

Type III Environmental Product Declaration Ribbed and plain wire rods




it's what's **inside** that counts



CMC Poland Sp. z o.o. is a Polish mill that manufactures and sells its products on domestic and foreign markets. We run our manufacturing and processing operations in a manner that supports and promotes environmental responsibility. We minimize our impact on the environment by limiting the use of natural resources in our products. The quality and good reputation of CMC Poland products are guaranteed by over 120 years of experience and tradition as well as state-of-the-art technological solutions in the area of production, environmental protection and occupational safety. Our main production activity is carried out in Poland, in Zawiercie.

General information



Owner of the declaration	CMC Poland Sp. z o.o. ul. Piłsudskiego 82 42-400 Zawiercie	
EPD program operator	Building Research Institute ul. Filtrowa 1 00-611 Warszawa	
Declared product	Ribbed bars produced at CMC Poland Sp. z o.o. plant in Zawiercie.	
Declared unit	1 ton	
Declaration number	636/2024	
Date of issue	12.06.2024	
Validity date	12.06.2029	
Reason for performing LCA	B2B	
Representativeness	Polish and European	



IITB is a verified member of the European Platform for EPD program operators and LCA practitioner
www.eco-platform.org.

Verification



The verification of the Type III Environmental Declaration is carried out according to the guidelines of EN ISO 14025 and ISO 21930. Once verified, the document is valid for 5 years unless the inputs change significantly.

EN 15804+A2 serves as the basis for PCR

Independent verification of declarations and data according to ISO 14025:2010

external internal

Independent verifier appointed by the Building Research Institute dr hab inż. Michał Piasecki

LCA analysis by CMC Poland Sp. z o.o.



The LCA analysis was carried out to develop a Type III environmental declaration. Direct and indirect customers of CMC Poland Sp. z o.o. are the intended recipients of this declaration.

Product description

Plain wire rod

Round plain wire rod is intended for further cold processing and production of drawn wires, cold-rolled strips, fasteners such as nails, screws, bolts for automotive and wind power industries; high-strength and ductile multi-phase steel, micro-alloyed steel for production of high-quality link chains and drawn bars, and free machining steel. The products are offered in coils.

Ribbed wire rod

Ribbed wire rod is intended for reinforcement of reinforced concrete elements and structures designed in accordance with standards for steel of ductability class C and characteristic yield strength of 500MPa. It can be used to reinforce reinforced concrete structures operating under dynamic and repeatedly varying loads. The products are offered in coils.

Parameter	Value	Unit
Declared unit	1000	kg
Density	7,833	kg/m ³
Modulus of elasticity	E – 210; G – 80	GPa
Thermal conductivity	58	W/m·K
Melting point	1425 - 1540	°C

Delivery

Dimensions of declared products may vary depending on the order. Technical information about specific products can be found at <https://www.cmc.com>.

Basic materials

Plain and ribbed wire rods are produced from the steel manufactured by CMC Poland at the Zawiercie Plant. CMC Poland produces steel in 92.5% from steel scrap including Post-Consumer scrap - 89.5%; Pre-Consumer scrap - 3.0% and also iron alloys (1.3%) and non-ferrous alloys (6.2%). 99.7% of the materials used in steel production comes from locations situated closer than 800 km (500 miles). The produced steel does not contain any substances listed in Annex XVII or XIV of the Regulation (EC) No 1907/2006 of the European Parliament and Council of December, 18. 2006 (REACH).

Production

Steel billets are directed from the CMC Poland Melt Shop or storage areas to the rolling lines, where they are given the desired shape and size. The final step involves the labelling of the products.

Plain and ribbed wire rods are manufactured in the hot rolling process, which uses the raw materials described above.

Environment and health during production

At CMC Poland, environmental, occupational health and safety, and quality management is compliant with the implemented and certified Integrated Management System based on international ISO standards:

- 9001 – Quality management systems,
- 14001 – Environmental management systems,
- 45001 – Health and safety management systems.

Packaging

Plain and ribbed wire rods are transported in coils tied with plain wire rod. The wire rod used for packaging should be recycled after collection as steel scrap.

Conditions of use

No changes in material composition should occur during use. The need for maintenance will depend on how the product is used.

Environment and health during the use phase

Under normal conditions of use, steel products do not cause adverse effects on human health and environment due to the low possibility of metal release from steel.

Reference usage time

The reference period for the service life of plain and ribbed wire rods is limited by their use. It is estimated that under standard conditions, the reference life of steel products is 100 years.





Water pollution

Under normal conditions of use, steel products do not cause adverse effects on human health and environment due to the low possibility of metals from steel. Product impacts are not expected in the event of flooding.

Mechanical damage

Environmental and human health hazards are not expected to occur in the event of mechanical destruction.

Reuse phase

Plain and ribbed wire rods shall not be reused after service.

Liquidation

Used plain and ribbed wire rods are valuable secondary raw material that should be collected and reprocessed in 100% into new products.

Other information

Plain and ribbed wire rods should be fully recycled at the end of the product life cycle.

System Boundaries



The life cycle analysis of the studied products includes the „Product Stage“, modules A1-A3 (cradle to gate). The calculation includes consumption of raw materials, water, gas, electricity, emissions to water and air, and information on generated waste.

The calculations include deliveries by road, rail and sea transport. The average transportation distances assumed for the calculations are 200 m (transport between production departments) and 145.7 km for deliveries of scrap and alloy additives, respectively.

The following transport means were assumed:

- HGV, EURO 0-6 mix with a capacity of 22 and 27 tons,
- HGV, EURO 5 with a capacity of 17,3 and 22 tons,
- rail transport with the use of both electric and diesel traction with a capacity of 1452 tons,
- sea transport with a capacity of 3500 DWT.

The calculations assumed the European standards for average combustion.

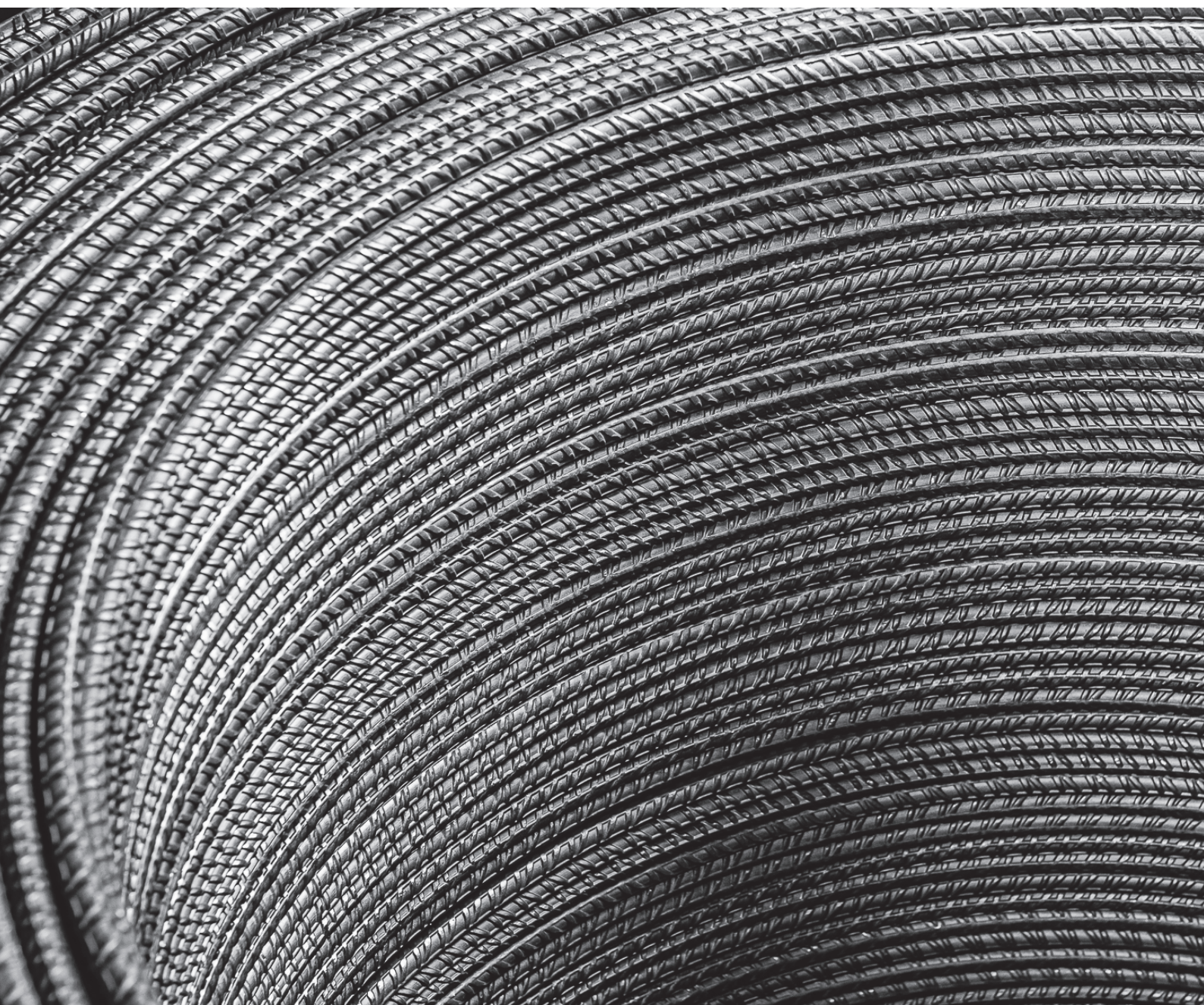
The production scheme of the declared products is shown in Figure 1, flow diagram.

It is assumed that the sum of the omitted processes does not exceed 5% of the total impact categories according to EN 15804 guidelines. The machinery and equipment required for production as well as the transportation of employees were excluded from the calculations.

Type EPD - cradle to gate. A1-A3 modules.

DESCRIPTION OF SYSTEM BOUNDARIES (X = INCLUDED IN LCA; ND = NOT DECLARED)

Product stage			Construction phase		Use stage							End-of-life stage				Benefits and loads beyond the system boundaries
Extraction and production of raw materials / supply of raw materials	Transporting	Manufacturing of a product	Transportation to the construction site	Construction process/application/assembly	Operation	Maintenance	Repair	Change	Renovation	Energy consumption during the use phase	Water consumption in use phase	Demolition/Tearing down	Transporting	Waste treatment	Storage	Potential for reuse, recovery and recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND



Modules A1-A3 for declared products include:

- Providing resources, additives and energy,
- Transport of raw materials and additives to the production site,
- Production processes,
- Recycling of production and post-production scrap.

Fig. 1 Flow diagram



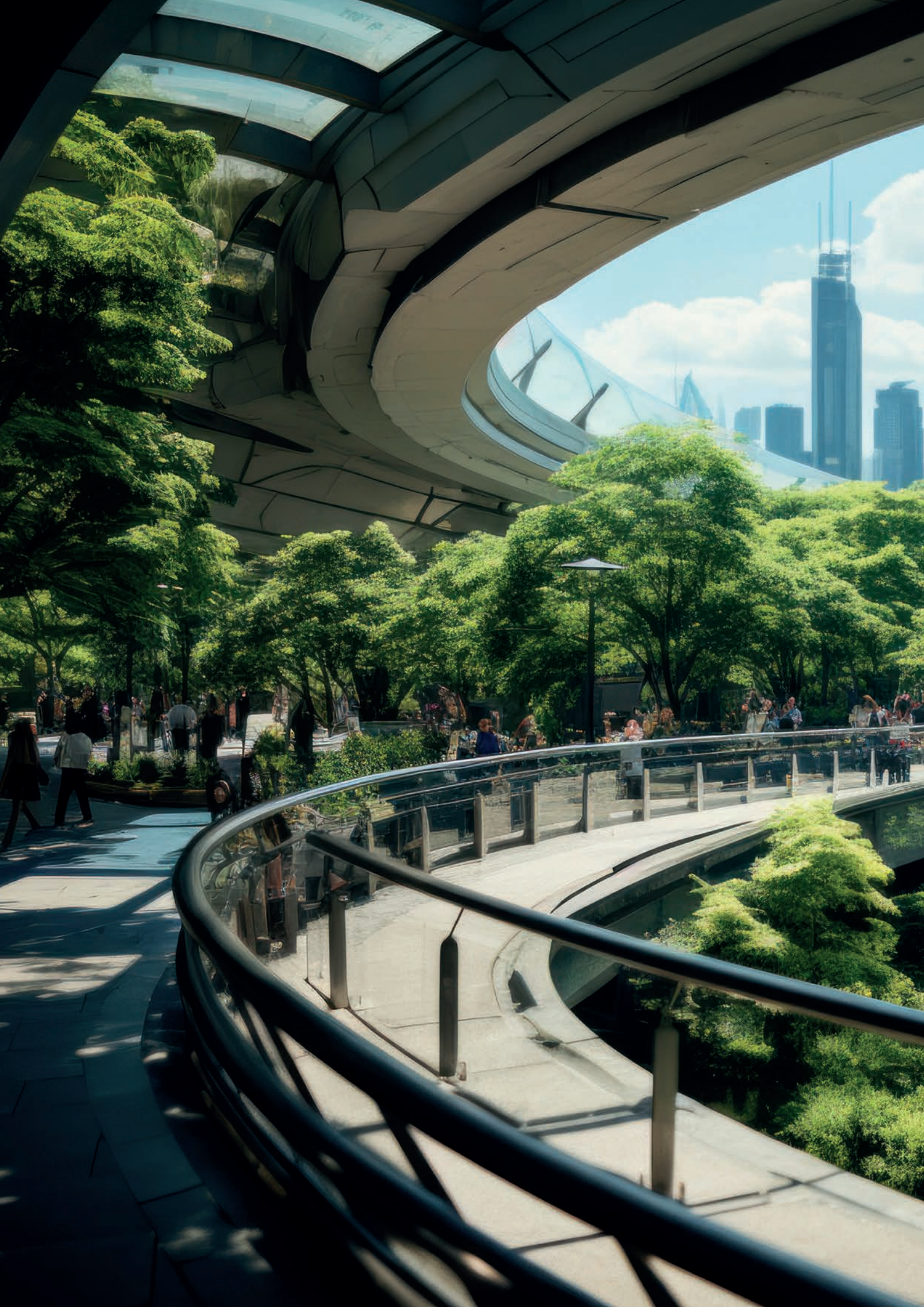
A mass allocation was used for LCA calculate. Data for LCA calculations were collected from the production departments of CMC Poland sp. z o.o., in a form of electronic or paper reports. The calculations were made for a functional unit of 1 ton of product. Inputs and outputs to the production processes of plain and ribbed wire rod were defined based on the production reports and information collected from the departments. A summary of these data was collected in a file named „Input data” and was used as input for LCA calculations in the LCA for Experts program (Sphera). Electricity grid mix for Poland modeled by Sphera. The share of electricity from RES accounts for 30% of the total electricity demand. Energy from RES was modeled according to energy guarantee certificates.

Data collection period

Data for LCA calculations were inventoried at CMC Poland sp. z o.o. production plant in Zawiercie and come from the period 01.01.2022 – 31.12.2022 (1 year).

Comparability

Comparison or evaluation of EPD data is possible only if all data sets for comparison were created in accordance with PN-EN 15804+A2 standard.





This EPD was prepared using LCA for Experts version 10.7.1.28 software.

Product stage			Construction phase		Stage of use							End-of-life stage				Benefits and burdens beyond system boundaries
Extraction and production of raw materials / supply of raw materials	Transporting	Manufacturing of a product	Transportation to the construction site	Construction process/application/assembly	Operation	Maintenance	Repair	Change	Renovation	Energy consumption during the use phase	Water consumption in use phase	Demolition/Tearing down	Transporting	Waste treatment	Storage	Potential for reuse, recovery and re-cycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Parameter	Unit	A1 – A3
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LCA LIFE CYCLE ESTIMATION RESULTS – ENVIRONMENT IMPACT STUDY: 1 ton of product

Global Warming Potential (GWP)	kg CO ₂ equivalent	3,97E+02
Greenhouse gas potential - fossil (GWP - fossil)	kg CO ₂ equivalent	3,96E+02
Greenhouse gas potential - biogenic (GWP - biogenic)	kg CO ₂ equivalent	2,44E-01
Global warming potential - land use and land use change (GWP-luluc)	kg CO ₂ equivalent	2,38E-01
Stratospheric ozone depletion potential (ODP)	kg CFC 11 equivalent	6,41E-10
Soil and water acidification potential (AP)	mol H ⁺ equivalent	1,20E+00
Eutrophication potential - freshwater (EP - freshwater)	kg P equivalent	4,71E-04
Eutrophication potential - seawater (EP - seawater)	kg N equivalent	2,89E-01
Eutrophication potential - terrestrial (EP - terrestrial)	Mol N equivalent	3,13E+00
Potential for photochemical ozone synthesis (POCP)	kg NMVOC equivalent	7,88E-01
Potential for depletion of abiotic resources - non-fossil resources (ADP - elements)	kg Sb equivalent	3,14E-05
Abiotic depletion potential - fossil fuels (ADP - fossil)	MJ	5,67E+03
Water deprivation potential (WDP)	m ³ equivalent	7,04E+00

LCA LIFE CYCLE ESTIMATION RESULTS - RESOURCE CONSUMPTION: 1 ton of product

Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	-
Consumption of renewable primary energy resources used as raw materials	MJ	2,43E+03
Consumption of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	2,43E+03
Consumption of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	-
Consumption of non-renewable primary energy resources used as raw materials	MJ	5,67E+03
Consumption of non-renewable primary energy (primary energy and primary energy resources used as raw material)	MJ	5,67E+03
Recycled materials consumption	kg	1,10
Consumption of renewable secondary fuels	MJ	-
Consumption of non-renewable secondary fuels	MJ	-
Net consumption of fresh water	m ³	1,99E+00

LCA LIFE CYCLE ESTIMATION RESULTS - OUTPUT MATERIAL STREAMS AND WASTE CATEGORIES: 1 ton of product

Hazardous waste, neutralized	kg	-13,1E-07
Non-hazardous waste, neutralised	kg	2,54E+00
Radioactive waste	kg	4,77E-02
Components for reuse	kg	-
Materials to recycle	kg	2,06E+02
Material for energy recovery	kg	6,96E+01
Energy exported	MJ	-



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Thermal Physics, Acoustics and Environment Department

02-656 Warsaw, Ksawerów 21

CERTIFICATE No 636/2024 of TYPE III ENVIRONMENTAL DECLARATION

Products:

Ribbed and plain wire rods

Manufacturer:

CMC Poland Sp. z o.o.

ul. Piłsudskiego 82, 42-400 Zawiercie, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804+A2

Sustainability of construction works.

Environmental product declarations.

Core rules for the product category of construction products.

This certificate, issued on 12nd June 2024 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics
and Environment Department

Agnieszka Winkler-Skalna, PhD



Deputy Director
for Research and Innovation

Krzysztof Kuczyński, PhD

Warsaw, June 2024



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