Type III Environmental Product Declaration No. 839/2025

Issuance date: 09.09.2025
Validation: 04.12.2025
Validity date: 09.09.2030

Steel and aluminum lighting poles and masts

Owner of the EPD:

Elektromontaż Rzeszów S.A.
Address: Baczyńskiego 7a,
35-210 Rzeszów, Poland
Tel.: +48 17 864 05 30
Website: https://elektromontaz.com.pl/
Contact: sekretariat@elektromontaz.com.pl

EPD Program Operator:

Instytut Techniki Budowlanej (ITB)
Address: Filtrowa 1,
00-611 Warsaw, Poland
Website: www.itb.pl
Contact: energia@itb.pl

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, C1-C4 and D modules in accordance with EN 15804+A2
(Cradle-to-Gate with options)
Product standards: EN 40-5:2002, EN 40-6 :2004
The year of preparing the EPD: 2025
Service Life: 30 years for standard product
PCR: ITB-PCR A
Declared unit: 1 ton
Reasons for performing LCA: B2B
Representativeness: Poland, 2024

MANUFACTURER

Figure 1. View of the Metal Production Plant of Elektromontaż Rzeszów S.A. in Poland

Elektromontaż Rzeszów S.A. is a manufacturer of street lighting systems based on galvanized and aluminium pillars and lighting masts.
All products of come Elektromontaż Rzeszów S.A. with high quality and durability to last even in the most demanding environment. The quality of our manufacture is proved by the PN-EN ISO 9001, PN-EN ISO 14001 and PN-N 18001 Integrated Management System certification.
Elektromontaż Rzeszów S.A is one of the first in the industry to have passed the product certification for compliance with the PN-EN 40 standard. The compliance certification covers the entire process of design engineering, manufacturingand control of steel and aluminium lamp posts and masts. Our compliance with the European Community directives and harmonised standards has beencertified and proven by the right to use the CE mark.
Elektromontaż Rzeszów S.A is one of the first in the industry to have passed the certification for the passive collision safety of lamp posts according to the PN-EN 12767:2019 standard. The Building Research Institute of Warsaw has examined the process of design engineering,manufacturing and control of steel lamp post types S_-PS, and thus confirmed that their passive safety characteristics comply with the PN-EN 12767:2019 standard.
Elektromontaż Rzeszów S.A has met the requirements of EU standards andregulations for class EXC3 welded steel and aluminium construction and engineeringcomponents and received the PN-EN 1090-1 certificate of compliance from a third-party notifiedbody, allowing the company to apply the CE mark on its products.

PRODUCTS DESCRIPTION AND APPLICATION

Elektromontaż Rzeszów S.A. designs and manufactures high-quality steel and aluminum lighting poles and masts in its Metal Production Plant in Rzeszów. The company offers a wide range of solutions for road, urban, and park lighting. Main product range:

- Conical and tapered circular poles
- Polygonal tapered poles
- Tubular poles
- Stepped/telescopic poles

- Decorative and park poles
- Passive-safety poles (EN 12767)

All products comply with EN 40-5 and carry the CE mark. Steel structures are manufactured according to EN 1090-1 (EXC3). The company operates under ISO 9001, ISO 14001, and ISO 45001 management systems. Certificates are available on the manufacturer's website in the "Quality" tab. Poles are protected by hot-dip galvanizing, with optional coatings (decorative painting, photoluminescent, dirt-repellent, or bitumen for underground parts) for extended durability.
Lighting poles from Elektromontaż Rzeszów are used in:

- Road and highway lighting,
- Urban streets and residential areas,
- Parks, squares, and pedestrian zones,
- Car parks and industrial facilities

More information about the products can be found on the website in the "Products" tab.

LIFE CYCLE ASSESSMENT (LCA) – General rules applied

Unit

The declared unit is 1 ton of product (results for aluminium and steel products are provided separately).

Note: The conversion of environmental impacts per unit from a ton can be done using the conversion factor of the column weight to 1 ton (e.g. for a 300 kg column the factor will be 0.3)

System boundary

The life cycle analysis (LCA) of the declared products covers: product stage – modules A1-A3, installation modules A4-A5, end of life – modules C1-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.

Allocation

The allocation rules used for this EPD are based on general ITB ’s document PCR A. Production of the steel and aluminum lighting poles and masts, is a process (as presented in Figure 2) conducted in the manufacturing plant located in Rzeszów Poland. Input and output data from the production is inventoried and allocated to the production on the mass basis. The declaration covers all steel and aluminum structure products manufactured in the plants. Their production resources and processing stages are basicly similar, so it is possible to average the production by product weight.

System limits

Minimum 99.0% input materials and 100% energy consumption (electricity, gas, LPG, other) were inventoried in a processing plant and were included in the calculation. In the assessment, all available data from production have been considered, i.e. all raw materials/elements used as per formulation process, utilized thermal energy, and electric power consumption. The assessment considered all available production data, i.e., all raw materials/components used in the production process, the thermal energy used for heating, and the electricity consumption. Therefore, material and energy flows representing less than 1% of the mass or energy were not included. It can be

assumed that the sum of omitted processes does not exceed 1% of the energy and mass consumption for modules A or D. Machinery and equipment necessary for the production process were omitted. Packaging products were also included.

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

Modules A1 and A2 represent the extraction and processing of raw materials (mainly steel and aluminum products) and transport to the production site. Steel and aluminum sheets, profiles and pipes are commonly used semi-finished products for the production of steel and aluminum lighting poles and masts. The steel used is produced using both EAF and BOF technologies (with ratio representative for Poland). Raw materials, additives, auxiliary materials and packaging come from both foreign and local suppliers. Module A2 (transport) includes truck transport and uses Polish and European averages for fuel data.

Module A3: *Production*

The production process takes place at the Metal Production Plant in Rzeszów, where steel and aluminum lighting poles and masts are manufactured. The main production stages include material preparation, forming, and welding. The finished steel components are then subjected galvanizing, Galvanizing of steel products takes place in subcontracting plants, transport and related technological processes have been included in the calculations. Next step is painting of steel and aluminum lighting poles and masts. Finished products, after passing quality control, are packaged and shipped to the customer. A flowchart of the production process is shown in Figure 2.

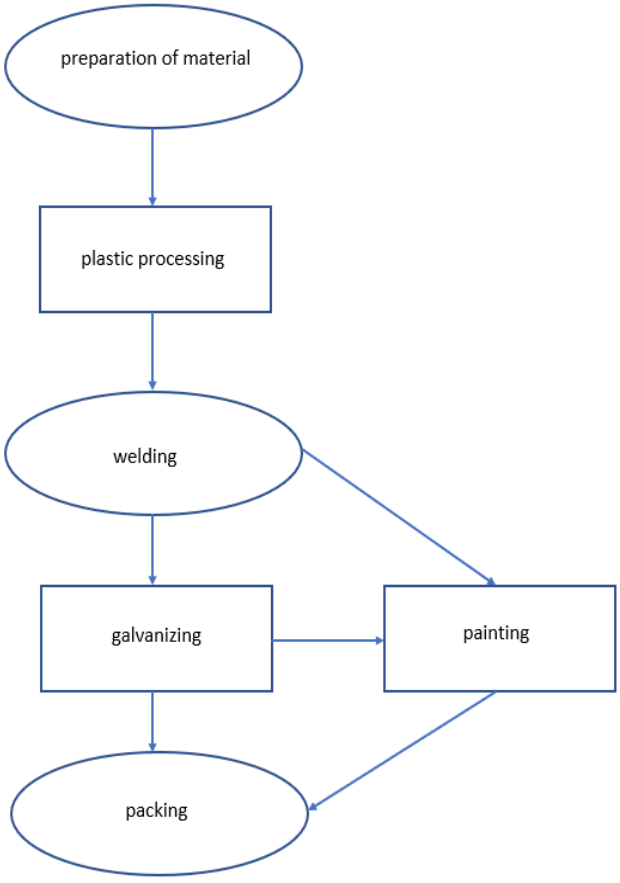

Figure 2. Diagram of the manufacturing process of steel and aluminum lighting poles and masts

Module A4-A5: ***Transport to consumer and instalation***

Transport of the steel structure from the Factory to the construction site is carried out using specialized vehicles. Vehicle transport at distance 500 km is considered (emission standard: Euro 5) with 100% load capacity. It was assumed that 3 kWh of energy per ton is required to install the product.

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

Due to the fact that the declaration covers a wide range of steel products for various purposes and usage scenarios, it is not possible to directly specify the de-construction technology and the amount of energy for disassembly in C1 module (so this module is generic based on literature, 5 kWh). In the adapted end-of-life scenario, the de-constructed steel and aluminum products are transported to a steel mill distant by 50 km on > 16t lorry EURO 5 where are used as steel and aluminum scrap to produce a new steel and aluminum. The recycling potential of C3 module is 98% form steel and 98% form aluminum and it is assumed that only 2% respectively of the products will end up in a landfill – C4 module (Table 2). Module D presents credits resulting from the recycling of the steel scrap (used for steel production), calculated in accordance with the approach developed by World Steel Association.

Table 1. End-of-life scenario for a steel lighting poles, steel power line support structures and other steel structures

Material	Material recovery	Recycling	Landfilling
Steel scrap	100%	98%	2%
Aluminium scrap	100%	98%	2%

Data collection period

The data for manufacture of the declared products refer to period between 01.01.2024 – 31.12.2024 (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 Elektromontaż 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.3.11 and specific suppliers (EPDs for steel). Specific (LCI) data quality analysis was a part of the input data verification.

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 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 EF 3.1. method.

Additional information

Polish electricity (Ecoinvent v 3.11 supplemented by actual national KOBiZE data) emission factor used is 0,597 kg CO_2/kWh (National data for 2024). 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 following life cycle modules (Table 2) were included in the analysis.
The declaration refers to declared unit (DU) of 1 tonne for:

- steel lighting poles and masts manufactured in Poland; the life cycle environmental impact of selected modules (A1-A5+C1-C4+D) is presented in Tables 3-6;
- aluminium lighting poles and masts manufactured in Poland; the life cycle environmental impact of selected modules (A1-A5+C1-C4+D) is presented in Tables 7-10.

Table 2 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	MD	MND	MD	MD	MD	MD	MD

Table 3 Life cycle assessment (LCA) results of the steel based product – environmental impacts (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	1.83E+03	5.90E+01	3.59E+02	2.25E+03	1.67E+01	2.06E+03	3.43E+03	8.34E+00	6.39E+01	1.06E-01	-2.67E+02
Greenhouse potential - fossil	eq. kg CO_2	1.85E+03	5.90E+01	3.58E+02	2.26E+03	1.66E+01	2.06E+03	3.43E+03	8.31E+00	6.38E+01	1.05E-01	-2.52E+02
Greenhouse potential - biogenic	eq. kg CO_2	-1.64E+01	3.77E-02	5.04E-01	-1.59E+01	5.68E-02	6.00E-02	1.00E-01	2.84E-02	1.33E-02	2.68E-04	-1.41E+01
Global warming potential - land use and land use change	eq. kg CO_2	1.88E+00	1.96E-02	5.74E-02	1.96E+00	6.52E-03	7.20E-04	1.20E-03	3.26E-03	1.01E-02	9.94E-05	-8.21E-01
Stratospheric ozone depletion potential	eq. kg CFC 11	3.31E-05	1.28E-06	5.29E-06	3.97E-05	3.85E-06	4.20E-08	7.00E-08	1.92E-06	7.80E+02	4.26E-08	-2.34E-05
Soil and water acidification potential	eq. mol H+	8.47E+00	1.89E-01	3.91E+00	1.26E+01	6.75E-02	2.28E-02	3.80E-02	3.37E-02	5.32E-01	9.90E-04	-1.31E+00
Eutrophication potential - freshwater	eq. kg P	1.11E+00	4.03E-03	5.86E-01	1.70E+00	1.12E-03	3.90E-03	6.50E-03	5.59E-04	4.32E-04	9.81E-06	-9.51E-02
Eutrophication potential - seawater	eq. kg N	1.82E+00	6.37E-02	5.15E-01	2.40E+00	2.04E-02	3.30E-03	5.50E-03	1.02E-02	1.81E+00	3.45E-04	-2.62E-01
Eutrophication potential - terrestrial	eq. mol N	1.93E+01	6.93E-01	4.43E+00	2.45E+01	2.22E-01	2.79E-02	4.65E-02	1.11E-01	3.42E+00	3.77E-03	-2.40E+00
Potential for photochemical ozone synthesis	eq. kg NMVOC	6.35E+00	2.87E-01	1.45E+00	8.09E+00	6.80E-02	7.80E-03	1.30E-02	3.40E-02	7.46E-01	1.10E-03	-5.66E-01
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	7.00E-02	2.03E-04	8.89E-04	7.11E-02	5.89E-05	1.00E-05	1.67E-05	2.95E-05	1.45E-05	2.42E-07	-3.80E-04
Abiotic depletion potential - fossil fuels	MJ	2.29E+04	8.36E+02	7.04E+03	3.07E+04	2.47E+02	3.48E+01	5.80E+01	1.23E+02	6.05E+01	2.89E+00	-5.57E+03
Water deprivation potential	eq. m^3	1.00E+03	4.38E+00	1.45E+02	1.15E+03	1.14E+00	7.20E-01	1.20E+00	5.70E-01	1.42E+00	9.16E-03	-2.75E+02

Table 4 Life cycle assessment (LCA) results of the steel based product – additional impacts indicators (DU: 1 ton)

Indicator	Unit	A1-A5	C1-C4	D
Particulate matter	disease incidence	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA

Table 5 Life cycle assessment (LCA) results of the steel based products - the resource use (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	2.94E+03	1.36E+01	9.51E+02	3.91E+03	3.54E+00	2.58E+00	4.30E+00	1.77E+00	1.11E+00	2.51E-02	-1.05E+03
Consumption of renewable primary energy resources used as raw materials	MJ	6.86E+02	0.00E+00	0.00E+00	6.86E+02	0.00E+00	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	3.63E+03	1.36E+01	9.51E+02	4.59E+03	3.54E+00	2.58E+00	4.30E+00	1.77E+00	1.11E+00	2.51E-02	-1.05E+03
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	2.27E+04	8.36E+02	6.04E+03	2.95E+04	2.47E+02	3.49E+01	5.82E+01	1.23E+02	-2.95E+03	2.89E+00	-5.83E+03
Consumption of non-renewable primary energy resources used as raw materials	MJ	2.35E+02	0.00E+00	1.00E+03	1.24E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E+03	0.00E+00	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	2.29E+04	8.36E+02	7.04E+03	3.08E+04	2.47E+02	3.49E+01	5.82E+01	1.23E+02	6.06E+01	2.89E+00	-5.83E+03
Consumption of secondary materials	kg	1.05E+03	3.74E-01	6.77E-01	1.05E+03	8.27E-02	3.18E-03	5.30E-03	4.14E-02	2.74E-02	6.07E-04	-8.79E+02
Consumption of renew. secondary fuels	MJ	8.98E+00	4.90E-03	1.11E-02	9.00E+00	9.11E-04	1.77E-05	2.95E-05	4.56E-04	3.72E-04	1.59E-05	-2.58E-02
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.82E-02	4.70E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m3	2.37E+01	1.01E-01	3.39E+00	2.72E+01	3.10E-02	9.45E-03	1.58E-02	1.55E-02	5.36E-02	3.16E-03	-4.65E+00

Table 6 Life cycle assessment (LCA) results of the steel based product – waste categories (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	8.31E+00	1.20E+00	5.78E+01	6.73E+01	2.77E-01	3.60E-04	6.00E-04	1.38E-01	4.35E-06	3.07E-03	-1.06E+02
Non-hazardous waste	kg	5.63E+02	2.57E+01	2.85E+03	3.44E+03	4.92E+00	1.87E-02	3.12E-02	2.46E+00	1.14E+01	4.32E-02	-5.42E+02
Radioactive waste	kg	4.55E-02	2.46E-04	8.57E-04	4.66E-02	1.84E-05	2.61E-05	4.35E-05	9.21E-06	3.23E-04	1.92E-05	-4.70E-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	0.00E+00
Materials for recycling	kg	3.30E+00	1.00E-02	4.52E-01	3.76E+00	7.64E-04	3.60E-05	6.00E-05	3.82E-04	4.04E-04	5.78E-06	0.00E+00
Materials for energy recovery	kg	6.36E-03	5.31E-05	6.87E-05	6.48E-03	6.18E-06	3.15E-07	5.25E-07	3.09E-06	5.04E-06	6.85E-08	0.00E+00
Exported Energy	MJ	1.15E+02	3.66E-01	1.93E+00	1.18E+02	0.00E+00	1.04E-01	1.73E-01	0.00E+00	6.17E+01	0.00E+00	0.00E+00

Table 7 Life cycle assessment (LCA) results of the aluminum based products – environmental impacts (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	8.06E+03	5.90E+01	3.59E+02	8.48E+03	1.67E+01	2.06E+03	3.43E+03	8.34E+00	6.39E+01	1.06E-01	-3.77E+03
Greenhouse potential - fossil	eq. kg CO_2	7.87E+03	5.90E+01	3.58E+02	8.29E+03	1.66E+01	2.06E+03	3.43E+03	8.31E+00	6.38E+01	1.05E-01	-3.66E+03
Greenhouse potential - biogenic	eq. kg CO_2	1.86E+01	3.77E-02	5.04E-01	1.91E+01	5.68E-02	6.00E-02	1.00E-01	2.84E-02	1.33E-02	2.68E-04	-1.97E+01
Global warming potential - land use and land use change	eq. kg CO_2	1.68E+02	1.96E-02	5.74E-02	1.68E+02	6.52E-03	7.20E-04	1.20E-03	3.26E-03	1.01E-02	9.94E-05	-8.88E+01
Stratospheric ozone depletion potential	eq. kg CFC 11	1.52E-04	1.28E-06	5.29E-06	1.59E-04	3.85E-06	4.20E-08	7.00E-08	1.92E-06	7.80E+02	4.26E-08	-1.08E-04
Soil and water acidification potential	eq. mol H+	4.90E+01	1.89E-01	3.91E+00	5.31E+01	6.75E-02	2.28E-02	3.80E-02	3.37E-02	5.32E-01	9.90E-04	-2.37E+01
Eutrophication potential - freshwater	eq. kg P	4.38E+00	4.03E-03	5.86E-01	4.97E+00	1.12E-03	3.90E-03	6.50E-03	5.59E-04	4.32E-04	9.81E-06	-2.11E+00
Eutrophication potential - seawater	eq. kg N	7.06E+00	6.37E-02	5.15E-01	7.64E+00	2.04E-02	3.30E-03	5.50E-03	1.02E-02	1.81E+00	3.45E-04	-5.15E+00
Eutrophication potential - terrestrial	eq. mol N	6.51E+01	6.93E-01	4.43E+00	7.02E+01	2.22E-01	2.79E-02	4.65E-02	1.11E-01	3.42E+00	3.77E-03	-3.28E+01
Potential for photochemical ozone synthesis	eq. kg NMVOC	2.80E+01	2.87E-01	1.45E+00	2.97E+01	6.80E-02	7.80E-03	1.30E-02	3.40E-02	7.46E-01	1.10E-03	-1.28E+01
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	1.66E-02	2.03E-04	8.89E-04	1.76E-02	5.89E-05	1.00E-05	1.67E-05	2.95E-05	1.45E-05	2.42E-07	-7.12E-03
Abiotic depletion potential - fossil fuels	MJ	1.23E+05	8.36E+02	7.04E+03	1.31E+05	2.47E+02	3.48E+01	5.80E+01	1.23E+02	6.05E+01	2.89E+00	-5.74E+04
Water deprivation potential	eq. m^3	1.44E+04	4.38E+00	1.45E+02	1.45E+04	1.14E+00	7.20E-01	1.20E+00	5.70E-01	1.42E+00	9.16E-03	-5.50E+03

Table 8 Life cycle assessment (LCA) results of the aluminium based products – additional impacts indicators (DU: 1 ton)

Indicator	Unit	A1-A5	C1-C4	D
Particulate matter	disease incidence	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA

Table 9 Life cycle assessment (LCA) results of the aluiminium based product - the resource use (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	4.56E+04	1.36E+01	9.51E+02	4.66E+04	3.54E+00	2.58E+00	4.30E+00	1.77E+00	1.11E+00	2.51E-02	-2.30E+04
Consumption of renewable primary energy resources used as raw materials	MJ	2.67E+02	0.00E+00	0.00E+00	2.67E+02	0.00E+00	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	4.59E+04	1.36E+01	9.51E+02	4.68E+04	3.54E+00	2.58E+00	4.30E+00	1.77E+00	1.11E+00	2.51E-02	-2.29E+04
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.23E+05	8.36E+02	6.04E+03	1.30E+05	2.47E+02	3.49E+01	5.82E+01	1.23E+02	6.06E+01	2.89E+00	-6.63E+04
Consumption of non-renewable primary energy resources used as raw materials	MJ	2.35E+02	0.00E+00	1.00E+03	1.24E+03	0.00E+00	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	1.23E+05	8.36E+02	7.04E+03	1.31E+05	2.47E+02	3.49E+01	5.82E+01	1.23E+02	6.06E+01	2.89E+00	-6.52E+04
Consumption of secondary materials	kg	4.39E+01	3.74E-01	6.77E-01	4.49E+01	8.27E-02	3.18E-03	5.30E-03	4.14E-02	2.74E-02	6.07E-04	-2.59E+00
Consumption of renew. secondary fuels	MJ	9.13E+00	4.90E-03	1.11E-02	9.14E+00	9.11E-04	1.77E-05	2.95E-05	4.56E-04	3.72E-04	1.59E-05	-1.80E-01
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.82E-02	4.70E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m^3	3.13E+02	1.01E-01	3.39E+00	3.16E+02	3.10E-02	9.45E-03	1.58E-02	1.55E-02	5.36E-02	3.16E-03	-1.29E+02

Table 10 Life cycle assessment (LCA) results of the aluminium based product – waste categories (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	1.96E+01	1.20E+00	5.78E+01	7.87E+01	2.77E-01	3.60E-04	6.00E-04	1.38E-01	4.35E-06	3.07E-03	-4.48E+02
Non-hazardous waste	kg	2.07E+02	2.57E+01	2.85E+03	3.09E+03	4.92E+00	1.87E-02	3.12E-02	2.46E+00	1.14E+01	4.32E-02	-9.12E+03
Radioactive waste	kg	5.40E-01	2.46E-04	8.57E-04	5.41E-01	1.84E-05	2.61E-05	4.35E-05	9.21E-06	3.23E-04	1.92E-05	-2.14E+03
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	0.00E+00
Materials for recycling	kg	1.62E+01	1.00E-02	4.52E-01	1.67E+01	7.64E-04	3.60E-05	6.00E-05	3.82E-04	4.04E-04	5.78E-06	-2.77E+00
Materials for energy recovery	kg	2.79E-03	5.31E-05	6.87E-05	2.91E-03	6.18E-06	3.15E-07	5.25E-07	3.09E-06	5.04E-06	6.85E-08	-1.19E-03
Exported Energy	MJ	6.06E+01	3.66E-01	1.93E+00	6.29E+01	0.00E+00	1.04E-01	1.73E-01	0.00E+00	6.17E+01	0.00E+00	-1.06E+01

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+A2 and ITB PCR A
Independent verification corresponding to ISO 14025 (subclause 8.1.3.) ☒ external ☐ internal
External verification of EPD: PhD. Eng. Halina Prejzner LCI audit and verification: Filip Poznański, 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 (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
- EN 40-5:2002, Lighting columns - Part 5: Requirements for steel lighting columns
- EN 40-6:2004, Lighting columns - Part 6: Requirements for aluminum lighting columns
- EN 1090-1:2009+A1:2011, Execution of steel structures and aluminium structures - Part 1: Requirements for conformity assessment of structural components
- 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 CO_2, SO_2, NOx, CO, and total dust emission indicators for electricity. December 2024
- World Steel Association 2017 Life Cycle inventory methodology report for steel products
- https://ecoinvent.org/

LCA, LCI audit and input data verification
Michał Piasecki, PhD. D.Sc. C.E. Eng.
/Qualified electronic signature/

Head of Thermal Physic, Acoustic and Environment Department
Agnieszka Winkler-Skalna, PhD. C.E. Eng.
/Qualified electronic signature/

Instytut Techniki Budowlanej

Instytut Techniki Budowlanej
00-611 Warsaw, Filtrowa 1

Thermal Physics, Acoustics and Environment Department
02-656 Warsaw, Ksawerów 21

CERTIFICATE № 839/2025
of TYPE III ENVIRONMENTAL DECLARATION

Products:

Steel and aluminum lighting poles and masts

Manufacturer:

Elektromontaż Rzeszów S.A.

ul. Baczyńskiego 7a, 35-210 Rzeszów, 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 9th September 2025 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, September 2025