00	1.43E+00	3.18E+00
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	1.43E-03	2.86E-05	1.46E-03
	Fossil resources	MJ, net calorific value	5.54E+03	6.97E+03	1.25E+04
Water deprivation potential (WDP)*		m ³ world eq. deprived	2.71E+01	3.45E+02	3.72E+02

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Resource use indicators

PARAMETER		UNIT	Upstream	Core	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4.20E+02	2.91E+03	3.33E+03
	Used as raw materials	MJ, net calorific value	0	0	0
	TOTAL	MJ, net calorific value	4.20E+02	2.91E+03	3.33E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	5.57E+03	6.98E+03	1.26E+04
	Used as raw materials	MJ, net calorific value	0	0	0
	TOTAL	MJ, net calorific value	5.57E+03	6.98E+03	1.26E+04
Secondary material (optional)		kg	0	1.02E+03	1.02E+03
Renewable secondary fuels (optional)		MJ, net calorific value	0	0	0
Non-renewable secondary fuels (optional)		MJ, net calorific value	0	0	0
Net use of fresh water (optional)		m ³	2.71E+01	3.45E+02	3.72E+02

Waste indicators (optional)

PARAMETER	UNIT	Upstream	Core	TOTAL
Hazardous waste disposed	kg	4.68E-08	4.31E-07	4.78E-07
Non-hazardous waste disposed	kg	1.23E+01	7.70E+01	8.93E+01
Radioactive waste disposed	kg	5.85E-02	1.17E-02	7.02E-02

Output flow indicators (optional)

PARAMETER	UNIT	Upstream	Core	TOTAL
Components for reuse	kg	0	0	0
Material for recycling	kg	0	0	0
Materials for energy recovery	kg	0	0	0
Exported energy, electricity	MJ per energy carrier	0	0	0
Exported energy, thermal	MJ per energy carrier	0	0	0

Other environmental performance indicators

PARAMETER	UNIT	Upstream	Core	TOTAL
Particulate matter	Disease Incidences	4.07E-05	5.16E-05	9.23E-05
Ionising radiation, human health	kBq U235 Eq.	7.04E+00	9.29E-01	7.97E+00
Ecotoxicity, freshwater	CTUe	5.54E-04	3.87E-04	9.41E-04
Human toxicity, cancer	CTUh	4.13E-07	9.44E-08	5.07E-07
Human toxicity, non-cancer	CTUh]	6.48E-06	4.74E-06	1.12E-05
Land Use	Dimensionless	6.12E+02	6.10E+02	1.22E+03

Additional social and economic information

Diler Iron and Steel maintains its operations in accordance with global quality standards and manages its business activities with a sense of responsibility.

Diler Iron and Steel is committed to working diligently for a sustainable future with a strong awareness of environmental responsibility. Energy efficiency is being enhanced in production processes, waste is minimized, and innovative solutions focused on preserving natural resources are being developed. By placing renewable energy sources at the core of production, the company reduces its carbon footprint and strengthens its environmental sensitivity through the use of clean energy.

With a focus on reliability, continuous improvement, and responsibility, we are committed to adding value to both our business partners and society. Guided by the vision of leaving a livable world for future generations, sustainability is integrated into all business processes as an essential component.

Diler Iron and Steel has established a procedural framework based on the principles outlined in its Code of Business Ethics to achieve its objectives.

This procedural framework defines the preventive approach adopted for managing adverse impacts, particularly related to environmental and employee safety. This preventive approach is supported by the identification of risks and opportunities, and it has been designed with consideration of all stakeholder activities in the areas where we operate.

Within the scope of corporate social responsibility, Diler Iron and Steel has provided long-term support for education through Diler Iron Middle School. Contributions have been made to various associations and foundations to strengthen the social structure, and necessary support has been provided by participating in ministries and organized industrial zone organizations.

Since 2010, Diler Iron and Steel has managed its organization with a certified policy for the Environmental Management System to ISO 14001 and the Occupational Health and Safety Management System to ISO 45001. Additionally, it implements an Energy Management System compliant with ISO 50001.

Diler Iron and Steel continues to invest in projects aimed at increasing the use of renewable energy sources, controlling greenhouse gas emissions from facility operations, and decarbonizing production processes.

In this context, the company will utilize renewable energy sources through the 25 MWp/20 MWe solar power plant project implemented in Sivas. Additionally, solar power projects with installed capacities of 130 MWp/MWe in Kars, 100 MWp/MWe in Konya, and 55 MWp/45 MWe in Ağrı are also planned to commence operations in the near future.

References

General Programme Instructions of the International EPD® System. Version 4.0.
PCR 2015:3. - Basic Iron or Steel Products & Special Steels, Except Construction Steel Products.
Version 2.1.1

Other references

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A2:2019. London, BSI, 2019.

BSI. Environmental labels and declarations. Self-declared environmental claims (Type II environmental labelling). BS EN ISO 14021:2016+A1:2021. London, BSI, 2022

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO BS EN ISO 14040:2006+A1:2020. London, BSI, 2020.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006+A2:2020. London, BSI, 2020.

BSI. Sustainability of construction works. Data quality for environmental assessment of products and construction work. Selection and use of data. BS EN 15941:2024. London, 2024.

BSI. Sustainability of construction works. Environmental product declarations. Communication format business-to-business. BS EN 15942:2021. London, 2021.

LCA for Experts (LCA FE) Software System and Database for Life Cycle Engineering, Sphera Solution GmbH, Leinfelden-Echterdingen, 2021

LCA for Experts (LCA FE) dataset documentation for the LCA FE Software System and Database for Life Cycle Engineering, Sphera Solution GmbH, Leinfelden-Echterdingen, 2021

ASTM A 510M Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel

ASTM A29/A29M Steel Bars, Carbon and Alloy, Hot-Wrought, General Requirements.

ASTM F2282 3 Carbon and Alloy Steel Wire, Rods, and Bars for Mechanical Fasteners

DIN 17115 Steel for welded round link chains and chain components-Technical delivery conditions

DIN8557-1 Filler metals for submerged arc welding; Joint welding of unalloyed and alloy steels; Designation, Technical delivery conditions

DIN8559-1 Filler metals for gas-shielded arc welding; wire electrodes, filler wires, solid rods and solid wires for gas-shielded arc welding of unalloyed and alloyed steels

EN 10025-2 Hot rolled products of structural steels Technical delivery conditions for non-alloy structural steels

EN 10083-2 Steels for quenching and tempering.

EN 10083-3 Steels for quenching and tempering - Part 3: Technical delivery conditions for alloy steels

EN 10084 Case hardening steels

EN 10087 Free-cutting steels - Technical delivery conditions for semi-finished products, hot-rolled bars and rods

EN 10089 Hot-rolled steels for quenched and tempered springs - Technical delivery conditions

EN 10250-2 Open die steel forgings for general engineering purposes - Part 2: Non-alloy quality and special steels

EN 10263-1 Steel rod, bars and wire for cold heading and cold extrusion - Part 1: General technical delivery conditions

EN 10263-2 Steel rod, bars and wire for cold heading and cold extrusion - Part 2: Technical delivery conditions for steels not intended for heat treatment after cold working

EN 10263-3 Steel rod, bars and wire for cold heading and cold extrusion - Part 3: Technical delivery conditions for case hardening steels

EN 10263-4 Steel rod, bars and wire for cold heading and cold extrusion. Technical delivery conditions for steels for quenching and tempering

EN 10269 Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties

ISO 16120-1 Non-alloy steel wire rod for conversion to wire — Part 1: General requirements

ISO 16120-2 Non-alloy steel wire rod for conversion to wire —Part 2: Specific requirements for general purpose wire rod

ISO 16120-3 Non-alloy steel wire rod for conversion to wire — Part 3: Specific requirements for rimmed and rimmed substitute, low-carbon steel wire rod

ISO 16120-4 Non-alloy steel wire rod for conversion to wire Specific requirements for wire rod for special applications

JIS G 3502 Piano wire rods

JIS G 3503 Wire Rods for Core Wire of Covered Electrode

JIS G 3506 High carbon steel wire rods

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