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Steel Structures
ViaPlate® 380

Type III Environmental Product Declaration No. EPD-P 06.06.2025

Program EPDPoland
Operator: MULTICERT Sp. z o.o.

EPD VERIFIED

VIACON

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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 (Cradle-to-Gate with options)

The year of preparing the EPD: 2024/2025

Product standards: EN 15050:2007+A1:2012

Service Life: 100 years

PCR: EN 16757 and EN 15804 +A2 serve as core PCR for this EPD

Declared unit: 1 ton

Reasons for performing LCA: B2B

Representativeness: Poland, Europe

Multicert Sp. z .o.o. is the operator of the EPD Polska program providing a reliable platform for publishing independently verified environmental product declarations (EPD).
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Manufacturer

ViaCon Polska Sp. z o.o., a subsidiary of the ViaCon Group—a leading European provider of innovative infrastructure solutions—specializes in designing, producing, and installing steel structures and flexible infrastructure solutions across Central and Eastern Europe. The company offers innovative, durable, cost-efficient, and environmentally sustainable solutions, including: bridge and culvert solutions, soil stabilization systems, geotechnical solutions, stormwater management systems, drainage systems and custom engineering solutions.

Distinguished by advanced manufacturing capabilities and an experienced in-house engineering team, ViaCon Polska delivers customized solutions tailored to client needs. Its certifications, including EN 1090 Factory Production Control, ISO 9001 Quality Management,

ISO 14001 Environmental Management and ISO 45001 Occupational Health and Safety Management Systems, ensure high standards and sustainability in its operations.
Serving both public and private sectors, ViaCon Polska has completed numerous projects, from large-scale bridges to complex drainage systems. With the resources and expertise of the ViaCon Group, it is a trusted partner in creating modern, sustainable infrastructure.

Products description

ViaPlate® 380 is a modular, buried steel structure system designed and manufactured by ViaCon Polska Sp. z o.o. for use in civil, road, and industrial infrastructure. It is based on the long-established MultiPlate® technology, which has been successfully implemented in Europe for over three decades. ViaPlate® 380 features shallow corrugation profiles (380×140 mm) and offers a flexible, robust solution for applications with small to medium spans, particularly where rapid installation, low environmental impact, and cost-efficiency are priorities.

The system consists of curved, cold-formed steel plates bolted together on site to create various structural shapes, including closed profiles (round, elliptical, pipe-arch) and open-bottom arches. The steel plates are produced from S235 or S355 grades in accordance with PN-EN 10025 and PN-EN 10149. The standard configuration includes hot-dip galvanizing (PN-EN ISO 1461) to ensure corrosion protection. However, ViaPlate® 380 is also available in black steel (non-galvanized) upon request, suitable for applications where corrosion protection is provided by external design measures (e.g., dry environments or encapsulated installations). Optional additional coatings such as epoxy or polyurethane (ViaCoat® system) are available for environments with elevated corrosivity, in line with PN-EN ISO 12944.

Product applications

ViaPlate® 380 structures are versatile and can be used in various applications within the civil engineering and transportation sectors. Some common uses include:

- Road and railway culverts, providing durable and quickly deployable solutions for water conveyance under transport routes.
- Pedestrian and animal crossings, enabling safe and maintenance-free passageways beneath road or rail infrastructure.
- Underpasses and short-span tunnels, used in urban or rural settings where limited clearance or constrained construction space is a factor.
- Stormwater management systems, functioning as retention or conveyance elements in flood-prone areas or drainage networks.
- Technical utility corridors and pipe galleries, offering modular enclosures for utilities, pipelines, or service infrastructure with ease of access and long-term durability.

More specific information (on products) is available on the producer website: www.viacon.pl

Product material declaration

The composition of ViaPlate® structures varies depending on the applied surface treatment. All variants consist predominantly of steel, with additional materials introduced for corrosion protection or surface finishing:

Table 1. Product's material composition

Material	ViaPlate® structures - uncoated	ViaPlate® structures- galvanized	ViaPlate® structures - painted
Black steel	96%	92%	88%
Galvanized steel	4%	4%	4%
Zink	-	4%	4%
Paint	-	-	4%

All materials used in the production of ViaPlate® sheets are selected to ensure durability and performance in demanding environmental conditions. Painted variants include either epoxy or polyurethane coatings, depending on the product specifications.

Substances, REACH – Very high concern

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

Product life-cycle

Raw material acquisition transportation (A1, A2)

Modules A1 and A2 cover the extraction, processing, and transport of raw materials to the production facility. The primary input material is flat steel plate, which is formed into corrugated elements. Other key semi-finished components include galvanized steel products such as nuts, bolts, and anchor elements.

Additional ancillary materials include welding consumables (welding wire and shielding gases such as acetylene, oxygen, and CO_2) as well as materials used for corrosion protection, such as zinc (for hot-dip galvanizing), epoxy coatings, and polyurethane topcoats.

All materials are sourced from both domestic and EU-based suppliers. Transport activities covered under Module A2 are carried out by truck and modeled using Polish and European average fuel consumption data.

Manufacturing (A3)

The manufacturing process of ViaPlate® 380 structures begins with the receipt and inspection of steel sheets, which serve as the main input material. These items are selected based on the required strength and geometry, and undergo quality checks to ensure they meet ViaCon's internal standards.

In the corrugating and shaping stage, the steel plates are mechanically formed into corrugated profiles and curved into the final shapes required for the project — such as round, pipe-arch or elliptical segments. Bolt holes are also added to enable precise and secure assembly in the field.

Following forming, the shaped components are transported to external service providers for hot-dip galvanizing and, if needed, painting. These surface protection processes are performed off-site, after which the treated elements are returned to the factory. This step ensures long-term corrosion resistance and — when epoxy or polyurethane coatings are applied — provides additional durability in aggressive environments (known as the ViaCoat system).

Although galvanizing and painting are outsourced, all material energy and transportation inputs associated with these treatments — including emissions and waste — have been accounted for in Module A3 of the life cycle assessment. This ensures a complete and accurate representation of the environmental impacts associated with the manufacturing phase.

In the final production step, all components — including corrugated segments, bolts, nuts, and optional anchoring systems — are organized and packaged into complete kits for delivery. These kits are prepared for efficient on-site assembly, allowing for streamlined installation and minimized construction times.

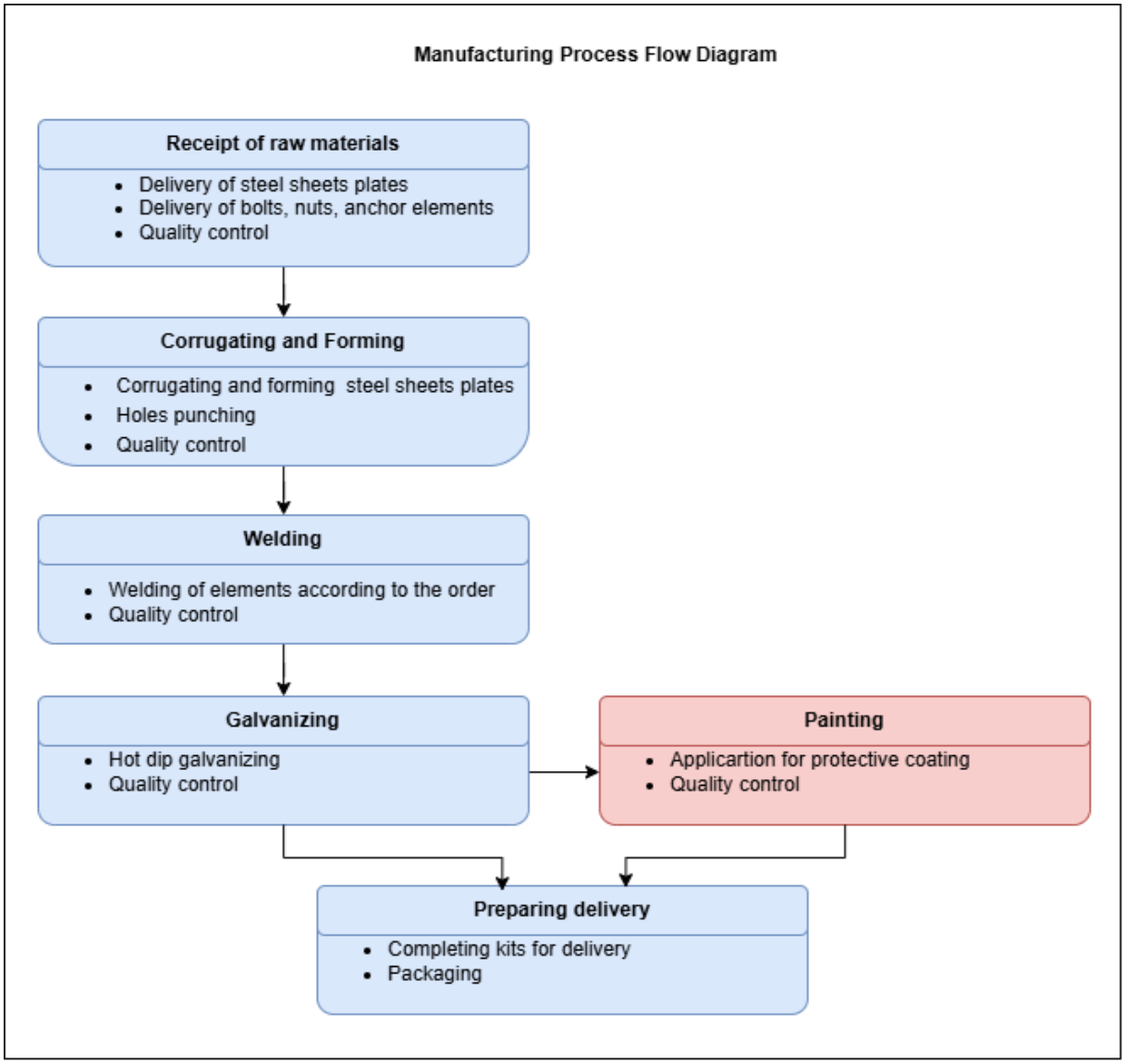

Figure 1 – Diagram of the manufacturing process

Transport to construction site (A4)

Module A4 accounts for the transport of finished ViaPlate® 380 structures and associated components (e.g. bolts, nuts, anchor elements) from the production site to the construction location. Transport is typically carried out by road using heavy-duty diesel trucks.

Average transport distance was assumed to be 1000 km, based on historical delivery data and typical customer locations. Transport modeling includes fuel consumption, emissions, and infrastructure impacts, based on average European transport conditions and in accordance with EN 15804+A2.

End of life (C1, C2, C3, C4, D)

Accurately modeling the impacts of the deconstruction phase (module C1) is challenging, but estimates were made using existing literature on energy consumption during typical demolition processes. In the assumed end-of-life scenario, the dismantled ViaPlate® Steel Structures are transported 70 km to a waste processing facility using a >16t EURO 5 lorry, where they are shredded. Module D accounts for the credits from recycling 100% of the primary steel scrap, calculated using the net scrap approach outlined by the World Steel Association.

Table 2. End-of-life scenario for the ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o.

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

Life cycle assessment information

Declared Unit

The declared unit is 1 ton of the ViaPlate® 380 steel structures manufactured by ViaCon Polska Sp. z o.o.

Allocation

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

System boundary

The life cycle analysis (LCA) of the declared product covers the product stage – modules A1-A3, transportation to the construction site – module A4, end-of-life stage – modules C1-C4, and benefits and loads beyond the system boundary – module D (cradle-to-gate with options), in accordance with EN 15804+A2. Energy and water consumption, emissions, and information on generated wastes were inventoried and included in the calculations. It can be assumed that the total sum of omitted processes does not exceed 5% for all impact categories. In accordance with EN 15804+A2, the analysis excludes capital goods (e.g. machines and facilities used in production) as well as transportation of employees.

Data collection period

Primary data provided by ViaCon Polska Sp. z o.o. covers a period from 01.01.2024 to 31.12.2024 (1 year). The life cycle assessments were prepared for Poland and Europe as reference area.

Data quality

For foreground data, the LCA study relies on high-quality primary data gathered by ViaCon for the year 2024, including all materials used and average transport distances for material supplies. 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. No specific data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency are judged as good.

Assumptions and estimates

The Life Cycle Assessment (LCA) of the ViaPlate® 380 Steel Structures includes assumptions and estimations made in accordance with EN 15804+A2 to address data gaps and model complex or variable processes. Key assumptions include:

End-of-life (C1-C4): Energy use and emissions from deconstruction and waste treatment are estimated based on typical demolition practices and literature data, as direct measurements are unavailable.

Transport distances: Average distances for raw material supply (A2), delivery to the construction site (A4), and waste processing (C2) are assumed to be 1000 km, 400 km, and 70 km, respectively, based on supplier and customer location data.

Material recovery: A 95% recycling rate is assumed for steel scrap at the end-of-life stage, in line with current market practices and World Steel Association recommendations. The remaining 5% is considered as landfill.

Surface protection processes: Although galvanizing and painting are outsourced, data on energy consumption, emissions, and waste related to these processes were provided by subcontractors and supplemented with background datasets from ecoinvent 3.9.1 to ensure consistency and completeness.

Electricity mix: The environmental impact of electricity consumption was calculated using the residual mix for Poland (0.701 kg CO_2e/kWh), based on KOBiZE 2023 data.

Calculation rules

The LCA was performed using OpenLCA software in accordance with EN 15804+A2, utilizing the ecoinvent 3.9.1 database as the source of background life cycle inventory (LCI) data.

Geographic representativeness

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

Additional information

The emission factor for Polish electricity form ecoinvent version 3.9.1 was supplemented with current data representing the residual electricity mix for Poland published by KOBiZE (the National Centre for Emissions Management in Poland) for 2023 of 0.701 kg CO2e per kWh.

Life cycle assessment (LCA) – Results

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	MND	MNR	MNR	MNR	MNR	MNR	MNR	MNR	MD	MD	MD	MD	MD

Uncoated ViaPlate® 380 Steel Structures

Table 4. Life cycle assessment (LCA) results of the uncoated ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o.– environmental impacts (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Global Warming Potential (Total)	kg $CO_{2\,eq.}$	2,36E+03	1,59E+02	2,75E+01	1,32E+02	MND	MNR	1,17E+00	1,32E+01	5,90E+01	1,67E-01	-2,13E+03
Global Warming Potential (Fossil Fuels)	kg $CO_{2\,eq.}$	2,35E+03	1,58E+02	2,72E+01	1,32E+02	MND	MNR	1,17E+00	1,32E+01	5,90E+01	1,65E-01	-2,12E+03
Global Warming Potential (Biogenic)	kg $CO_{2\,eq.}$	5,32E+00	1,43E-01	2,81E-01	1,19E-01	MND	MNR	1,05E-03	1,19E-02	1,35E-02	2,08E-03	-4,60E+00
Global Warming Potential (Land Use and Land Use Change)	kg $CO_{2\,eq.}$	1,68E+00	7,68E-02	1,93E-02	6,40E-02	MND	MNR	1,15E-04	6,40E-03	6,64E-03	2,16E-05	-1,50E+00
Ozone Depletion Potential	kg $CFC_{11\,eq.}$	4,11E-05	3,44E-06	5,61E-07	2,87E-06	MND	MNR	2,48E-07	2,87E-07	9,38E-07	2,26E-09	-3,67E-05
Acidification Potential	mol H+ eq.	1,13E+01	5,16E-01	1,00E-01	4,30E-01	MND	MNR	6,96E-03	4,30E-02	5,47E-01	1,41E-03	-9,40E+00
Abiotic Depletion for Fossil Resources Potential	MJ	2,57E+04	2,26E+03	5,76E+02	1,88E+03	MND	MNR	1,56E+01	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Abiotic Depletion Potential for Non-Fossil Resources	kg $Sb_{eq.}$	9,73E-03	3,61E-04	1,58E-05	3,01E-04	MND	MNR	5,87E-07	3,01E-05	1,14E-05	3,51E-08	-6,46E-03
Eutrophication Potential (Freshwater)	kg P eq.	1,12E+00	1,11E-02	1,86E-02	9,22E-03	MND	MNR	3,65E-05	9,22E-04	1,81E-03	1,91E-05	-1,01E+00
Eutrophication Potential (Marine)	kg $N_{eq.}$	2,42E+00	1,77E-01	2,61E-02	1,48E-01	MND	MNR	2,86E-03	1,48E-02	2,54E-01	5,92E-04	-2,15E+00
Eutrophication Potential (Accumulated Exceedance)	mol $N_{eq.}$	2,81E+01	1,87E+00	2,41E-01	1,56E+00	MND	MNR	3,14E-02	1,56E-01	2,76E+00	6,42E-03	-2,19E+01
Formation Potential of Tropospheric Ozone	kg $NMVOC_{eq.}$	1,13E+01	7,71E-01	8,60E-02	6,42E-01	MND	MNR	8,57E-03	6,42E-02	8,16E-01	2,01E-03	-1,02E+01
Water Deprivation Potential	m^3 eq.	1,08E+03	1,11E+01	6,17E+00	9,23E+00	MND	MNR	4,19E-02	9,23E-01	1,92E+00	5,60E-03	-9,71E+02

Table 5. Life cycle assessment (LCA) results of the uncoated ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o – additional impacts indicators (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Potential Incidence of Disease due to PM Emissions	Disease incidence	1,99E-04	1,03E-05	4,80E-07	8,55E-06	MND	MNR	0,00E+00	8,55E-07	1,51E-05	3,60E-08	-1,74E-04
Potential Human Exposure Efficiency Relative to U235	kBq U235 eq.	8,99E+01	3,00E+00	1,43E+01	2,50E+00	MND	MNR	0,00E+00	2,50E-01	3,67E-01	1,80E-03	-7,97E+01
Potential Comparative Toxic Unit for Ecosystems	CTUe	1,35E+04	1,10E+03	1,02E+02	9,20E+02	MND	MNR	0,00E+00	9,20E+01	3,69E+02	9,21E-01	-1,15E+04
Potential Comparative Toxic Unit for Humans (Non-Cancer)	CTUh	4,63E-05	1,38E-06	1,21E-07	1,15E-06	MND	MNR	0,00E+00	1,15E-07	1,13E-07	4,72E-10	-4,12E-05
Potential Soil Quality Index	dimensionless	7,82E+03	1,34E+03	1,00E+02	1,11E+03	MND	MNR	0,00E+00	1,11E+02	5,21E+01	1,10E+01	-7,04E+03

Table 6. Life cycle assessment (LCA) results of the uncoated ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o.– the resource use (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Total use of non renewable primary energy resources (PENRT)	MJ	2,57E+04	2,26E+03	5,76E+02	1,88E+03	MND	MNR	1,56E+01	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Total use of renewable primary energy resources (PERT)	MJ	2,23E+03	3,48E+01	4,07E+01	2,90E+01	MND	MNR	8,91E-02	2,90E+00	4,40E+00	2,10E-02	-2,01E+03
Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	2,57E+04	2,26E+03	5,76E+02	1,88E+03	MND	MNR	0,00E+00	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non renewable secondary fuels (NRSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable primary energy resources used as energy carrier (PERE)	MJ	2,23E+03	3,48E+01	4,07E+01	2,90E+01	MND	MNR	0,00E+00	2,90E+00	4,40E+00	2,10E-02	-2,01E+03
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	1,99E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of secondary materials (SM)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	6,10E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m3	3,16E+01	3,66E-01	1,91E-01	3,05E-01	MND	MNR	9,46E-04	3,05E-02	6,89E-02	2,00E-04	-2,84E+01

Table 7 Life cycle assessment (LCA) results of the uncoated ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o. – End-of-Life waste categories (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous Waste Disposed	kg	1,93E-01	1,43E-02	1,32E-03	1,19E-02	MND	MNR	2,09E-02	1,19E-03	5,21E-03	1,23E-05	-1,60E-01
Non-Hazardous Waste Disposed	kg	2,09E+01	6,28E-02	7,48E-03	5,23E-02	MND	MNR	1,47E-01	5,23E-03	1,45E-02	3,59E-05	-1,88E+01
Radioactive Waste Disposed	kg	2,24E-02	7,29E-04	3,41E-03	6,07E-04	MND	MNR	1,09E-04	6,07E-05	8,47E-05	4,35E-07	-1,99E-02

Table 8 Life cycle assessment (LCA) results of the uncoated ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o. – End-of-Life output flows (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for Re-Use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	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	MND	MNR	2,08E-05	0,00E+00	9,50E+02	0,00E+00	0,00E+00
Materials for Energy Recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	3,32E-07	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	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Galvanized ViaPlate® 380 Steel Structures

Table 9. Life cycle assessment (LCA) results of the galvanized ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o.– environmental impacts (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Global Warming Potential (Total)	kg $CO_{2\,eq.}$	2,39E+03	7,96E+01	4,03E+02	1,32E+02	MND	MNR	1,17E+00	1,32E+01	5,90E+01	1,67E-01	-2,13E+03
Global Warming Potential (Fossil Fuels)	kg $CO_{2\,eq.}$	2,38E+03	7,95E+01	4,03E+02	1,32E+02	MND	MNR	1,17E+00	1,32E+01	5,90E+01	1,65E-01	-2,12E+03
Global Warming Potential (Biogenic)	kg $CO_{2\,eq.}$	9,79E+00	7,15E-02	3,90E-01	1,19E-01	MND	MNR	1,05E-03	1,19E-02	1,35E-02	2,08E-03	-4,60E+00
Global Warming Potential (Land Use and Land Use Change)	kg $CO_{2\,eq.}$	2,06E+00	3,85E-02	3,06E-02	6,40E-02	MND	MNR	1,15E-04	6,40E-03	6,64E-03	2,16E-05	-1,50E+00
Ozone Depletion Potential	kg $CFC_{11\,eq.}$	4,33E-05	1,73E-06	8,94E-07	2,87E-06	MND	MNR	2,48E-07	2,87E-07	9,38E-07	2,26E-09	-3,67E-05
Acidification Potential	mol H+ eq.	1,20E+01	2,59E-01	1,51E-01	4,30E-01	MND	MNR	6,96E-03	4,30E-02	5,47E-01	1,41E-03	-9,40E+00
Abiotic Depletion for Fossil Resources Potential	MJ	2,65E+04	1,14E+03	1,67E+03	1,88E+03	MND	MNR	1,56E+01	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Abiotic Depletion Potential for Non-Fossil Resources	kg $Sb_{eq.}$	6,96E-02	1,82E-04	2,49E-05	3,01E-04	MND	MNR	5,87E-07	3,01E-05	1,14E-05	3,51E-08	-6,46E-03
Eutrophication Potential (Freshwater)	kg P eq.	1,21E+00	5,56E-03	2,97E-02	9,22E-03	MND	MNR	3,65E-05	9,22E-04	1,81E-03	1,91E-05	-1,01E+00
Eutrophication Potential (Marine)	kg $N_{eq.}$	2,59E+00	8,90E-02	3,70E-02	1,48E-01	MND	MNR	2,86E-03	1,48E-02	2,54E-01	5,92E-04	-2,15E+00
Eutrophication Potential (Accumulated Exceedance)	mol $N_{eq.}$	2,99E+01	9,40E-01	3,32E-01	1,56E+00	MND	MNR	3,14E-02	1,56E-01	2,76E+00	6,42E-03	-2,19E+01
Formation Potential of Tropospheric Ozone	kg $NMVOC_{eq.}$	1,16E+01	3,87E-01	5,90E+00	6,42E-01	MND	MNR	8,57E-03	6,42E-02	8,16E-01	2,01E-03	-1,02E+01
Water Deprivation Potential	m^3 eq.	1,19E+03	5,56E+00	9,85E+00	9,23E+00	MND	MNR	4,19E-02	9,23E-01	1,92E+00	5,60E-03	-9,71E+02

Table 10 Life cycle assessment (LCA) results of the galvanized ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o – additional impacts indicators (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Potential Incidence of Disease due to PM Emissions	Disease incidence	1,97E-04	5,13E-06	7,28E-07	8,55E-06	MND	MNR	0,00E+00	8,55E-07	1,51E-05	3,60E-08	-1,74E-04
Potential Human Exposure Efficiency Relative to U235	kBq U235 eq.	1,14E+02	1,52E+00	2,29E+01	2,50E+00	MND	MNR	0,00E+00	2,50E-01	3,67E-01	1,80E-03	-7,97E+01
Potential Comparative Toxic Unit for Ecosystems	CTUe	3,02E+04	5,55E+02	2,10E+02	9,20E+02	MND	MNR	0,00E+00	9,20E+01	3,69E+02	9,21E-01	-1,15E+04
Potential Comparative Toxic Unit for Humans (Non-Cancer)	CTUh	6,01E-05	6,90E-07	8,84E-07	1,15E-06	MND	MNR	0,00E+00	1,15E-07	1,13E-07	4,72E-10	-4,12E-05
Potential Soil Quality Index	dimensionless	8,31E+03	6,67E+02	1,57E+02	1,11E+03	MND	MNR	0,00E+00	1,11E+02	5,21E+01	1,10E+01	-7,04E+03

Table 11. Life cycle assessment (LCA) results of the galvanized ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o.– the resource use (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Total use of non renewable primary energy resources (PENRT)	MJ	2,65E+04	1,14E+03	1,67E+03	1,88E+03	MND	MNR	1,56E+01	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Total use of renewable primary energy resources (PERT)	MJ	2,40E+03	1,76E+01	6,51E+01	2,90E+01	MND	MNR	8,91E-02	2,90E+00	4,40E+00	2,10E-02	-2,01E+03
Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	2,65E+04	1,14E+03	1,67E+03	1,88E+03	MND	MNR	0,00E+00	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non renewable secondary fuels (NRSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable primary energy resources used as energy carrier (PERE)	MJ	2,40E+03	1,76E+01	6,51E+01	2,90E+01	MND	MNR	0,00E+00	2,90E+00	4,40E+00	2,10E-02	-2,01E+03
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	1,99E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of secondary materials (SM)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	6,10E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m3	3,53E+01	1,84E-01	3,06E-01	3,05E-01	MND	MNR	9,46E-04	3,05E-02	6,89E-02	2,00E-04	-2,84E+01

Table 12 Life cycle assessment (LCA) results of the galvanized ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o. – End-of-Life waste categories (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous Waste Disposed	kg	5,50E-01	7,19E-03	2,03E-03	1,19E-02	MND	MNR	2,09E-02	1,19E-03	5,21E-03	1,23E-05	-1,60E-01
Non-Hazardous Waste Disposed	kg	2,01E+01	3,16E-02	1,18E-02	5,23E-02	MND	MNR	1,47E-01	5,23E-03	1,45E-02	3,59E-05	-1,88E+01
Radioactive Waste Disposed	kg	2,85E-02	3,70E-04	5,45E-03	6,07E-04	MND	MNR	1,09E-04	6,07E-05	8,47E-05	4,35E-07	-1,99E-02

Table 13 Life cycle assessment (LCA) results of the galvanized ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o. – End-of-Life output flows (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for Re-Use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	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	MND	MNR	2,08E-05	0,00E+00	9,50E+02	0,00E+00	0,00E+00
Materials for Energy Recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	3,32E-07	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	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Painted ViaPlate® 380 Steel Structures

Table 14. Life cycle assessment (LCA) results of the painted ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o.– environmental impacts (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Global Warming Potential (Total)	kg $CO_{2\,eq.}$	2,59E+03	8,40E+01	7,46E+02	1,32E+02	MND	MNR	1,17E+00	1,32E+01	5,90E+01	1,67E-01	-2,13E+03
Global Warming Potential (Fossil Fuels)	kg $CO_{2\,eq.}$	2,59E+03	8,39E+01	7,45E+02	1,32E+02	MND	MNR	1,17E+00	1,32E+01	5,90E+01	1,65E-01	-2,12E+03
Global Warming Potential (Biogenic)	kg $CO_{2\,eq.}$	-1,09E+01	7,44E-02	8,65E-01	1,19E-01	MND	MNR	1,05E-03	1,19E-02	1,35E-02	2,08E-03	-4,60E+00
Global Warming Potential (Land Use and Land Use Change)	kg $CO_{2\,eq.}$	1,57E+01	4,04E-02	7,84E-02	6,40E-02	MND	MNR	1,15E-04	6,40E-03	6,64E-03	2,16E-05	-1,50E+00
Ozone Depletion Potential	kg $CFC_{11\,eq.}$	4,42E-05	1,83E-06	2,68E-06	2,87E-06	MND	MNR	2,48E-07	2,87E-07	9,38E-07	2,26E-09	-3,67E-05
Acidification Potential	mol H+ eq.	1,42E+01	2,72E-01	3,85E-01	4,30E-01	MND	MNR	6,96E-03	4,30E-02	5,47E-01	1,41E-03	-9,40E+00
Abiotic Depletion for Fossil Resources Potential	MJ	3,11E+04	1,20E+03	3,87E+03	1,88E+03	MND	MNR	1,56E+01	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Abiotic Depletion Potential for Non-Fossil Resources	kg $Sb_{eq.}$	6,95E-02	1,92E-04	5,84E-05	3,01E-04	MND	MNR	5,87E-07	3,01E-05	1,14E-05	3,51E-08	-6,46E-03
Eutrophication Potential (Freshwater)	kg P eq.	1,17E+00	5,86E-03	7,77E-02	9,22E-03	MND	MNR	3,65E-05	9,22E-04	1,81E-03	1,91E-05	-1,01E+00
Eutrophication Potential (Marine)	kg $N_{eq.}$	3,12E+00	9,35E-02	8,60E-02	1,48E-01	MND	MNR	2,86E-03	1,48E-02	2,54E-01	5,92E-04	-2,15E+00
Eutrophication Potential (Accumulated Exceedance)	mol $N_{eq.}$	3,54E+01	9,87E-01	7,46E-01	1,56E+00	MND	MNR	3,14E-02	1,56E-01	2,76E+00	6,42E-03	-2,19E+01
Formation Potential of Tropospheric Ozone	kg $NMVOC_{eq.}$	1,31E+01	4,06E-01	1,02E+01	6,42E-01	MND	MNR	8,57E-03	6,42E-02	8,16E-01	2,01E-03	-1,02E+01
Water Deprivation Potential	m^3 eq.	1,20E+03	5,86E+00	2,61E+01	9,23E+00	MND	MNR	4,19E-02	9,23E-01	1,92E+00	5,60E-03	-9,71E+02

Table 15 Life cycle assessment (LCA) results of the painted ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o – additional impacts indicators (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Potential Incidence of Disease due to PM Emissions	Disease incidence	2,51E-04	5,34E-06	1,79E-06	8,55E-06	MND	MNR	0,00E+00	8,55E-07	1,51E-05	3,60E-08	-1,74E-04
Potential Human Exposure Efficiency Relative to U235	kBq U235 eq.	1,15E+02	1,63E+00	6,00E+01	2,50E+00	MND	MNR	0,00E+00	2,50E-01	3,67E-01	1,80E-03	-7,97E+01
Potential Comparative Toxic Unit for Ecosystems	CTUe	4,30E+04	5,87E+02	6,10E+02	9,20E+02	MND	MNR	0,00E+00	9,20E+01	3,69E+02	9,21E-01	-1,15E+04
Potential Comparative Toxic Unit for Humans (Non-Cancer)	CTUh	6,39E-05	7,24E-07	1,76E-06	1,15E-06	MND	MNR	0,00E+00	1,15E-07	1,13E-07	4,72E-10	-4,12E-05
Potential Soil Quality Index	dimensionless	1,02E+04	6,94E+02	3,80E+02	1,11E+03	MND	MNR	0,00E+00	1,11E+02	5,21E+01	1,10E+01	-7,04E+03

Table 16. Life cycle assessment (LCA) results of the painted ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o.– the resource use (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Total use of non renewable primary energy resources (PENRT)	MJ	3,11E+04	1,20E+03	3,87E+03	1,88E+03	MND	MNR	1,56E+01	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Total use of renewable primary energy resources (PERT)	MJ	2,86E+03	1,87E+01	1,71E+02	2,90E+01	MND	MNR	8,91E-02	2,90E+00	4,40E+00	2,10E-02	-2,01E+03
Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	3,11E+04	1,20E+03	3,87E+03	1,88E+03	MND	MNR	0,00E+00	1,88E+02	7,78E+02	2,07E+00	-2,31E+04
Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non renewable secondary fuels (NRSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable primary energy resources used as energy carrier (PERE)	MJ	2,86E+03	1,87E+01	1,71E+02	2,90E+01	MND	MNR	0,00E+00	2,90E+00	4,40E+00	2,10E-02	-2,01E+03
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	1,99E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of secondary materials (SM)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	6,10E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m3	3,58E+01	1,94E-01	8,08E-01	3,05E-01	MND	MNR	9,46E-04	3,05E-02	6,89E-02	2,00E-04	-2,84E+01

Table 17 Life cycle assessment (LCA) results of the painted ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o. – End-of-Life waste categories (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous Waste Disposed	kg	5,44E-01	7,58E-03	6,97E-03	1,19E-02	MND	MNR	2,09E-02	1,19E-03	5,21E-03	1,23E-05	-1,60E-01
Non-Hazardous Waste Disposed	kg	1,99E+01	3,34E-02	3,11E-02	5,23E-02	MND	MNR	1,47E-01	5,23E-03	1,45E-02	3,59E-05	-1,88E+01
Radioactive Waste Disposed	kg	2,89E-02	3,98E-04	1,43E-02	6,07E-04	MND	MNR	1,09E-04	6,07E-05	8,47E-05	4,35E-07	-1,99E-02

Table 18 Life cycle assessment (LCA) results of the painted ViaPlate® 380 Steel Structures manufactured by ViaCon Polska Sp. z o.o. – End-of-Life output flows (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for Re-Use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	0,00E+00	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	MND	MNR	2,08E-05	0,00E+00	9,50E+02	0,00E+00	0,00E+00
Materials for Energy Recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MNR	3,32E-07	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	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Verification

The external 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:	Tomasz Sakowicz – Quality Manager
EPD External 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.	

Normative references

- EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- 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
- ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
- 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
- EN 1090-1: Execution of steel structures and aluminium structures - Part 1: Requirements for conformity assessment of structural components. World Steel Association (2017). Life Cycle Inventory Methodology Report for Steel Products, Brussels, Belgium.
- World Steel Association (2022). Life Cycle Inventory Study Report – 2021 Data Release, Brussels, Belgium.
- KOBiZE (2024). Wskaźniki emisyjności CO2, SO2, NOx, CO i pyłu całkowitego dla energii elektrycznej. National Centre for Emissions Management (KOBiZE), Warsaw, Poland.
- Multicert Sp. z o.o. (2024). General Programme Instructions of the EPD Poland Programme, Warsaw, Poland.

EPD Certification

Program EPDPoland Operator: MULTICERT Sp. z o.o.

Reg. No. EPD-P 06.06.2025

CERTIFICATE

EPD TYPE III DECLARATION

(ENVIRONMENTAL PRODUCT DECLARATION)

This document confirms that the Environmental Product Declaration developed by
ViaCon Polska Sp. z o.o. for Steel Structures
ViaPlate® 380
manufactured in accordance with standard
EN 10025, EN 10149, EN ISO 1461, EN ISO 12944,
meets the requirements of standards
EN 15804 + A2 and ISO 14025,
and that the data contained therein has been prepared correctly.

EPD Environmental Product Declaration EPD VERIFIED EPD POLAND

Verification carried out by:
Izabela Sztamberek Sochan, Ph.D.

MULTICERT JEDNOSTKA CERTYFIKACYJNA

Program Manager
Grzegorz Suwara

This document is valid until June 12, 2030, or until EPD is deregistered and its publication on the website www.epd.org.pl is discontinued.

EPD Polska Registration Office,
Warsaw, June 12.2025

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