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Steel and aluminum HelCor® pipes

Type III Environmental Product Declaration No. EPD-P 02.12.2025

Program EPD Polska
Operator: MULTICERT Sp. z o.o.

EPD VERIFIED

VIACON

Owner of the EPD:
Oy ViaCon Ab
Address: Yhdystie 40
62800 Vimpeli
Finland
tel.:+ 358 20 741 5400
e-mail: viacon@viacon.fi
Website: www.viacon.fi

EPD Program Operator:
Multicert Sp. z o.o.
Address: Ul. Mydlarska 47, 04-690 Warsaw, Poland
Website: epd.org.pl
Contact: epd@epd.org.pl

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

Product standards: EN 1090-1

Service Life: 40 - 120 years.

PCR: EN 15804:2012+A2:2019 serves as core PCR for this EPD

Declared unit: 1 ton.

Reasons for performing LCA: B2B

Representativeness: Finland, 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

Oy ViaCon Ab, a subsidiary of the ViaCon Group, a leading European provider of innovative infrastructure solutions, specializes in designing, supplying, and supporting the installation of steel structures and flexible infrastructure systems for the Finnish and Nordic markets. The company offers innovative, durable, cost-efficient, and environmentally sustainable solutions, including helically and corrugated steel structures and pipes, geosynthetics, and soil stabilization systems tailored to local conditions.

Oy ViaCon Ab operates with the manufacturing and technological resources of the ViaCon Group, ensuring consistent product quality and availability for projects across Finland. The manufacturing plant is in Vimpeli, Finland (Figure 1).

Figure 1 The view of Oy ViaCon Ab manufacturing plant located in Vimpeli

Distinguished by strong engineering expertise and close cooperation with designers and contractors, Oy ViaCon Ab delivers customized solutions adapted to client needs and project requirements. The company's operations are supported by the ViaCon Group's certified production system, including EN 1090 Factory Production Control and ISO 9001:2015 Quality Management, ensuring high standards in design, supply, and delivery.

Serving both public and private sectors, Oy ViaCon Ab has contributed to numerous projects, from road and railway culverts and underpasses to demanding stormwater and drainage systems. With the resources and expertise of the ViaCon Group and a solid local presence, it is a trusted partner in creating modern, sustainable infrastructure across Finland and the wider Nordic region.

Products description

ViaCon HelCor® pipes

Steel HelCor® pipes are helically corrugated steel products made of S250GD – S350GD steel grade. According to the European Standard EN 1991- 2 HelCor® pipes can be used as engineering structures for every class of road and railway (up to V=200km/h).
HelCor® pipes have Technical Approval issued by Polish Road and Bridge Research Institute (IBDiM). They have been approved for use in Scandinavia, The Baltic States, Switzerland, Hungary, Slovakia, The Czech Republic, Romania, Austria, The Ukraine, and other European countries.

Steel used to produce the pipes, as well as coupling bands conform to the European Standards of EN 10327 “Continuously hot-dip coated strip and sheet of low carbon steels for cold forming – Technical delivery conditions” and EN 10326 “Continuously hot-dip coated strip and sheet of structural steels - Technical delivery conditions”. Steel is delivered in coils, with a protective coating: 600 g/m2 zinc coating both sides, equivalent to 42 µm on each side, 1000 g/m2 zinc coating both sides, equivalent to 70µm on each side, 600 g/m2 zinc coating both sides, equivalent to 42µm on each side, with an additional 250µm polymer film on one or both sides.

The standard lengths of the HelCor® pipes are 3 m up to 22 m, however the production process allows the manufacturing of any length of pipe.

The specification of the steel pipes manufactured by Oy ViaCon Ab is listed in Table 1.

Table 1. The specification of the steel pipes and retention tanks manufactured by Oy ViaCon Ab.

Product	**Dimension**	Steel grade	**Properties**
HelCor® Pipes	D300mm-D4500mm	S250GD – S350GD Galvanized or Galvanized & Coated Or AlMg 5754 H22/H32	mainly in civil engineering as steel-soil composite structures bearing rail and road traffic loads

Dimensional tolerance: acc.to EN 1090-2, weldability: acc.to EN 10025-2, durability: surface preparation acc.to EN 1090-2, galvanizing acc.to EN 1461, EN 10346, surface coating: acc.to ISO12944f, EN 10169, producing class till EXC3 acc.to EN-1090-2. More specific information (on products) is available on the producer website: www.viacon.fi.

Product material declaration

The products are primarily composed of structural galvanized steel (grades S250GD–S350GD or AlMg 5754 H22/H32 for Aluminum Helcor), which constitutes the main material component. The steel sheets are formed, helically corrugated, and welded to produce the final pipe or structure. The manufacturing process also involves the use of welding wire, and for product variants with additional protective coating, polymer coatings are applied. In addition to steel versions, HelCor pipes come in variants manufactured from corrugated aluminium sheet, providing an alternative material option for specific project requirements and exposure conditions.

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 delivery of raw materials. The main inputs to the product system consist of galvanized steel coils and aluminium coils, which are formed into helically corrugated components. Additional steel semi-finished parts are used where required, including black steel tubes and black steel L- and U-section bars. Assembly hardware includes standard fasteners such as washers, nuts, and bolts. For aluminium variants and related components, flat aluminium sheets (notably grade 5754 in tempers H22/H32) are applied. Ancillary materials used in manufacturing and finishing comprise welding consumables (welding wire and shielding gases) as well as protective paint/coating for selected product versions are sourced from both domestic and EU suppliers. Module A2, involves truck transport and relies on Finnish and European average fuel consumption data.

Manufacturing (A3)

The HelCor® pipe production process begins with the receipt of raw materials, where galvanized steel or aluminum sheets undergo quality control inspections to ensure they meet the required specifications. Next, the sheets proceed to the corrugating and forming stage, where specialized machinery transforms them into helically corrugated sheets. These corrugated sheets are then carefully formed into cylindrical or spiral shapes, and precise seams are created to join the individual sections.

For HelCor® pipes, the process continues with profile forming: the cylindrical structures are shaped into a circular profile with diameters typically ranging from 300 mm up to 4500 mm, according to project requirements.

The final step involves quality control, during which each pipe undergoes thorough inspection and structural integrity checks. This ensures that every HelCor® pipe meets ViaCon's stringent quality standards and customer requirements before leaving the facility.

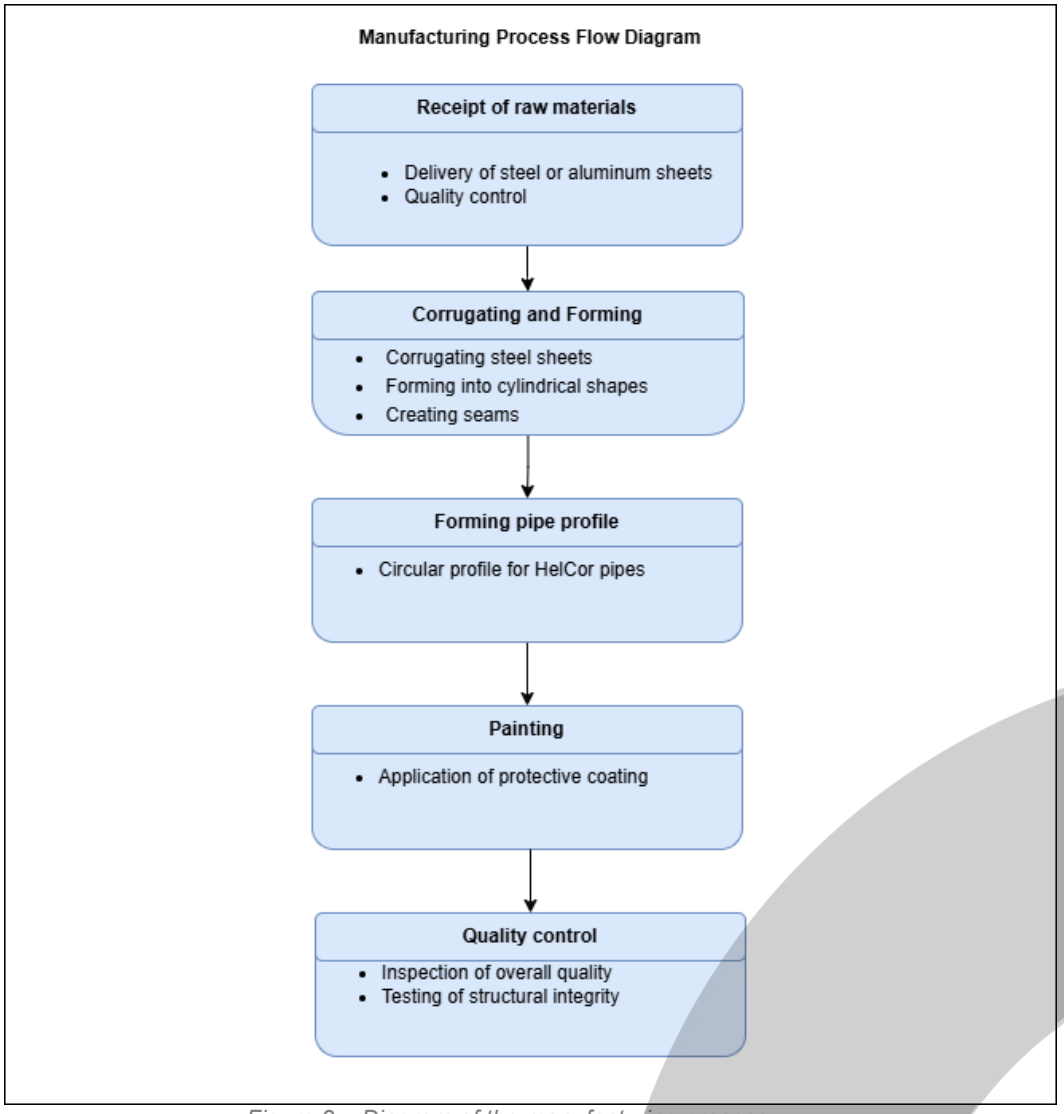

Figure 2 – Diagram of the manufacturing process

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 steel pipes and retention tanks 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 of 95% 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 HelCor corrugated pipes manufactured by Oy ViaCon Ab

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

Life cycle assessment information

Declared Unit

The declared unit is 1 ton of galvanized, polymer coated or aluminum HelCor ® pipes 300mm diameter to 4500mm diameter, 1.5mm up to 3.5mm gauge manufactured by Oy ViaCon Ab.

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 products covers product stage – modules A1-A3, 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. 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.

Data collection period

Primary data provided by Oy ViaCon Ab covers a period from 01.01.2024 to 31.12.2024 (1 year). The life cycle assessments were prepared for Finland 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 environmental impacts of representative steel and aluminum pipes manufactured by Oy ViaCon Ab were aggregated using weighted averages, based on the total annual production volumes. Impacts were inventoried and calculated for all HelCor® pipes produced within the specified data collection period.

For certain life cycle stages and processes, where primary data were unavailable, reasonable assumptions and secondary data were applied in accordance with EN 15804+A2 and industry best practices. For example, average transport distances for material supplies and waste management were estimated using company records and regional logistics data. The energy consumption and emissions for manufacturing and end-of-life processes were based on site-specific primary data where available and complemented by generic datasets from the Ecoinvent 3.9.1 database for background processes.

In the end-of-life stage (modules C1–C4), the deconstruction and transport of dismantled products were modeled using typical scenarios and literature values for steel and aluminum infrastructure, assuming a 70 km average transport distance to waste processing facilities. The recycling scenario assumes a 95% recycling rate and 5% landfill for steel and aluminum scrap, in line with sectoral statistics and the net scrap approach recommended by the World Steel Association.

The total contribution of omitted processes is estimated not to exceed 5% of the overall impacts for any category. No significant data gaps were identified, and all estimates are conservative and representative for the declared products and reference area.

Calculation rules

LCA was performed using OpenLCA software developed in accordance with EN 15804+A2.

Geographic representativeness

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

Additional information

Electricity: annual electricity consumption was modelled as a mix of energy supplied partly from the Finnish power grid and partly from the company's own PV installation. The LCA is based on processes from the ecoinvent 3.9.1 database. The GWP indicators used were 0,033 kg CO_2e/kWh for grid electricity (according to Fingrid data for 2024) and 0,118 kg CO_2e/kWh for PV electricity.

Life cycle assessment (LCA) – Results

Table 3 System boundary 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MD	MD	MD	MD	MD

HelCor® pipes – galvanized steel

*Table 4. Life cycle assessment (LCA) results of the **HelCor® galvanized steel pipes** manufactured by Oy ViaCon Ab – environmental impacts (DU: 1 ton)*

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential (Total)	kg $CO_{2\,eq.}$	2,27E+03	3,90E+02	8,86E+01	2,75E+03	1,17E+00	1,30E+01	3,19E+00	4,66E-01	-1,97E+03
Global Warming Potential (Fossil Fuels)	kg $CO_{2\,eq.}$	2,26E+03	3,89E+02	7,54E+01	2,73E+03	1,05E-03	1,29E+01	3,18E+00	4,65E-01	-1,96E+03
Global Warming Potential (Biogenic)	kg $CO_{2\,eq.}$	5,47E+00	3,55E-01	1,31E+01	1,90E+01	1,17E+00	1,19E-02	5,01E-03	2,70E-04	-4,26E+00
Global Warming Potential (Land Use and Land Use Change)	kg $CO_{2\,eq.}$	1,62E+00	1,92E-01	4,07E-02	1,85E+00	1,15E-04	6,39E-03	9,97E-03	2,80E-04	-1,39E+00
Ozone Depletion Potential	kg $CFC_{11\,eq.}$	4,38E-05	8,46E-06	2,68E-06	5,49E-05	2,48E-07	2,82E-07	5,36E-08	1,35E-08	-3,40E-05
Acidification Potential	mol H+ eq.	1,04E+01	8,70E-01	3,01E-01	1,16E+01	6,96E-03	2,83E-02	1,75E-02	3,50E-03	-8,70E+00
Abiotic Depletion for Fossil Resources Potential	MJ	2,56E+04	5,56E+03	1,06E+03	3,22E+04	1,56E+01	1,85E+02	4,48E+01	1,17E+01	-2,14E+04
Abiotic Depletion Potential for Non-Fossil Resources	kg Sb eq.	7,04E-03	9,00E-04	3,20E-04	8,26E-03	5,87E-07	3,01E-05	6,44E-06	3,50E-07	-5,97E-03
Eutrophication Potential (Freshwater)	kg P eq.	1,06E+00	2,76E-02	7,22E-03	1,09E+00	3,65E-05	9,20E-04	3,30E-04	3,87E-05	-9,31E-01
Eutrophication Potential (Marine)	kg $N_{eq.}$	2,30E+00	2,19E-01	1,15E-01	2,63E+00	2,86E-03	7,13E-03	6,74E-03	1,35E-03	-1,99E+00
Eutrophication Potential (Accumulated Exceedance)	mol $N_{eq.}$	2,33E+01	2,23E+00	1,24E+00	2,68E+01	3,14E-02	7,25E-02	7,18E-02	1,44E-02	-2,03E+01
Formation Potential of Tropospheric Ozone	kg $NMVOC_{eq.}$	1,09E+01	1,33E+00	4,14E-01	1,26E+01	8,57E-03	4,39E-02	2,34E-02	5,02E-03	-9,44E+00
Water Deprivation Potential	m^3 eq.	1,05E+03	2,76E+01	1,27E+01	1,09E+03	4,19E-02	9,19E-01	4,01E-01	3,63E-02	-8,98E+02

*Table 5. Life cycle assessment (LCA) results of **the HelCor® galvanized steel pipes** manufactured by Oy ViaCon Ab – additional impacts indicators (DU: 1 ton)*

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Potential Incidence of Disease due to PM Emissions	Disease incidence	1,80E-04	2,31E-05	6,36E-06	2,09E-04	0,00E+00	7,70E-07	2,79E-07	7,50E-08	-1,60E-04
Potential Human Exposure Efficiency Relative to U235	kBq U235 eq.	8,69E+01	7,50E+00	4,22E+00	9,86E+01	0,00E+00	2,49E-01	5,66E-02	7,34E-03	-7,38E+01
Potential Comparative Toxic Unit for Ecosystems	CTUe	1,35E+04	2,72E+03	2,54E+02	1,65E+04	0,00E+00	9,06E+01	3,13E+01	5,43E+00	-1,06E+04
Potential Comparative Toxic Unit for Humans (Non-Cancer)	CTUh	4,31E-05	3,40E-06	5,16E-07	4,70E-05	0,00E+00	1,13E-07	3,09E-08	2,21E-09	-3,81E-05
Potential Soil Quality Index	dimensionless	7,69E+03	3,32E+03	8,88E+01	1,11E+04	0,00E+00	1,11E+02	3,41E+01	2,30E+01	-6,51E+03

*Table 6. Life cycle assessment (LCA) results of **the HelCor® galvanized steel pipes** manufactured by Oy ViaCon Ab – the resource use (DU: 1 ton)*

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Total use of non renewable primary energy resources (PENRT)	MJ	2,56E+04	5,56E+03	1,06E+03	3,22E+04	1,56E+01	1,85E+02	4,49E+01	1,17E+01	-2,14E+04
Total use of renewable primary energy resources (PERT)	MJ	2,14E+03	8,70E+01	2,87E+02	2,51E+03	8,91E-02	2,89E+00	8,34E-01	9,81E-02	-1,86E+03
Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	2,56E+04	5,56E+03	1,06E+03	3,22E+04	0,00E+00	1,85E+02	4,49E+01	1,17E+01	-2,14E+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	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	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	2,14E+03	8,70E+01	2,87E+02	2,51E+03	0,00E+00	2,89E+00	8,34E-01	9,81E-02	-1,86E+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	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	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	3,28E+01	3,28E+01	6,10E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m3	3,12E+01	9,13E-01	5,12E-01	3,26E+01	9,46E-04	3,04E-02	1,28E-02	1,26E-02	-2,63E+01

*Table 7. Life cycle assessment (LCA) results of **the HelCor® galvanized steel pipes** manufactured by Oy ViaCon Ab – waste categories (DU: 1 ton)*

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous Waste Disposed	kg	1,69E-01	3,52E-02	8,16E-03	2,12E-01	2,09E-02	1,17E-03	2,80E-04	6,15E-05	-1,48E-01
Non-Hazardous Waste Disposed	kg	1,99E+01	1,57E-01	5,88E-02	2,01E+01	1,47E-01	5,21E-03	1,31E-03	5,00E+01	-1,74E+01
Radioactive Waste Disposed	kg	2,17E-02	1,82E-03	9,50E-04	2,44E-02	1,09E-04	6,04E-05	1,37E-05	1,71E-06	-1,84E-02

*Table 8. Life cycle assessment (LCA) results of **the HelCor® galvanized steel pipes** manufactured by Oy ViaCon Ab – Ouput flows categories (DU: 1 ton)*

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
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
Materials for Recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

HelCor® pipes – polymer coated steel

Table 9. Life cycle assessment (LCA) results of the HelCor® Polymer coated steel pipes manufactured by Oy ViaCon Ab – environmental impacts (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential (Total)	kg $CO_{2\,eq.}$	2,26E+03	3,85E+02	8,86E+01	2,74E+03	1,17E+00	1,30E+01	3,15E+00	5,77E+00	-1,94E+03
Global Warming Potential (Fossil Fuels)	kg $CO_{2\,eq.}$	2,26E+03	3,85E+02	7,54E+01	2,72E+03	1,05E-03	1,29E+01	3,13E+00	5,77E+00	-1,93E+03
Global Warming Potential (Biogenic)	kg $CO_{2\,eq.}$	5,55E+00	3,51E-01	1,31E+01	1,90E+01	1,17E+00	1,19E-02	4,93E-03	4,23E-03	-4,20E+00
Global Warming Potential (Land Use and Land Use Change)	kg $CO_{2\,eq.}$	1,58E+00	1,90E-01	4,07E-02	1,81E+00	1,15E-04	6,39E-03	9,82E-03	5,70E-04	-1,37E+00
Ozone Depletion Potential	kg $CFC_{11\,eq.}$	3,77E-05	8,37E-06	2,68E-06	4,87E-05	2,48E-07	2,82E-07	5,28E-08	2,04E-08	-3,35E-05
Acidification Potential	mol H+ eq.	9,92E+00	8,63E-01	3,01E-01	1,11E+01	6,96E-03	2,83E-02	1,73E-02	5,88E-03	-8,57E+00
Abiotic Depletion for Fossil Resources Potential	MJ	2,79E+04	5,51E+03	1,06E+03	3,44E+04	1,56E+01	1,85E+02	4,42E+01	1,84E+01	-2,11E+04
Abiotic Depletion Potential for Non-Fossil Resources	kg Sb eq.	6,80E-03	8,90E-04	3,20E-04	8,01E-03	5,87E-07	3,01E-05	6,35E-06	8,24E-07	-5,89E-03
Eutrophication Potential (Freshwater)	kg P eq.	1,04E+00	2,73E-02	7,22E-03	1,07E+00	3,65E-05	9,20E-04	3,20E-04	9,28E-05	-9,18E-01
Eutrophication Potential (Marine)	kg $N_{eq.}$	2,26E+00	2,18E-01	1,15E-01	2,59E+00	2,86E-03	7,13E-03	6,64E-03	2,14E-02	-1,96E+00
Eutrophication Potential (Accumulated Exceedance)	mol $N_{eq.}$	2,29E+01	2,22E+00	1,24E+00	2,64E+01	3,14E-02	7,25E-02	7,07E-02	2,36E-02	-2,00E+01
Formation Potential of Tropospheric Ozone	kg $NMVOC_{eq.}$	1,08E+01	1,32E+00	4,14E-01	1,26E+01	8,57E-03	4,39E-02	2,31E-02	9,41E-03	-9,30E+00
Water Deprivation Potential	m^3 eq.	1,05E+03	2,73E+01	1,27E+01	1,09E+03	4,19E-02	9,19E-01	3,95E-01	8,60E-02	-8,85E+02

Table 10. Life cycle assessment (LCA) results of the HelCor® Polymer coated steel pipes manufactured by Oy ViaCon Ab – additional impacts indicators (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Potential Incidence of Disease due to PM Emissions	Disease incidence	1,80E-04	2,29E-05	6,36E-06	2,09E-04	0,00E+00	7,70E-07	2,75E-07	1,24E-07	-1,60E-04
Potential Human Exposure Efficiency Relative to U235	kBq U235 eq.	9,48E+01	7,41E+00	4,22E+00	1,06E+02	0,00E+00	2,49E-01	5,57E-02	2,00E-02	-7,27E+01
Potential Comparative Toxic Unit for Ecosystems	CTUe	1,17E+04	2,70E+03	2,54E+02	1,47E+04	0,00E+00	9,06E+01	3,09E+01	1,16E+01	-1,05E+04
Potential Comparative Toxic Unit for Humans (Non-Cancer)	CTUh	4,21E-05	3,37E-06	5,16E-07	4,60E-05	0,00E+00	1,13E-07	3,04E-08	1,29E-08	-3,76E-05
Potential Soil Quality Index	dimensionless	7,25E+03	3,29E+03	8,88E+01	1,06E+04	0,00E+00	1,11E+02	3,36E+01	3,93E+01	-6,42E+03

Table 11. Life cycle assessment (LCA) results of the HelCor® Polymer coated steel pipes manufactured by Oy ViaCon Ab – the resource use (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Total use of non renewable primary energy resources (PENRT)	MJ	2,79E+04	5,51E+03	1,06E+03	3,44E+04	1,56E+01	1,85E+02	4,42E+01	1,84E+01	-2,11E+04
Total use of renewable primary energy resources (PERT)	MJ	2,15E+03	8,59E+01	2,87E+02	2,52E+03	8,91E-02	2,89E+00	8,21E-01	2,66E-01	-1,83E+03
Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	2,79E+04	5,51E+03	1,06E+03	3,44E+04	0,00E+00	1,85E+02	4,42E+01	1,84E+01	-2,11E+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	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	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	2,15E+03	8,59E+01	2,87E+02	2,52E+03	0,00E+00	2,89E+00	8,21E-01	2,66E-01	-1,83E+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	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	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	3,28E+01	3,28E+01	6,10E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m3	3,25E+01	9,03E-01	5,12E-01	3,39E+01	9,46E-04	3,04E-02	1,26E-02	2,00E-02	-2,59E+01

Table 12. Life cycle assessment (LCA) results of the HelCor® Polymer coated steel pipes manufactured by Oy ViaCon Ab – waste categories (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous Waste Disposed	kg	1,62E-01	3,48E-02	8,16E-03	2,05E-01	2,09E-02	1,17E-03	2,70E-04	9,30E-05	-1,46E-01
Non-Hazardous Waste Disposed	kg	1,93E+01	1,55E-01	5,88E-02	1,96E+01	1,47E-01	5,21E-03	1,29E-03	5,00E+01	-1,72E+01
Radioactive Waste Disposed	kg	2,37E-02	1,80E-03	9,50E-04	2,65E-02	1,09E-04	6,04E-05	1,35E-05	4,78E-06	-1,81E-02

Table 13. Life cycle assessment (LCA) results of the HelCor® Polymer coated steel pipes manufactured by Oy ViaCon Ab – End-of-Life flows categories (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
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
Materials for Recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

HelCor® pipes – aluminum

Table 14. Life cycle assessment (LCA) results of the HelCor® Aluminum pipes manufactured by Oy ViaCon Ab – environmental impacts (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential (Total)	kg $CO_{2\ eq.}$	2,26E+03	1,13E+02	8,30E+01	2,45E+03	1,17E+00	1,30E+01	3,26E+00	3,02E-01	-1,97E+03
Global Warming Potential (Fossil Fuels)	kg $CO_{2\ eq.}$	2,25E+03	1,13E+02	8,28E+01	2,45E+03	1,05E-03	1,29E+01	3,25E+00	3,01E-01	-1,97E+03
Global Warming Potential (Biogenic)	kg $CO_{2\ eq.}$	5,18E+00	1,04E-01	2,25E-01	5,51E+00	1,17E+00	1,19E-02	5,11E-03	1,70E-04	-4,27E+00
Global Warming Potential (Land Use and Land Use Change)	kg $CO_{2\ eq.}$	1,59E+00	5,59E-02	1,05E-02	1,65E+00	1,15E-04	6,39E-03	1,02E-02	1,80E-04	-1,39E+00
Ozone Depletion Potential	kg $CFC_{11\ eq.}$	3,87E-05	2,46E-06	1,70E-06	4,29E-05	2,48E-07	2,82E-07	5,48E-08	8,73E-09	-3,41E-05
Acidification Potential	mol H+ eq.	9,88E+00	2,47E-01	4,81E-01	1,06E+01	6,96E-03	2,83E-02	1,79E-02	2,27E-03	-8,73E+00
Abiotic Depletion for Fossil Resources Potential	MJ	2,44E+04	1,62E+03	1,37E+03	2,73E+04	1,56E+01	1,85E+02	4,58E+01	7,57E+00	-2,15E+04
Abiotic Depletion Potential for Non-Fossil Resources	kg Sb eq.	9,34E-03	2,60E-04	4,02E-05	9,64E-03	5,87E-07	3,01E-05	6,58E-06	2,27E-07	-5,99E-03
Eutrophication Potential (Freshwater)	kg P eq.	1,05E+00	8,04E-03	6,68E-02	1,13E+00	3,65E-05	9,20E-04	3,40E-04	2,51E-05	-9,34E-01
Eutrophication Potential (Marine)	kg $N_{eq.}$	2,26E+00	6,24E-02	1,48E-01	2,47E+00	2,86E-03	7,13E-03	6,89E-03	8,70E-04	-2,00E+00
Eutrophication Potential (Accumulated Exceedance)	mol $N_{eq.}$	2,30E+01	6,34E-01	1,46E+00	2,51E+01	3,14E-02	7,25E-02	7,33E-02	9,35E-03	-2,03E+01
Formation Potential of Tropospheric Ozone	kg $NMVOC_{eq.}$	1,12E+01	3,84E-01	4,64E-01	1,20E+01	8,57E-03	4,39E-02	2,39E-02	3,25E-03	-9,47E+00
Water Deprivation Potential	m^3 eq.	1,01E+03	8,04E+00	3,48E+01	1,06E+03	4,19E-02	9,19E-01	4,09E-01	2,35E-02	-9,01E+02

Table 15. Life cycle assessment (LCA) results of the HelCor® aluminum pipes manufactured by Oy ViaCon Ab – additional impacts indicators (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Potential Incidence of Disease due to PM Emissions	Disease incidence	1,80E-04	6,73E-06	7,11E-06	1,94E-04	0,00E+00	7,70E-07	2,85E-07	4,86E-08	-1,60E-04
Potential Human Exposure Efficiency Relative to U235	kBq U235 eq.	8,55E+01	2,18E+00	2,66E+01	1,14E+02	0,00E+00	2,49E-01	5,78E-02	4,76E-03	-7,40E+01
Potential Comparative Toxic Unit for Ecosystems	CTUe	1,20E+04	7,92E+02	3,01E+02	1,31E+04	0,00E+00	9,06E+01	3,20E+01	3,52E+00	-1,06E+04
Potential Comparative Toxic Unit for Humans (Non-Cancer)	CTUh	4,09E-05	9,92E-07	5,00E-07	4,24E-05	0,00E+00	1,13E-07	3,15E-08	1,43E-09	-3,83E-05
Potential Soil Quality Index	dimensionless	7,44E+03	9,71E+02	6,90E+01	8,48E+03	0,00E+00	1,11E+02	3,48E+01	1,49E+01	-6,53E+03

Table 16. Life cycle assessment (LCA) results of the HelCor® Aluminum pipes manufactured by Oy ViaCon Ab – the resource use (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Total use of non renewable primary energy resources (PENRT)	MJ	2,44E+04	1,62E+03	1,37E+03	2,74E+04	1,56E+01	1,85E+02	4,58E+01	7,57E+00	-2,15E+04
Total use of renewable primary energy resources (PERT)	MJ	2,11E+03	2,53E+01	1,50E+02	2,29E+03	8,91E-02	2,89E+00	8,51E-01	6,36E-02	-1,86E+03
Use of non renewable primary energy resources used as energy carrier (PENRE)	MJ	2,44E+04	1,62E+03	1,37E+03	2,74E+04	0,00E+00	1,85E+02	4,58E+01	7,57E+00	-2,15E+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	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	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	1,98E+03	2,53E+01	1,50E+02	2,15E+03	0,00E+00	2,89E+00	8,51E-01	6,36E-02	-1,86E+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	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	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	1,66E+01	1,66E+01	6,10E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m3	2,98E+01	2,66E-01	3,37E+00	3,34E+01	9,46E-04	3,04E-02	1,31E-02	8,19E-03	-2,63E+01

Table 17. Life cycle assessment (LCA) results of the HelCor® Aluminum pipes manufactured by Oy ViaCon Ab – waste categories (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous Waste Disposed	kg	1,30E+00	1,02E-02	4,40E-03	1,31E+00	2,09E-02	1,17E-03	2,80E-04	3,98E-05	-1,48E-01
Non-Hazardous Waste Disposed	kg	1,98E+01	4,56E-02	1,73E-02	1,99E+01	1,47E-01	5,21E-03	1,34E-03	5,00E+01	-1,75E+01
Radioactive Waste Disposed	kg	2,13E-02	5,30E-04	8,22E-03	3,00E-02	1,09E-04	6,04E-05	1,40E-05	1,11E-06	-1,84E-02

Table 18. Life cycle assessment (LCA) results of the HelCor® Aluminum pipes manufactured by Oy ViaCon Ab – End-of-Life flows categories (DU: 1 ton)

Impact category	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
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
Materials for Recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	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	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:	Juha Ylipekka General Manager & Factory Manager
Manufacturer representative:	Craig Lee (Internal verifier)
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
- 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 aluminum 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.
- Multicert Sp. z o.o. (2024). General Programme Instructions of the EPD Poland Programme, Warsaw, Poland.

EPD Certification

Program EPD Polska
Operator: MULTICERT Sp. z o.o.

VIACON

CERTIFICATE

TYPE III EPD DECLARATION

(ENVIRONMENTAL PRODUCT DECLARATION)

Reg. No. EPD-P 02.12.2025

EPD Environmental Product Declaration
EPD VERIFIED
EPD POLAND

This document confirms that the Environmental Product Declaration developed by **Oy ViaCon Ab** for

ViaCon HelCor® pipes

manufactured in accordance with standard:
EN 1090-1
meets the requirements of standards **EN 15804:2012+A2:2019** and **ISO 14025**, and that the data contained therein has been prepared correctly.

The Declaration was published on December 2, 2025 and is valid until December 2, 2030, or until it is deregistered or its publication on the website www.epd.org.pl is discontinued.

Authenticity of this certificate can be confirmed in.
the public register at www.epd.org.pl

Izabela Sztamberek-Sochan, Ph.D.
EPD Polska Verifier

MULTICERT JEDNOSTKA CERTYFIKACYJNA

Grzegorz Suwara
CEO Multicert Sp. z o.o.

Warsaw, December 2, 2025