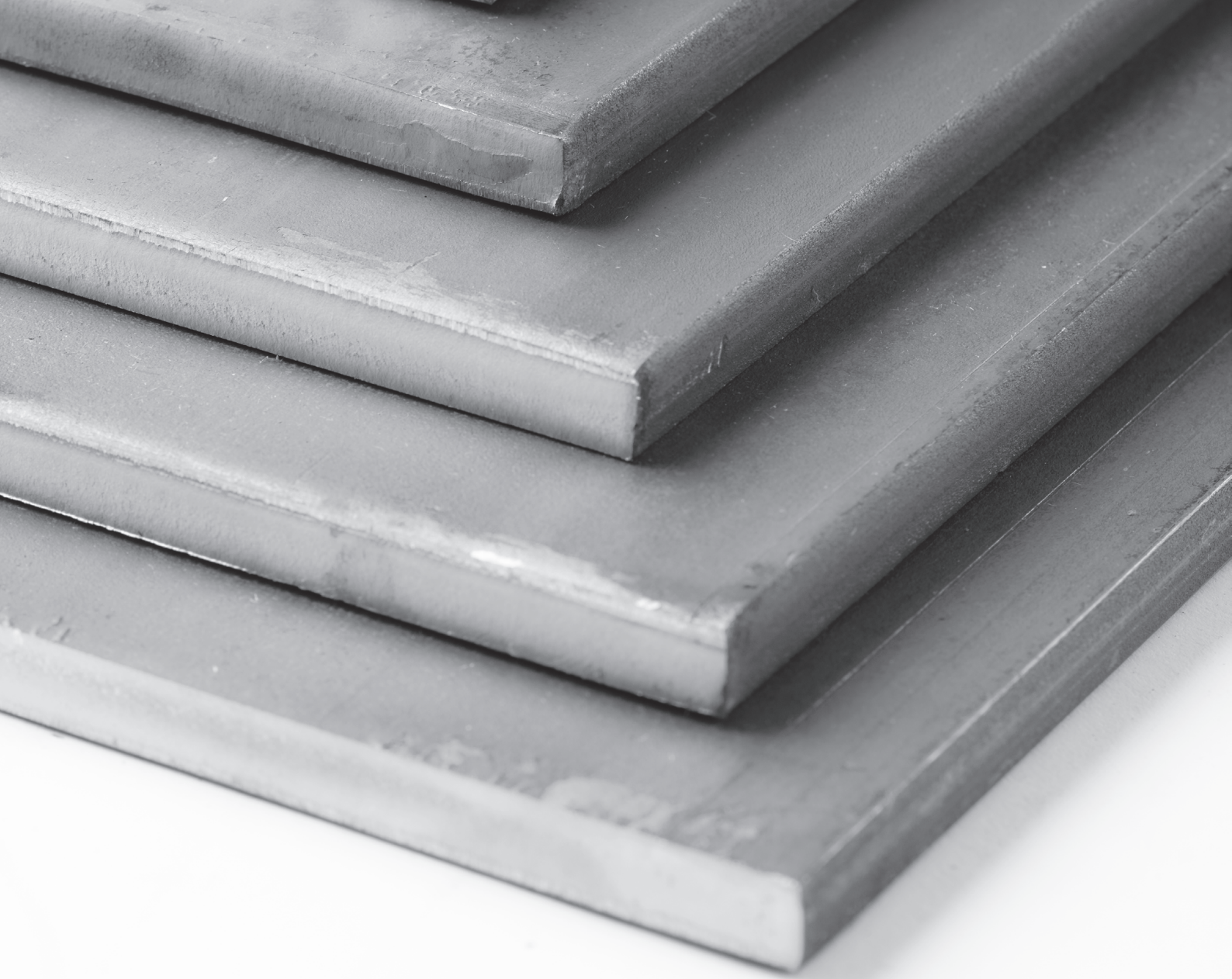


## Type III Environmental Product Declaration Flat bars and round bars



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



Declaration holder	CMC Poland Sp. z o.o. ul. Piłsudskiego 82 42-400 Zawiercie
EPD program operator	Instytut Techniki Budowlanej ul. Filtrowa 1 00-611 Warszawa
Declared product	Flat bars and round bars produced at CMC Poland Sp. z o.o. in Zawiercie
Declared unit	1 tonne
Declaration number	679/2024
Date of issue	03.10.2024
Validity date	03.10.2029
Reason for performing LCA	B2B
Representativeness	Polish and European



TB is a verified member of the European Platform for EPD program operators and LCA practitioner  
[www.eco-platform.org](http://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.

Standard EN 15 804+A2 serves as the basis for PCR

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



external



internal

Independent verifier appointed by ITB: ITB Prof. Michał Piasecki.

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



The LCA was carried out to develop a Type III environmental declaration. This declaration is intended for direct and indirect customers of CMC Poland Sp. z o.o.

## Product description

### Flat bars and round bars

Flat and round bars are intended to be further processed in products including structural, alloy and unalloyed steels for hardening and tempering, steels for carburizing, automatic, spring steels or FLABLAST®. The products are offered in bundles

Parameter	Value	Unit
Declared unit	1000	kg
Density	7,833	kg/m <sup>3</sup>
Modulus of elasticity	E – 210; G – 80	GPa
Heat transfer coefficient	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

Flat and round bars are produced from steel manufactured by CMC Poland at the Zawiercie Plant. At CMC Poland, steel is produced in 92,5% from steel scrap including 89,5% of Post-Consumer scrap and 3,0% of Pre-Consumer scrap. In addition to steel scrap, iron alloys (1.3%) and non-ferrous alloys (6.2%) are used in production and 99,7% of the materials is imported from locations situated closer than 800 km (500 miles). The steel we produce does not contain any substances listed in Annexes XVII or XIV of Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 (REACH).

## Production

Steel billets from the CMC Poland Melt Shop or storage areas are forwarded to rolling lines, where they are given the desired shape and size. The final step involves the product labelling. Flat and round bars are manufactured in a hot-rolling process using the raw materials described earlier.

## Environment and health during production

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

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

### Packaging

Flat and round bars are transported in bundled tied with wire rod that should be recycled as steel scrap.

### Conditions of use

No changes in material composition should occur during its use. The need for maintenance will depend on the employment of the product.

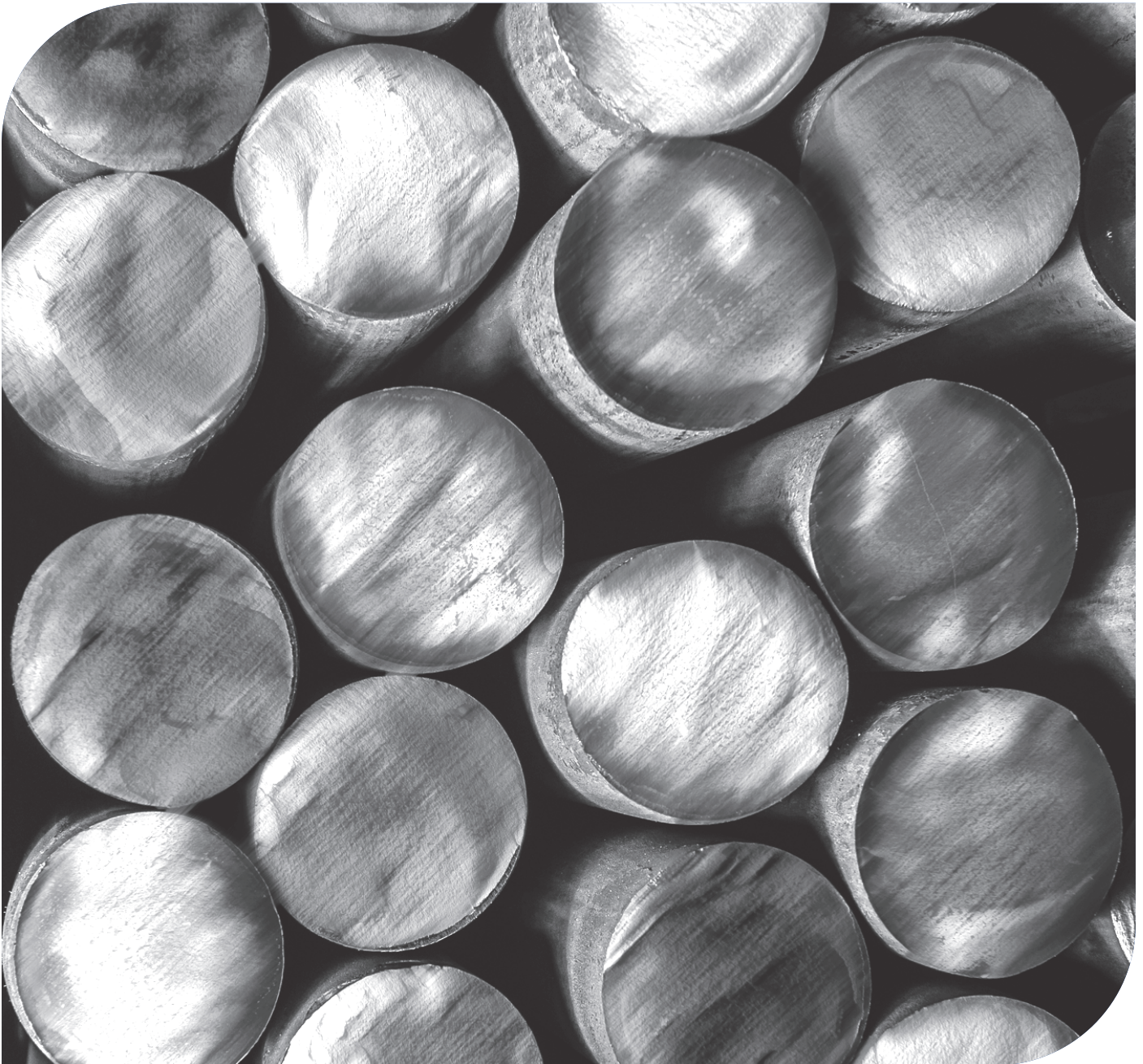
### Environment and health during the use phase

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

### Reference service life

The reference period for the service life of flat and round bars is limited by their employment.

Under standard conditions, the reference service life of the products is estimated to be 100 years.





## Water pollution

Under normal conditions of use, flat and round bars do not have adverse effect on human health or environment due to a low risk of metal release from steel. No product impacts are expected in the event of flooding.

## Mechanical damage

In the event of a mechanical damage, no environmental or human health hazards are expected.

## Reuse phase

Flat and round bars shall not be re-used at the end of the service.

## Disposal

Used flat and round bars are valuable secondary raw materials that should be collected and reprocessed into new products in 100%.

## Other information

Flat and round bars should be fully recycled at the end of the life cycle of a product.

# 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 about generated waste.

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

The following transport means were assumed:

- HGV, EURO 0-6 mix with a capacity of 22 and 27 tonnes,
- HGV, EURO 5 with a capacity of 17,3 and 22 tonnes,
- rail transport with the use of both electric and diesel traction with a capacity of 1452 tonnes,
- 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 in accordance with EN 15804 guidelines. The calculations exclude machines and equipment required for the production as well as the transportation of employees. EPD type–cradle-to-gate. A1-A3 modules.

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

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 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 applied to LCA calculations. The data required for the calculations were collected from the production departments of CMC Poland sp. z o.o., in the form of electronic or paper reports. The calculations were performed for a functional unit of 1 tonne of product. Inputs and outputs to the production process of flat and round bars were defined based on the production reports and information from the departments. The set of data was collected in a file called „input data” and used as input to the LCA calculations in the LCA for Experts software (Sphera). Electricity grid mix for Poland modeled by Sphera. The share of electricity from RES accounts for 30% of the total electricity demand. The RES energy has been modelled according to the energy guarantee certificates.

### Data collection period

The data for LCA calculations were inventoried at production plants of CMC Poland sp. z o.o. in Zawiercie and cover the period: 01.01.2022 – 31.12.2022 (1 year).

### Comparability

The EPD data is possible to compare or evaluate only if all data sets for comparison are prepared in accordance with EPD standard PN-EN 15804+A2.





This EPD was prepared using LCA for Experts SoftwareSystem and Database for Life Cycle Engineering (10.8.0.14)

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 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

Parameter	Unit	A1 – A3
-----------	------	---------

**LCA LIFE CYCLE ESTIMATION RESULTS – ENVIRONMENT IMPACT STUDY: 1 tonne of product**

Greenhouse gas potential- total (GWP)	kg CO <sub>2</sub> equivalent	3,52E+02
Greenhouse gas potential - fossil (GWP - fossil)	kg CO <sub>2</sub> equivalent	3,52E+02
Greenhouse gas potential - biogenic (GWP - biogenic)	kg CO <sub>2</sub> equivalent	8,40E-02
Global warming potential - land use and land use change (GWP-luluc)	kg CO <sub>2</sub> equivalent	4,37E-01
Stratospheric ozone depletion potential (ODP)	kg CFC 11 equivalent	1,04E-09
Soil and water acidification potential (AP)	mol H <sup>+</sup> equivalent	8,68E-01
Eutrophication potential - freshwater (EP - freshwater)	kg P equivalent	4,79E-04
Eutrophication potential - seawater (EP - seawater)	kg N equivalent	2,36E-01
Eutrophication potential - terrestrial (EP - terrestrial)	Mol N equivalent	2,55E+00
Potential for photochemical ozone synthesis (POCP)	kg NMVOC equivalent	6,33E-01
Potential for depletion of abiotic resources - non-fossil resources (ADP - elements)	kg Sb equivalent	3,18E-05
Abiotic depletion potential - fossil fuels (ADP - fossil)	MJ	4,90E+03
Water deprivation potential (WDP)	m <sup>3</sup> equivalent	6,57E+00

**LCA LIFE CYCLE ESTIMATION RESULTS - RESOURCE CONSUMPTION: 1 tonne 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	2,3E+03
Total consumption of renewable primary energy resources (primary energy AND primary energy resources used as raw materials)	MJ	2,3E+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	4,9E+03
Total consumption of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	4,9E+03
Recycled materials consumption	kg	1,10
Consumption of renewable secondary fuels	MJ	-
Consumption of non-renewable secondary fuels	MJ	-
Net consumption of freshwater resources	m <sup>3</sup>	1,78E+00

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

Hazardous waste, neutralized	kg	9,33E-06
Non-hazardous waste, neutralised	kg	2,29E+00
Radioactive waste	kg	4,48E-02
Components for reuse	kg	-
Materials to recycle	kg	4,88E-02
Materials for energy recovery	kg	8,44E-06
Energy exported	MJ	-





**Instytut Techniki Budowlanej**

00-611 Warsaw, Filtrów 1

**Thermal Physics, Acoustics and Environment Department**

02-656 Warsaw, Ksawerów 21

**CERTIFICATE № 679/2024**  
**of TYPE III ENVIRONMENTAL DECLARATION**

Products:

**Flat and round bars**

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 3<sup>rd</sup> October 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, October 2024



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

**CMC Poland Sp. z o.o.**  
**ul. Piłsudskiego 82, 42-400 Zawiercie**

**[www.cmc.com](http://www.cmc.com)**  
**[www.cmcpolandinnovation.com](http://www.cmcpolandinnovation.com)**