Type III Environmental Product Declaration No. 360/2022

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Hot rolled steel profiles

Owner of the EPD:

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

Basic information

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804+A2 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment and their aspects verified by the independent body according to ISO 14025. Basically, comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804+A2.

Life cycle analysis (LCA): A1-A3, A4-A5, C1-C4 and D modules in accordance with EN 15804+A2 (Cradle-to-Gate with options)
The year of preparing the EPD: 2022
The year of update: 2024
Product standards: see Table 1
Service Life: 100 years
PCR: ITB-PCR A
Declared unit: 1 ton
Reasons for performing LCA: B2B
Representativeness: Poland, European, 2023

MANUFACTURER

Walcownie Ostrowieckie WOST S.A. company is a Polish and European producer of hot-rolled profiles, established in 2015 and offering products and services has been developed based on the current market needs. The Ostrowiec production plant boasts over 200 years of rolling process experience, knowledge and tradition. The rolling mill provides customers with a wide range of products of various grades and parameters what make them applicable in many areas of activity like construction, road engineering and power industry.

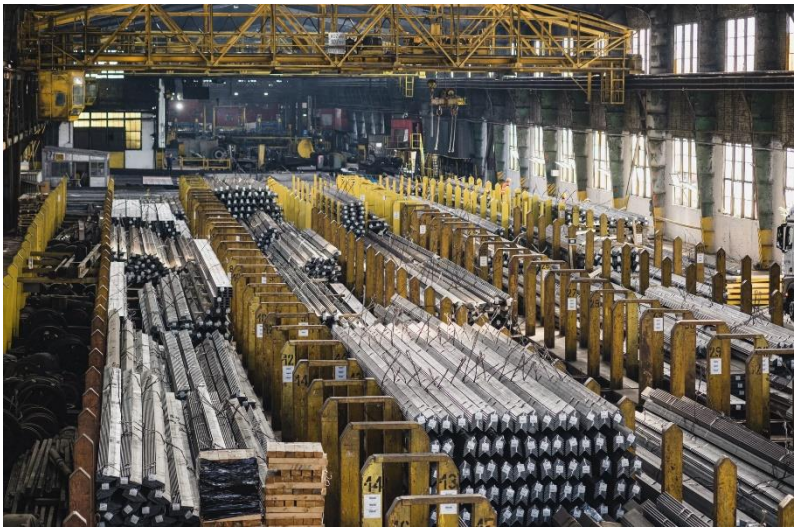
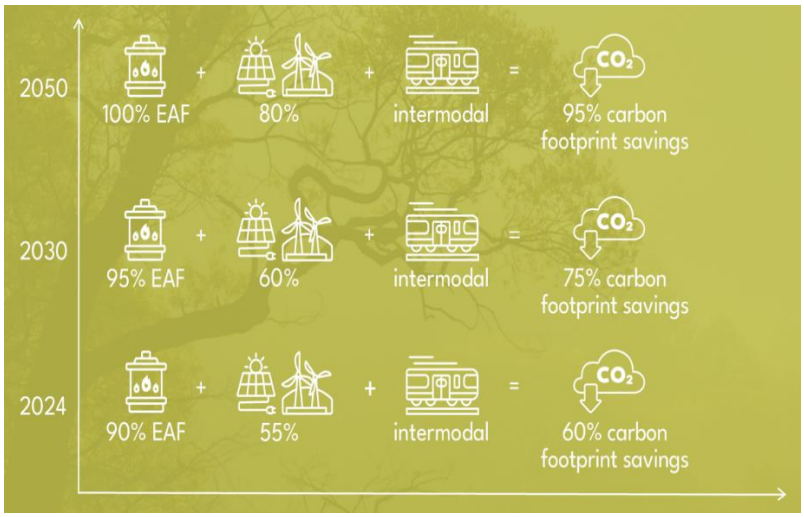


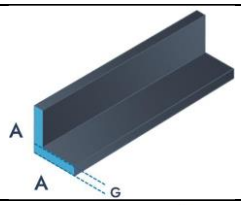
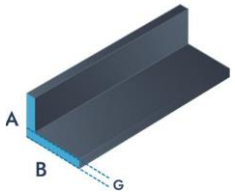
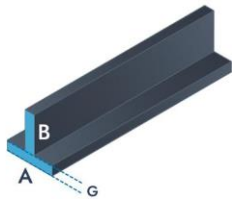
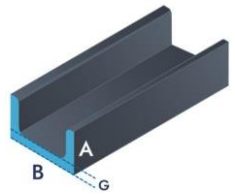
Figure 1 The view of Walcownie Ostrowieckie WOST S.A. manufacturing plant located in Ostrowiec Świętokrzyski

PURE.X



The policy adopted contains strategies for conducting responsible business and environmental protection consisting in continuous, integrated and preventive action with respect to processes, products and services aimed at continuously increasing production efficiency and reducing environmental pollution. Bearing in mind the well-being of the planet and people, producer constantly strive to minimize our impact on the environment and protect natural resources. All this thanks to innovative methods of production management. WOST S.A. Green Steel Strategy has become the important guideline for ocurrent and future activities. Pure.X profiles are products of Walcownie Ostrowieckie WOST S.A. with reduced carbon dioxide emissions. The steel charges for the production of Pure.X comes entirely from recycling and are produced exclusively in electric furnaces (EAF). Production waste such as scrap metal and rolling mill scale is a valuable secondary raw material that is hand over to the relevant plants. Electricity from own photovoltaic installations is used for the production of Pure.X profiles, while the share of renewable energy from external photovoltaic and wind farms supplied to WOST is 50%. Product types covered by this EPD are provided in Table 1.

Table 1 The range of hot rolled steel profiles Pure.X manufactured by Walcownie Ostrowieckie WOST S.A.

Typ of profiles	View	Length range, mm	Standards
Equal angles		3000-16000	PN-EN 10025-5:2019 PN-EN 10028-1:2017-09 PN-EN 10028-2:2017-09 PN-EN10025-1:2007 PN-EN10025-2:2019-11 PN-EN10056-2:1998
Unequal angles		3000-16000	PN-EN 10025-5:2019 PN-EN 10028-1:2017-09 PN-EN 10028-2:2017-09 PN-EN10025-1:2007 PN-EN10025-2:2019-11 PN-EN10056-2:1998
T-bars		3000-16000	DIN 1024 PN-EN 10025-5:2019 PN-EN10025-1:2007 PN-EN10025-2:2019-11 PN-EN10055:1999
UPN channels-		3000-16000	PN-EN 10025-5:2019 PN-EN10025-1:2007 PN-EN10025-2:2019-11 PN-EN10279:2003

All additional technical information about the product is available on the manufacturer's website and catalogues.

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Unit

The declared unit is 1 ton of products. Declared unit refer to different product. However, the same manufacturing process and the similarities of product allow a declared unit based on mass unit of products.

System boundary

The life cycle analysis of the declared products covers “Product Stage” A1-A3, A4, C2-C4+D modules in accordance with EN 15804 and ITB PCR A (cradle to gate with options). Energy and water consumption, emissions as well as information on generated wastes were inventoried and were included in the calculation. It can be assumed that the total sum of omitted processes does not exceed 5% of all impact categories. In accordance with EN 15804+A2, machines and facilities (capital goods) required for the production as well as transportation of employees were not included in LCA.

Allocation

The allocation rules used for this EPD are based on general ITB PCR A. Production of the hot rolled steel profiles is a line process conducted in the rolling mill of Walcownie Ostrowieckie WOST S.A., located in Ostrowiec Świętokrzyski (Poland). All impacts from raw materials extraction and processing are allocated in module A1 of the LCA. Impacts from the global line production of Walcownie Ostrowieckie WOST S.A. were inventoried and 100% was allocated to the production of

the hot rolled steel profiles based on the products mass basis. Water and energy consumption, associated emissions and generated wastes are allocated to module A3.

System limits

The life cycle analysis (LCA) of the declared products covers: product stage – modules A1-A3, end of life – modules C2-C4 and benefits and loads beyond the system boundary – module D (cradle-to-gate with options) in accordance with EN 15804+A2 and ITB PCR A. Energy and water consumption, emissions as well as information on generated wastes were inventoried and were included in the calculations. It can be assumed that the total sum of omitted processes does not exceed 5% of all impact categories. In accordance with EN 15804+A2, machines and facilities (capital goods) required for the production as well as transportation of employees were not included in LCA.
Modules A1.

Modules A1 and A2: *Raw materials supply and transport*

Steel blooms used to produce hot rolled profiles come from national mills using electric arc furnace (EAF) process. Means of transport include trains and lorries. European standards for average combustion were used for calculations.

Module A3: *Production*

A scheme of the hot rolled steel profiles production is presented in Figure 2. 4% of electricity was generated from own renewable energy sources (PV panels).

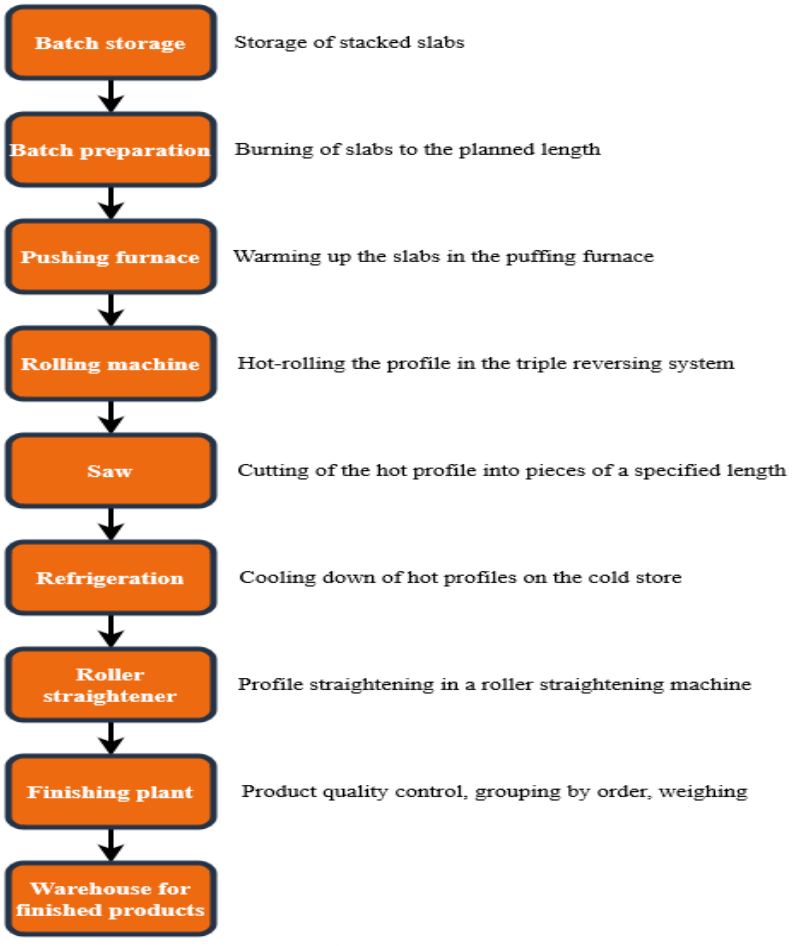


Figure 2 Manufacturing process scheme (A1-A3), with forming/assembly process in Ostrowiec Świętokrzyski (A3)

Module A4: transport to consumer

Vehicle transport at distance 100 km is considered (emission standard: Euro 5) with 100% load capacity.

Modules *C and D: End-of-life (EOL)*

The hot rolled steel profiles constitutes intermediate products. Versatile application on the hot rolled steel profiles excludes the possibility of precise modeling of the impacts occurring at the deconstruction stage, thus the module C1 is not declared within this EPD. In the adapted end-of-life scenario, the deconstructed hot rolled steel profiles are transported to a steel mill distant by 150 km on > 16t lorry EURO 5, where are used as steel scrap to produce new steel. Module D presents credits resulting from the recycling of the primary steel scrap (0%), calculated in accordance with the net scrap approach developed by World Steel Associated.

Table 2 End-of-life scenario for the hot rolled steel profiles manufactured by Walcownie Ostrowieckie WOST S.A.

Material	Material recovery	Recycling	Landfilling
steel scrap	100%	95%	5%

Electricity at end-of-life (module C) has been modelled using an average Polish electricity mix as the location where the product reaches end-of-life is unknown.

Data collection period

The data for manufacture of the declared products refer to period between 01.01.2023 – 31.12.2023 (1 year). The life cycle assessments were prepared for Poland and Europe as reference area.

Data quality

The data selected for LCA originate from ITB-LCI questionnaires completed by Walcownie Ostrowieckie WOST S.A. and verified during data audit. No data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency is judged as good. The background data for the processes come from the following resources database Ecoinvent v.3.10.

Assumptions and estimates

The impacts of the representative products were aggregated using weighted average.

Calculation rules

LCA was performed using ITB-LCA tool developed in accordance with EN15804+A2. Emission of greenhouse gases was calculated using the IPCC 2013 GWP method with a 100-year horizon. Emission of acidifying substances, Emission of substances to water contributing to oxygen depletion, Emission of gases that contribute to the creation of ground-level ozone, Abiotic depletion, and ozone depletion emissions where all calculated with the CML-IA baseline method

Additional information

Polish electricity mix (Ecoinvent v.3.10 supplemented by actual national KOBIZE data) emission factor used is 0.685 kg CO_2/kWh. For renewable energy sources, the carbon footprint used in the calculations is 0.1 kg CO_2/kWh.As a general rule, no particular environmental or health protection measures other than those specified by law are necessary.

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to declared unit (DU) – 1 ton of Hot rolled steel profiles produced in Poland. The following life cycle modules (Table 3) were included in the analysis. The following tables 4-7 show the environmental impacts of the life cycle of selected modules (A1-A5+C1-C4+D).

Table 3 System boundaries for the environmental characteristic of the product.

Environmental assessment information (MD – Module Declared, MND – Module Not Declared, INA – Indicator Not Assessed)															
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MD	MD	MD	MD	MD	MND	MND	MND	MND	MND	MND	MND	MD	MD	MD	MD	MD

Table 4 Life cycle assessment (LCA) results for specific product – environmental impacts of (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	4.49E+02	2.00E+01	8.22E+01	5.52E+02	1.67E+01	4.11E+00	1.67E+01	4.08E+00	5.32E-01	-3.35E+02
Greenhouse potential - fossil	eq. kg CO_2	4.52E+02	1.99E+01	8.20E+01	5.54E+02	1.66E+01	4.11E+00	1.66E+01	4.19E+00	5.26E-01	-3.36E+02
Greenhouse potential - biogenic	eq. kg CO_2	1.43E-01	6.82E-02	9.53E-01	1.16E+00	5.68E-02	1.20E-01	5.68E-02	2.91E-02	5.31E-03	1.90E+00
Global warming potential - land use and land use change	eq. kg CO_2	3.66E-01	7.83E-03	1.28E-02	3.87E-01	6.52E-03	1.44E-03	6.52E-03	3.69E-03	5.33E-04	7.19E-03
Stratospheric ozone depletion potential	eq. kg CFC 11	9.00E-10	4.62E-06	6.96E-06	1.16E-05	3.85E-06	8.40E-08	3.85E-06	7.78E-08	1.60E-07	-1.10E-05
Soil and water acidification potential	eq. mol H+	1.30E+00	8.10E-02	3.43E-01	1.72E+00	6.75E-02	4.56E-02	6.75E-02	2.12E-02	4.44E-03	-1.34E+00
Eutrophication potential - freshwater	eq. kg P	4.58E-04	1.34E-03	4.78E-02	4.96E-02	1.12E-03	7.80E-03	1.12E-03	9.98E-03	1.53E-04	-1.39E-01
Eutrophication potential - seawater	eq. kg N	3.27E-01	2.44E-02	7.09E-02	4.22E-01	2.04E-02	6.60E-03	2.04E-02	7.34E-03	1.53E-03	-2.92E-01
Eutrophication potential - terrestrial	eq. mol N	3.54E+00	2.67E-01	4.70E-01	4.28E+00	2.22E-01	5.58E-02	2.22E-01	7.86E-02	1.67E-02	-3.20E+00
Potential for photochemical ozone synthesis	eq. kg NMVOC	9.10E-01	8.16E-02	2.15E-01	1.21E+00	6.80E-02	1.56E-02	6.80E-02	2.69E-02	4.82E-03	-1.72E+00
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	5.11E-05	7.07E-05	2.04E-04	3.26E-04	5.89E-05	2.00E-05	5.89E-05	2.02E-05	1.78E-06	-7.20E-03
Abiotic depletion potential - fossil fuels	MJ	6.30E+03	2.96E+02	1.25E+03	7.84E+03	2.47E+02	6.96E+01	2.47E+02	6.46E+01	1.22E+01	-2.60E+03
Water deprivation potential	eq. m^3	5.09E+00	1.37E+00	1.42E+01	2.06E+01	1.14E+00	1.44E+00	1.14E+00	7.58E-01	7.06E-02	-2.46E+01

Table 5 Life cycle assessment (LCA) results for specific product – additional impacts indicators (DU: 1 ton)

Indicator	Unit	A1-A3	A4	C1-C4	D
Particulate matter	disease incidence	INA	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA	INA

Table 6 Life cycle assessment (LCA) results for specific product - the resource use (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	3.83E+02	4.25E+00	5.71E+01	4.44E+02	3.54E+00	5.16E+00	3.54E+00	5.85E+00	2.14E-01	-2.26E+02
Consumption of renewable primary energy resources used as raw materials	MJ	1.77E+03	0.00E+00	0.00E+00	1.77E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of renewable primary energy resources	MJ	2.15E+03	4.25E+00	5.90E+01	2.22E+03	3.54E+00	5.16E+00	3.54E+00	5.85E+00	2.14E-01	-2.26E+02
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	2.52E+03	2.96E+02	4.21E+02	3.24E+03	2.47E+02	6.98E+01	2.47E+02	6.46E+01	0.00E+00	-5.85E+03
Consumption of non-renewable primary energy resources used as raw materials	MJ	3.77E+03	0.00E+00	0.00E+00	3.77E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	6.30E+03	2.96E+02	1.34E+03	7.93E+03	2.47E+02	6.98E+01	2.47E+02	6.46E+01	1.31E+01	-2.46E+03
Consumption of secondary materials	kg	1.00E+03	9.93E-02	1.28E-01	1.00E+03	8.27E-02	6.36E-03	8.27E-02	3.39E-02	0.00E+00	-1.27E+01
Consumption of renew. secondary fuels	MJ	0.00E+00	1.09E-03	8.33E-04	1.93E-03	9.11E-04	3.55E-05	9.11E-04	2.73E-04	0.00E+00	-6.78E-02
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	3.29E-01	3.29E-01	0.00E+00	5.63E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m^3	2.12E+00	3.73E-02	1.19E+00	3.35E+00	3.10E-02	1.89E-02	3.10E-02	2.29E-02	1.90E-03	-2.52E+00

Table 7 Life cycle assessment (LCA) results for specific product – waste categories (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	7.28E-06	3.32E-01	1.56E-01	4.89E-01	2.77E-01	7.20E-04	2.77E-01	1.42E-01	1.91E-05	-2.55E+02
Non-hazardous waste	kg	2.90E+00	5.90E+00	3.08E+00	1.19E+01	4.92E+00	3.74E-02	4.92E+00	5.30E+00	5.01E+01	-9.42E+02
Radioactive waste	kg	4.74E-02	2.21E-05	8.36E-04	4.82E-02	1.84E-05	5.22E-05	1.84E-05	3.36E-05	7.39E-05	1.52E-02
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	4.38E-02	9.17E-04	1.20E+02	1.20E+02	7.64E-04	7.20E-05	7.64E-04	2.13E-03	0.00E+00	-4.17E-02
Materials for energy recovery	kg	6.50E-06	7.41E-06	1.11E-05	2.50E-05	6.18E-06	6.30E-07	6.18E-06	2.72E-06	0.00E+00	-2.61E-03
Exported Energy	MJ	0.00E+00	0.00E+00	1.82E+00	1.82E+00	0.00E+00	2.08E-01	0.00E+00	7.96E-02	0.00E+00	0.00E+00

Informational Annex A. Using steel from a specific supplier

If only steel from the CMC supplier is used, the environmental impact values will be as shown in the tables A1-A4 below.

Table A1Life cycle assessment (LCA) results for specific product – environmental impacts of (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	2.85E+02	2.00E+01	8.22E+01	3.87E+02	1.67E+01	4.11E+00	1.67E+01	4.08E+00	5.32E-01	-3.35E+02
Greenhouse potential - fossil	eq. kg CO_2	2.85E+02	1.99E+01	8.20E+01	3.87E+02	1.66E+01	4.11E+00	1.66E+01	4.19E+00	5.26E-01	-3.36E+02
Greenhouse potential - biogenic	eq. kg CO_2	1.66E-05	6.82E-02	9.53E-01	1.02E+00	5.68E-02	1.20E-01	5.68E-02	2.91E-02	5.31E-03	1.90E+00
Global warming potential - land use and land use change	eq. kg CO_2	5.23E-01	7.83E-03	1.28E-02	5.44E-01	6.52E-03	1.44E-03	6.52E-03	3.69E-03	5.33E-04	7.19E-03
Stratospheric ozone depletion potential	eq. kg CFC 11	1.13E-10	4.62E-06	6.96E-06	1.16E-05	3.85E-06	8.40E-08	3.85E-06	7.78E-08	1.60E-07	-1.10E-05
Soil and water acidification potential	eq. mol H+	5.80E-01	8.10E-02	3.43E-01	1.00E+00	6.75E-02	4.56E-02	6.75E-02	2.12E-02	4.44E-03	-1.34E+00
Eutrophication potential - freshwater	eq. kg P	1.99E-04	1.34E-03	4.78E-02	4.93E-02	1.12E-03	7.80E-03	1.12E-03	9.98E-03	1.53E-04	-1.39E-01
Eutrophication potential - seawater	eq. kg N	1.35E-01	2.44E-02	7.09E-02	2.30E-01	2.04E-02	6.60E-03	2.04E-02	7.34E-03	1.53E-03	-2.92E-01
Eutrophication potential - terrestrial	eq. mol N	1.47E+00	2.67E-01	4.70E-01	2.21E+00	2.22E-01	5.58E-02	2.22E-01	7.86E-02	1.67E-02	-3.20E+00
Potential for photochemical ozone synthesis	eq. kg NMVOC	3.60E-01	8.16E-02	2.15E-01	6.57E-01	6.80E-02	1.56E-02	6.80E-02	2.69E-02	4.82E-03	-1.72E+00
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	2.53E-05	7.07E-05	2.04E-04	3.00E-04	5.89E-05	2.00E-05	5.89E-05	2.02E-05	1.78E-06	-7.20E-03
Abiotic depletion potential - fossil fuels	MJ	3.09E+03	2.96E+02	1.25E+03	4.63E+03	2.47E+02	6.96E+01	2.47E+02	6.46E+01	1.22E+01	-2.60E+03
Water deprivation potential	eq. m^3	5.09E+00	1.37E+00	1.42E+01	2.06E+01	1.14E+00	1.44E+00	1.14E+00	7.58E-01	7.06E-02	-2.46E+01

Table A2 Life cycle assessment (LCA) results for specific product – additional impacts indicators (DU: 1 ton)

Indicator	Unit	A1-A3	A4	C1-C4	D
Particulate matter	disease incidence	INA	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA	INA

Table A3 Life cycle assessment (LCA) results for specific product - the resource use (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	0.00E+00	4.25E+00	5.71E+01	6.14E+01	3.54E+00	5.16E+00	3.54E+00	5.85E+00	2.14E-01	-2.26E+02
Consumption of renewable primary energy resources used as raw materials	MJ	1.72E+03	0.00E+00	0.00E+00	1.72E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of renewable primary energy resources	MJ	1.72E+03	4.25E+00	5.90E+01	1.78E+03	3.54E+00	5.16E+00	3.54E+00	5.85E+00	2.14E-01	-2.26E+02
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	0.00E+00	2.96E+02	4.21E+02	7.17E+02	2.47E+02	6.98E+01	2.47E+02	6.46E+01	0.00E+00	-5.85E+03
Consumption of non-renewable primary energy resources used as raw materials	MJ	3.09E+03	0.00E+00	0.00E+00	3.09E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	3.09E+03	2.96E+02	1.34E+03	4.72E+03	2.47E+02	6.98E+01	2.47E+02	6.46E+01	1.31E+01	-2.46E+03
Consumption of secondary materials	kg	1.10E+03	9.93E-02	1.28E-01	1.10E+03	8.27E-02	6.36E-03	8.27E-02	3.39E-02	0.00E+00	-1.27E+01
Consumption of renew. secondary fuels	MJ	0.00E+00	1.09E-03	8.33E-04	1.93E-03	9.11E-04	3.55E-05	9.11E-04	2.73E-04	0.00E+00	-6.78E-02
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	3.29E-01	3.29E-01	0.00E+00	5.63E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m^3	1.83E+00	3.73E-02	1.19E+00	3.06E+00	3.10E-02	1.89E-02	3.10E-02	2.29E-02	1.90E-03	-2.52E+00

Table A4 Life cycle assessment (LCA) results for specific product – waste categories (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	6.59E-06	3.32E-01	1.56E-01	4.89E-01	2.77E-01	7.20E-04	2.77E-01	1.42E-01	1.91E-05	-2.55E+02
Non-hazardous waste	kg	1.73E+00	5.90E+00	3.08E+00	1.07E+01	4.92E+00	3.74E-02	4.92E+00	5.30E+00	5.01E+01	-9.42E+02
Radioactive waste	kg	2.36E-02	2.21E-05	8.36E-04	2.45E-02	1.84E-05	5.22E-05	1.84E-05	3.36E-05	7.39E-05	1.52E-02
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	1.67E+02	9.17E-04	1.20E+02	2.87E+02	7.64E-04	7.20E-05	7.64E-04	2.13E-03	0.00E+00	-4.17E-02
Materials for energy recovery	kg	0.00E+00	7.41E-06	1.11E-05	1.85E-05	6.18E-06	6.30E-07	6.18E-06	2.72E-06	0.00E+00	-2.61E-03
Exported Energy	MJ	0.00E+00	0.00E+00	1.82E+00	1.82E+00	0.00E+00	2.08E-01	0.00E+00	7.96E-02	0.00E+00	0.00E+00

Verification

The process of verification of this EPD is in accordance with ISO 14025 and ISO 21930. After verification. this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years. if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804 and ITB PCR A
Independent verification corresponding to ISO 14025 (sub clause 8.1.3.) [x] external [ ] internal
External verification of EPD: Halina Prejzner. PhD. Eng. LCI audit and verification: Michał Chwedaczuk. M.Sc. Eng. LCA. LCI audit and input data verification: Michał Piasecki. PhD., D.Sc., eng.

Note 1: The declaration owner has the sole ownership, liability, and responsibility for the information provided and contained in EPD. Declarations of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability. see EN 15804+A2 and ISO 14025.

Note 2: ITB is a public Research Organization and Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' performance. ITB acts as the independent. third-party verification organization (see ISO 17025/17065/17029). ITB-EPD program is recognized and registered member of The European Platform - Association of EPD program operators and ITB-EPD declarations are registered and stored in the international ECO-PORTAL.

Normative references

- ITB PCR A General Product Category Rules for Construction Products (v.1.6..2023)
- PN-EN 12266-1:2012 - Badania armatury metalowej – Część 1: Próby ciśnieniowe. procedury badawcze i kryteria odbioru -- Wymagania obowiązkowe
- ISO 14025:2006. Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- 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
- EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declarations – Communication format business-to-business
- ISO 20915:2018 Life cycle inventory calculation methodology for steel products
- KOBiZE Wskaźniki emisyjności CO_2. SO_2. NO_x. CO i pyłu całkowitego dla energii elektrycznej. December 2023
- World Steel Association 2017 Life Cycle inventory methodology report for steel products

LCA, LCI, weryfikacja danych wejściowych
dr hab., inż. Michał Piasecki,

Kwalifikowany podpis elektroniczny

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CERTIFICATE № 360/2022
of TYPE III ENVIRONMENTAL DECLARATION

Product:

Hot rolled steel profiles

Manufacturer:

Walcownie Ostrowieckie WOST S.A.

ul. Centralnego Okręgu Przemysłowego 12A, 27-400 Ostrowiec Świętokrzyski, 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 for the first time on 20th August 2022 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

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, August 2022