

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Product name:

Welded steel structures with anti-corrosive paint coating

Producer:

CERMONT Sp. z o.o.

Address:

ul. Piotrkowska 10
Wola Krzysztoporska
Poland



Issued on 5th December 2024
Valid until 5th December 2029

GENERAL INFORMATION

EPD OWNER

Manufacturer / EPD Holder	CERMONT Sp. z o.o.
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Website	www.cermont.pl

PRODUCT IDENTIFICATION

Product name	Welded steel structures with anti-corrosive paint coating
Place(s) of production	Wola Krzysztoporska, Poland

EPD INFORMATION

EPD Poland program operator	Multicert Sp. z o.o. Ul. Mydlarska 47, 04-690 Warszawa, Poland www.epd.org.pl , epd@epd.org.pl
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804+A2 serves as the core PCR.
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☒ External verification
EPD verifier	Izabela Sztamberek Sochan, Ph.D.
EPD number	EPD-P 01.12.2024
Registration:	EPD Polska www.epd.org.pl
Publishing date	5 December 2024
EPD valid until	5 December 2029
Reasons for performing LCA	B2B
Accountability	The EPD Holder is responsible for the information provided and evidence. Multicert Sp. z o.o. does not hold responsibility for the manufacturer information, life cycle assessment data nor supporting evidence.

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

COMPANY INFORMATION

HOLDER OF THE EPD

CERMONT Sp. z o.o.
ul. Piotrkowska 10
Wola Krzysztoporska
Poland

COMPANY PROFILE

Cermont Sp. z o.o. is a Polish family-owned company, a highly experienced and versatile contractor of steel structures, operating both as a General Contractor and a Manufacturer of Steel Structures. The company offers comprehensive solutions that are fully tailored to meet the needs of even the most demanding investors. Cermont stands out in the Polish market due to its modern steel structure manufacturing facility, which allows for cost optimization and reduced project completion times.

The driving force behind Cermont is its team of experienced specialists, including an in-house design department, enabling the company to provide solutions perfectly suited to the individual needs of each client. The company offers a full range of services, from design to execution, in the BTS (build to suit) model, approaching each project with passion and ensuring the highest quality at every stage.

Cermont holds several key certifications that ensure high standards in their steel structure production:

- Factory Production Control (FPC) under PN-EN 1090-1 + A1: 2012, allowing the company to produce complex steel structures up to class EXC4, including bridges and high-rise buildings.
- Welding Certification (PN-EN 1090-2 + A1: 2018-09) for processes like 111, 135, and 138, ensuring compliance with welding standards for various material groups.
- ISO 3834-2: 2007 for Quality Management in Welding, ensuring full compliance in welding processes.
- Bridge Structure Certification, authorizing Cermont to undertake steel bridge projects, reflecting their capability to handle critical infrastructure.

With 25 years of industry experience, both in Poland and abroad, Cermont has completed over 250 projects, which guarantees professionalism and reliability in every undertaking. The company places a strong emphasis on quality, which goes beyond just the execution of steel structures, encompassing a series of precise actions that lead to full client satisfaction. Thanks to its experience, know-how, quality, and production capabilities, Cermont is a reliable partner ensuring success in the realization of any steel structure project.

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Welded steel structure with anti-corrosive paint coating is a product offered by Cermont, used in various construction projects.

The production process begins with designing and precisely preparing individual structural elements. Then, these elements are carefully welded, ensuring high strength and stability of the entire structure.

A key stage is the application of an anti-corrosive coating, consisting of several layers of specialized paints. The painting system usually includes a primer and topcoat, protecting against atmospheric corrosion and other environmental factors.

Cermont uses modern production technologies and rigorous quality control standards at every stage of the process. All steel structures of the company are manufactured in accordance with EN 1090 and EN ISO 3834-2 standards and have CE marking, guaranteeing the highest quality and safety of the product.

PRODUCT APPLICATION

Welded steel structures with anti-corrosive paint coating are used in:

- * Industrial construction (production halls, warehouses, commercial facilities)
- * Infrastructure (bridges, viaducts, telecommunication towers)
- * Energy sector (supporting structures for solar panels, wind turbines)
- * Specialized facilities (communication routes, elevator shafts)

Due to their durability and corrosion resistance, they are a versatile solution for various industries, ensuring long-term operation in diverse environmental conditions.

PRODUCT STANDARDS

The product complies with:

PN-EN 1090 'Execution of steel structures and aluminum structures' series

EN ISO 3834-2 'Quality requirements for fusion welding of metallic materials – Part 2: Comprehensive quality requirements'.

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.cermont.pl

PRODUCT RAW MATERIAL COMPOSITION

The product is mainly composed of structural steel (grade S235, S275, S355) that is the main component. Additional materials needed include the welding wire that is 20.52 tons used in the span of 2023. The product raw material is typically just 100% structural steel which is later welded and refined.

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0.1% (1000 ppm).

PRODUCT LIFE-CYCLE

RAW MATERIALS ACQUISITION TRANSPORT (A1, A2)

A1-A2: Raw Materials Supply and Transport Modules A1 and A2 encompass the extraction and processing of raw materials, primarily structural steel elements, as well as their transportation to the production facility. Steel profiles, sheets, and flat bars serve as the primary semi-finished products used in the production of steel structures. The steel is sourced from both domestic and EU suppliers. Transportation, covered under Module A2, involves truck transport and relies on Polish and European average data for fuel consumption.

MANUFACTURING (A3)

The first step in the production process involves shot-blasting the main components to remove surface impurities and prepare them for further processing. After cleaning, the components are cut and drilled according to precise design specifications using advanced machinery to ensure accuracy.

The cut and drilled components are then assembled into substructures, which are connected and welded to form the final steel structure. Welding is performed using specialized techniques to ensure the structural integrity and durability of the product. Once welding is completed, the welded structures are inspected to ensure proper weld quality and integrity, and the structures undergo surface treatment, including the application of an anti-corrosive coating, to protect them from rust and environmental degradation.

Following surface treatment, the steel structures are subjected to thorough quality checks to verify compliance with technical and safety standards. After passing quality assurance, the final structures are prepared for shipment. This includes securing the steel structures for transportation using protective materials such as wooden spacers to prevent damage during shipping. The packaged products are labeled and prepared for delivery, ensuring they arrive in optimal condition for their intended use.

**DIAGRAM OF THE MANUFACTURING PROCESS
OF WELDED STEEL STRUCTURES WITH ANTI-CORROSIVE PAINT COATING**

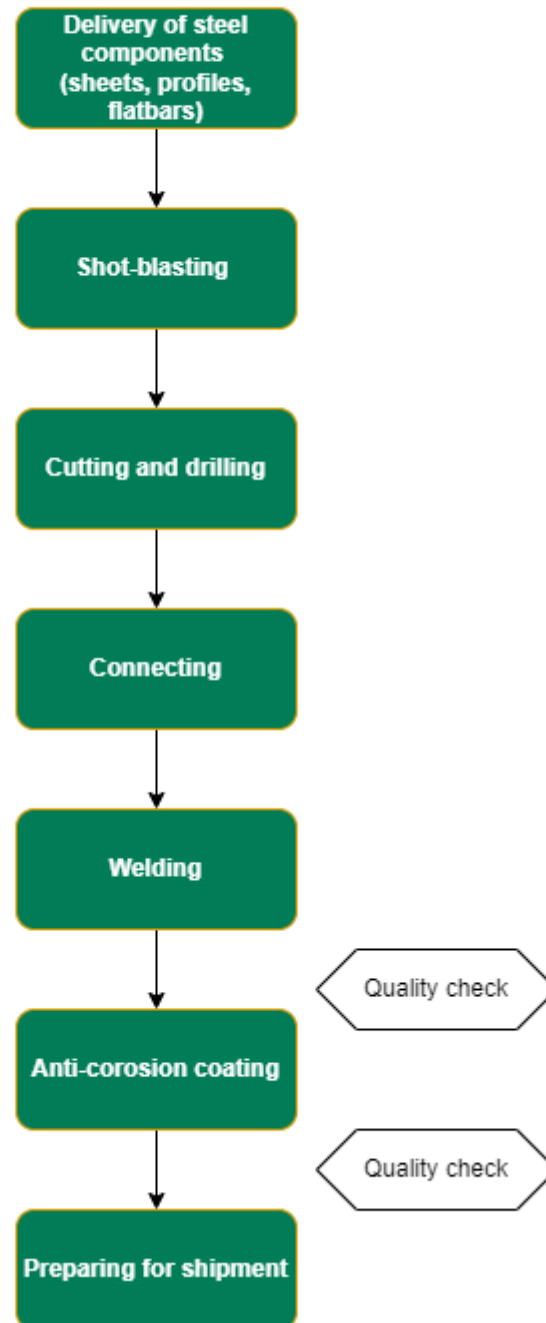


Figure 1 – Diagram of the manufacturing process

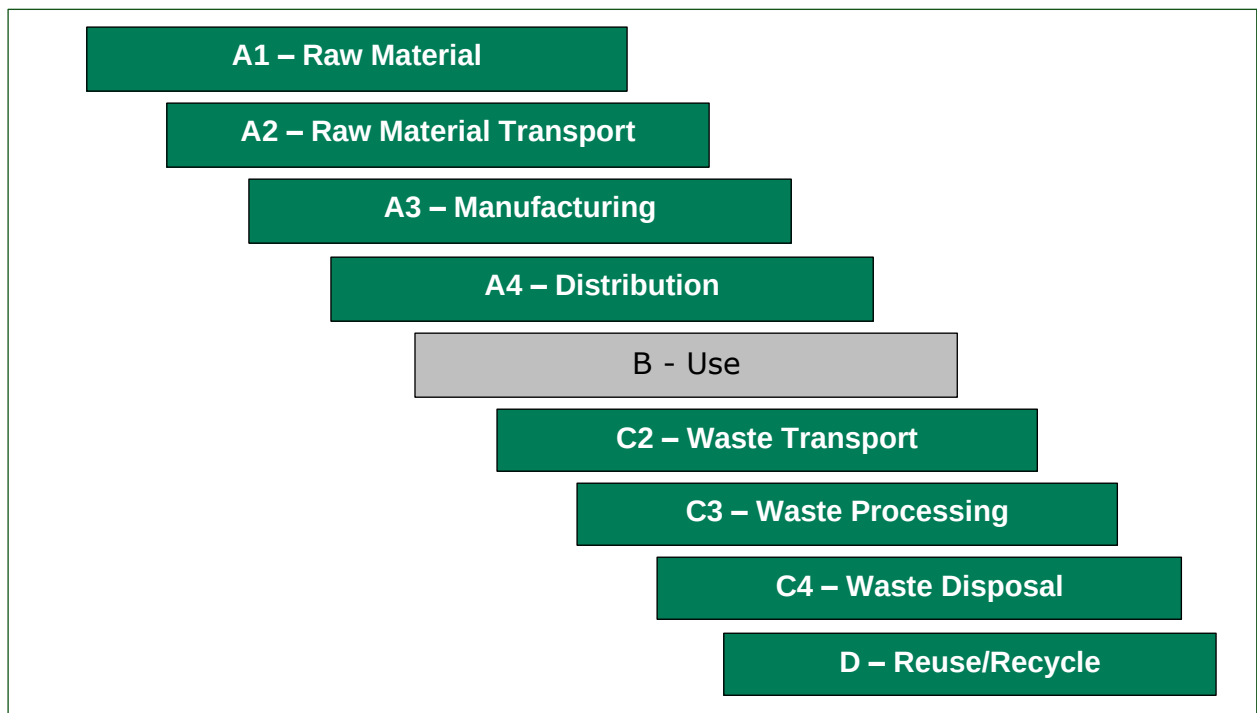
TRANSPORT TO CUSTOMER (A4)

The steel structure is transported from the factory to the construction site using specialized vehicles, as specified by the customer. The loads are secured with belts or chains, and wooden separators are placed beneath the structure to protect the anti-corrosion coating from potential damage. Transportation is assumed to cover a distance of 450 km with a full load capacity of 24 tons, meeting the Euro 5 emission standard.

END OF LIFE (C2, C3, C4, D)

Due to the wide variety of steel products and their diverse applications, Module C1 has not been declared, as it is difficult to precisely define the deconstruction technology and estimate the energy required for disassembly. In the assumed end-of-life scenario, deconstructed steel products are transported 50 km to a steel mill using a lorry (>16 t, EURO 5 standard). These products are then used as steel scrap in the production of new steel. The recycling potential for Module C3 is estimated at 95%, while Module C4 accounts for the remaining 5%, assuming that this portion ends up in a landfill along with packaging from used paints. Module D provides credits resulting from the recycling of steel shavings and steel scrap (assuming 95% of the final product is reused after further processing at the end of its life), such as reduced raw material extraction and energy savings, calculated according to the methodology developed by the World Steel Association.

Diagram 1 - Life cycle stages:



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data 2023 year

DECLARED AND FUNCTIONAL UNIT

Declared unit 1 t

Mass per declared unit 1 tonne

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C -

Biogenic carbon content in packaging, kg C -

SYSTEM BOUNDARY

The scope of the EPD is "cradle to gate with options". The modules A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), and A4 (Distribution), C2 (Waste Transport), C3 (Waste Processing), C4 (Waste Disposal) and D are included in the study.

Product stage		Assembly stage			Use stage								End of life stage				Beyond the system boundaries
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	X	MNR	MND	MND	MND	MND	MND	MND	MND	MNR	X	X	X	X	
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse / Recycling	

Modules not declared = MND. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the *EN 15804:2012+A2:2019*. The study does not exclude any hazardous materials or substances.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes which data are available for are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total neglected input and output flows do also not exceed 5% of energy usage or mass. The life cycle analysis includes all industrial processes from raw material acquisition to production, and distribution.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy, and water use related to company management and sales activities are excluded.

ESTIMATES AND ASSUMPTIONS

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. All estimations and assumptions are given below:

- Module (A1): 100% Mass Balance is considered for all the raw material information provided by Cermont and relevantecoinvent datasets are used.
- Module (A2): The average transport distances were calculated based on locations of all suppliers and allocated as per the declared unit.
- Module (A3): Energy and water resources were considered and taken into account as disclosed. Furthermore, the management of on-site waste was handled.
- Module (A4): Transportation, packaging and sales information was taken into account.
- Module (C2): 50 kms of distance is taken as an average for the transportation of waste to the recycling facility.
- Module (C3, C4 & D): Waste processing of the steel is taken at 95% in module C3, module C4 considers the waste packaging landfill of paints and thinners. 95% reuse of steel at the end of its life is considered, in addition to 70 tons of steel shavings and 3.6 tons of waste paint residue.

ALLOCATION

The allocation is carried out in accordance with the provisions of EN 15804. The information provided for the year 2023 includes all steel structures produced at Cermont's facilities during that year. Due to the similarity in production resources and processing stages, an average based on product weight was applied. Input and output data from production are inventoried and allocated on a mass basis to the declared functional unit of 1 kilogram.

Data Quality

For foreground data, the LCA study relies on high-quality primary data gathered by Cermont for the year 2023, including average transport distances for material supplies and final product shipments. All relevant background data sets have been sourced from the OpenLCA software's database: ecoinvent 3.9.1, which includes consistent and well-documented data sets accessible in the ecoinvent online database or through the ecoinvent database documentation.

Geographic Representativeness

The specified land or region where the product system is manufactured and managed is Poland, Europe.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Acidification	mol H ⁺ e	7.55E+00	1.45E-01	1.67E+00	2.85E-01	MNR	MND	MNR	1.96E-03	5.49E-01	1.52E-05	-4.86E+00
Climate change – total	kg CO ₂ e	1.89E+03	4.46E+01	2.34E+02	6.99E+01	MNR	MND	MNR	6.42E-01	5.93E+01	1.68E-03	-1.30E+03
Climate change – fossil	kg CO ₂ e	3.02E+00	3.87E-02	1.26E+00	1.67E+01	MNR	MND	MNR	5.40E-04	8.04E-02	4.66E-06	4.53E+00
Climate change – biogenic	kg CO ₂ e	1.90E+03	4.45E+01	2.33E+02	8.66E+01	MNR	MND	MNR	6.41E-01	5.92E+01	1.67E-03	-1.30E+03
Climate change – LULUC	kg CO ₂ e	1.06E+00	2.16E-02	7.42E-02	5.40E-02	MNR	MND	MNR	3.75E-04	6.85E-03	2.25E-07	-4.05E-01
Abiotic depletion of fossil resources	MJ	1.97E+04	6.36E+02	2.67E+03	1.24E+03	MNR	MND	MNR	9.07E+00	7.92E+02	2.21E-02	-1.44E+04
Eutrophication, aquatic freshwater	kg PO ₄ e	8.52E-01	3.12E-03	2.76E-01	6.34E-03	MNR	MND	MNR	5.43E-05	1.95E-03	5.19E-08	-6.71E-01
Eutrophication, aquatic marine	kg Ne	1.83E+00	4.99E-02	2.41E-01	9.80E-02	MNR	MND	MNR	6.32E-04	2.54E-01	7.04E-06	-1.13E+00
Eutrophication, terrestrial	mol Ne	1.91E+01	5.27E-01	2.11E+00	1.03E+00	MNR	MND	MNR	6.66E-03	2.76E+00	7.65E-05	-1.18E+01
Abiotic depletion, minerals & metals	kg Sbe	2.32E-03	1.08E-04	3.29E-04	2.09E-04	MNR	MND	MNR	2.19E-06	3.30E-05	6.13E-10	-3.06E-04
Ozone depletion	kg CFC11e	4.08E-05	9.69E-07	1.32E-06	1.88E-06	MNR	MND	MNR	1.39E-08	9.46E-07	2.68E-11	-3.29E-05
Photochemical ozone formation	kg NMVOCe	9.55E+00	2.17E-01	6.14E-01	4.25E-01	MNR	MND	MNR	2.83E-03	8.18E-01	2.27E-05	-7.03E+00
Water use	m ³ e depr.	5.77E+02	3.12E+00	5.42E+01	6.20E+00	MNR	MND	MNR	5.17E-02	3.56E+00	6.12E-05	-4.30E+02

MND abbreviation stands for Module Not Declared, MNR stands for Module Not Relevant

EN 15804+A2 disclaimer for Abiotic depletion and Water use indicators and all optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Eco-toxicity (freshwater)	CTUe	9.24E+03	3.10E+02	7.17E+02	6.02E+02	MNR	MND	MNR	4.74E+00	3.71E+02	1.04E-02	-3.30E+03
Human toxicity, cancer effects	CTUh	1.14E-05	2.02E-08	8.97E-08	3.98E-08	MNR	MND	MNR	3.29E-10	1.88E-08	5.12E-13	-5.84E-06
Human toxicity, non-cancer effects	CTUh	1.24E-05	4.45E-07	3.95E-06	8.66E-07	MNR	MND	MNR	6.33E-09	1.42E-07	3.88E-12	1.32E-06
Ionizing radiation, human health	kBq U235-Eq	3.90E+01	8.51E-01	7.78E+00	1.69E+00	MNR	MND	MNR	1.80E-02	1.07E+00	1.30E-05	-4.72E+01
Particulate matter	disease incidence	1.50E-04	3.53E-06	2.99E-06	6.89E-06	MNR	MND	MNR	3.73E-08	1.53E-05	4.32E-10	-1.02E-04

MND abbreviation stands for Module Not Declared, MNR stands for Module Not Relevant

EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Total use of non-renewable PER	MJ	1.97E+04	6.36E+02	2.67E+03	1.24E+03	MNR	MND	MNR	9.07E+00	7.92E+02	2.21E-02	-1.44E+04
Total use of renewable PER	MJ	6.83E+02	9.84E+00	3.96E+02	3.43E+02	MNR	MND	MNR	1.96E-01	1.58E+01	6.45E-04	-5.14E+02
Use of net fresh water	m ³	1.62E+01	1.03E-01	7.11E+00	2.05E-01	MNR	MND	MNR	1.74E-03	1.08E-01	2.10E-06	-1.02E+01
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of secondary materials	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PER abbreviation stands for primary energy resources
MND abbreviation stands for Module Not Declared, MNR stands for Module Not Relevant

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste	kg	1.08E-03	7.29E-06	3.44E-05	2.02E-05	MNR	MND	MNR	1.40E-07	6.12E-06	1.95E-10	-6.83E-05
High Level Radioactive waste	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Intermediate and Low-Level Radioactive waste	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste	kg	2.70E+00	1.77E-02	6.12E-02	7.20E-02	MNR	MND	MNR	3.30E-04	1.49E-02	5.30E-07	-1.71E-01

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, medium voltage, production mix (Reference product: electricity, medium voltage), Poland
Electricity CO ₂ e / kWh	0,945 kg CO ₂ e / kWh

Transport scenario documentation

Scenario parameter	Value
A4 specific transport CO ₂ e emissions, kg CO ₂ e / tkm	0,188
A4 average transport distance, km	453.33
Transport capacity utilization, %	100%
Bulk density of transported products, ton/unit (54 units sold in 2023)	60.676
Volume capacity utilisation factor for nested packaged products	1

BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ecoinvent database v3.9.1.

EN 15804:2012+A2:2019 Sustainability in construction works - Environmental product declarations - Core rules for the product category of construction products.

ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework

ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation

World Steel Association 2017 Life Cycle inventory methodology report for steel products

KOBiZE Wskaźniki emisyjności CO₂, SO₂, NO_x, CO i pyłu całkowitego dla energii elektrycznej. December 2021

ISO 20915:2018 Life cycle inventory calculation methodology for steel products

EPD VERIFICATION:

The verification procedure for this Environmental Product Declaration (EPD) has been carried out in accordance with the requirements of ISO 14025 standards. Once the verification process is complete, the EPD remains valid for a period of 5 years. There is no need to recalculate the parameters contained in the EPD after this period, provided that the data underlying the declaration have not changed substantially.

EPD CONTRIBUTORS

Manufacturer representative

Rafał Kowalski

EPD verifier

Izabela Sztamberek Sochan, Ph.D.

Note: The sole ownership, liability, and liability of this declaration are with the owner. Construction product declarations may not be comparable if they do not comply with EN 15804. For detailed information on comparability, please refer to EN 15804 and ISO 14025.

EPD Poland Certificate



Reg. No. EPD-P 01.12.2024

CERTIFICATE

EPD TYPE III DECLARATION

(ENVIRONMENTAL PRODUCT DECLARATION)

This document confirms that the Environmental Product Declaration developed by

Cermont Sp. z o.o. (Limited Liability Company) for welded steel structures with anti-corrosive paint coating,

manufactured in accordance with

EN 1090 and EN ISO 3834-2,

meets the requirements of standards

EN 15804 + A2 and ISO 14025,

and that the data contained therein has been prepared correctly.



Verification carried out by:

I. Sztamberek

Izabela Sztamberek Sochan, Ph.D.



Program Manager

G. Suwara

Grzegorz Suwara

This document is valid until December 5, 2029, or until EPD is deregistered and its publication on the website www.epd.org.pl is discontinued.

EPD Polska Registration Office,
Warsaw, December 5, 2024

www.epd.com.pl