Type III Environmental Product Declaration No. 806/2025

Issuance date: 27.06.2025
Validation: 22.07.2025
Validity date: 27.06.2030

Chambers, manholes and polypropylene (PP) systems for sewerage and drainage

Owner of the EPD:

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

Basic information

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

Life cycle analysis (LCA): A1-A5, C1-C4 and D modules in accordance with EN 15804+A2
(Cradle-to-Gate with options)

Product standards: PN-EN 13476-3+A1:2020-12, IBDiM-KOT-2019/0320, IK-KOT-2019/0053, ITB-KOT-2019/1121

The year of preparing the EPD: 2025

Service Life: 50 years

PCR: ITB-PCR A

Declared unit: 1 kg

Reasons for performing LCA: B2B

Representativeness: Poland, European, World, 2023

MANUFACTURER

Pipelife Polska S.A. was founded in 1996 and opened its first factory in Strzałków near Radom. A major investment there was the construction of a modern hall. After two years, production in Strzałków provided Pipelife with a 5% share of the Polish market for installation suppliers.

Figure 1 A view of PIPELIFE Polska S.A. production plant located in Kartoszyno (Poland).

In order to increase market share and the possibility of development, in 1999 Pipelife Group purchased MABO, a Norwegian concern - plastic pipes producer with 10% market share. Today, Pipelife Poland with both factories and head office located in Kartoszyno is one of the market leaders of plastic solutions provider for infrastructural, residential and non-residential construction sector.

The company has a constantly expanding distribution network. It aims to bring the products closer to the final customer. Pipelife Poland exports its products to Netherlands, Austria, Slovakia, the Czech Republic, Hungary, Scandinavia, the Baltic States and the eastern markets. Pipelife Poland is one of the largest domestic manufacturers and suppliers of complete solutions made of polypropylene, polyethylene and polyvinyl chloride.

Pipelife, which manufactures plastic piping solutions, is one of the top 3 European manufacturers in its sector. It belongs to the international holding company formed by the Austrian wienerberger Group.

Located in Vienna, wienerberger has been a market leader in building materials since 1819.

Today, Pipelife has 28 factories spread across many countries throughout Europe and also in the United States. The size and international activities of the Pipelife group are a guarantee of reliability and sustainability.

PRODUCTS DESCRIPTION AND APPLICATION

Pipes, fittings, chambers and manholes for sewerage and drainage are made of polypropylene (PP) and are recyclable:

Pragma pipes, DW: SN 8, SN 10, SN 12, SN 16, DN/OD: 110, 160, 200, 250, 315, 400, 500, 630

Pragma fittings, DN/OD: 110, 160, 200, 250, 315, 400, 500, 630

Pragma+ID pipes, DW: SN 8, SN 10, SN 12, SN 16, DN/ID: 200, 250, 300, 400, 500, 600, 800, 1000

Pragma+ID fittings, DN/ID: 200, 250, 300, 400, 500, 600, 800, 1000

Pragma and Pragma+ID drainage pipes, double-wall (DW) and single-wall, perforated (TP, LP, MP), with or without geotextile, SN 8, SN 10, SN 12, SN 16; DN/OD: 110, 160, 200, 250, 315, 400, 500, 630; DN/ID: 200, 250, 300, 400, 500, 600, 800, 1000

Pipes for infiltration of treated wastewater from wastewater treatment plants: DN/OD: 110

Solid-wall polypropylene fittings for sewerage: DN 110, 125, 160, 200, 250, 315, 400, 500

Solid-wall polypropylene MASTER fittings for sewerage: DN 110, 125, 160, 200, 250, 315, 400, 500

Chambers PRO 200, PRO 315, PRO 400, PRO 425: DN: 200, 315, 400, 425

Manholes PRO 630, PRO 600: DN: 630, 600

Manholes PRO 800, PRO 1000: DN: 800, 1000

Chambers based on pipes: Pragma DN/OD 500, 630 and DN/ID: 500, 600, 800, 1000

Drainage chambers: DN 315, 400, 425, 630

Fabricated drainage chambers based on pipes: Pragma DN/OD 400, 500, 630 and DN/ID 500, 600, 800, 1000

Road gully DN 400 with outlets DN: 110, 125, 160, 200

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

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Unit

Declared unit is 1 kg of chambers, manholes and polypropylene (PP) systems for sewerage and drainage. The reference period is the year 2023

System boundary

The life cycle analysis (LCA) of the declared products covers: product stage – modules A1-A5, end of life – modules C1-C4 and benefits and loads beyond the system boundary – module D (cradle to grave) 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 PCR A. Production of the chambers, manholes and polypropylene (PP) systems for sewerage and drainage is a line process conducted in factory of PIPELIFE Polska S.A. located in Kartoszyno and Strzałków.(Poland). Allocation was done on product mass basis. All impacts associated with the extraction and processing of raw materials used for the production of the declared product are allocated in module A1 of the LCA. Impacts from the global line production of PIPELIFE Polska S.A. were inventoried and 100% were allocated to production. Water and energy consumption (electrical grid, diesel and LPG), associated emissions and generated wastes are allocated to module A3. Packaging materials were taken into consideration.

System limits

Minimum 99.0% input materials and 100% energy consumption (electricity, diesel, LPG) 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 for heating, and electric power consumption. Thus, material and energy flows contributing less than 1 % of mass or energy have been considered. It can be assumed that the total sum of neglected processes does not exceed 1 % of energy usage

and mass per modules A or D. Machines and facilities required during production are neglected. The packaging products (plastic bags, stretch, pallets, cardboard packaging, etc.) are included.

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

Modules A1 and A2 represent the extraction and processing of raw materials and transport to the production site. The polypropylene used comes from both local and foreign suppliers as well as other intermediate products. Module A2 (transport) includes truck transport and uses Polish and European averages for fuel data.

Module A3: *Production*

The production of the chambers, manholes and polypropylene (PP) systems for sewerage and drainage is carried out in factory of PIPELIFE Polska S.A. in Kartoszyno and Strzałków. The production includes the receipt of raw material deliveries for production, which are mainly polypropylene and other intermediate products. Then the polypropylene is subjected to treatment. The products obtain specific shapes thanks to a specific processing technology using various dedicated devices. The finished products are subject to quality control, then they are marked, packed, and then transferred to the recipient or sent to him. The diagrams of the production process is shown in Figure 2 and Figure 3.

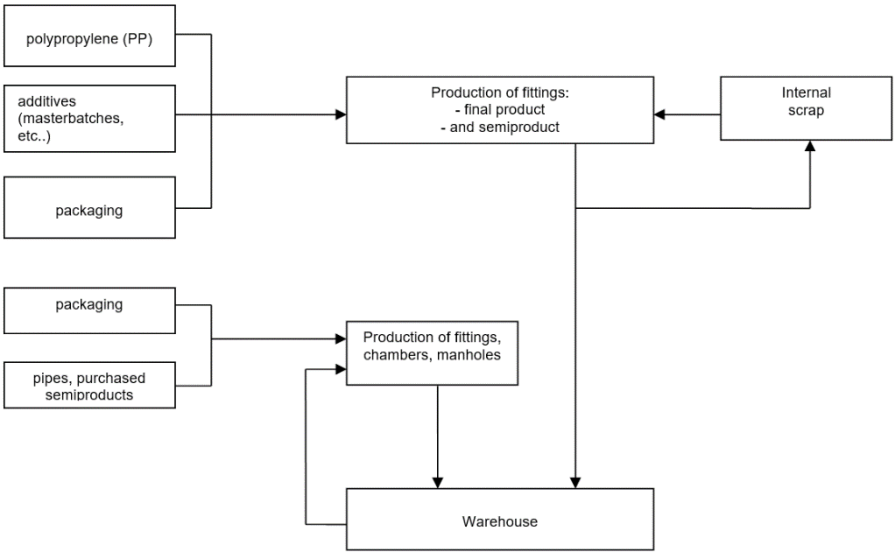

Figure 2. Diagram of the manufacturing process of production site Kartoszyno.

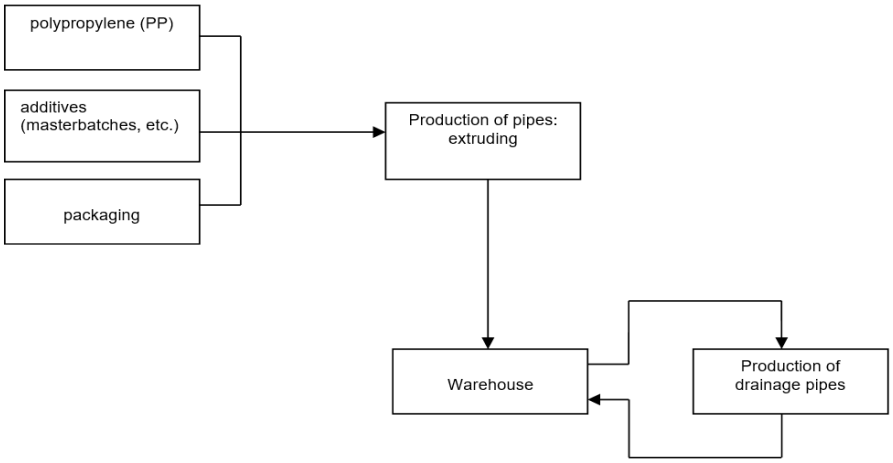

Figure 3. Diagram of the manufacturing process of production site Strzałków

Module A4: *Transport to consumer*

Transport of the products from plant to the recipient is carried out using trucks. Vehicle transport at distance 100 km is considered (emission standard: Euro 5) with 100% load capacity.

A5: Installation process

Impacts from the use of electric tools and consumables were included in the calculations.

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

It is assumed that at the end of life, 100 % of products are demounted using electric tools. Materials recovered from dismantled products are recycled, incinerated (module C3) and landfilled (module C4) according to the realistic treatment practice (mass allocation) of industrial waste what is presented in Table 1. 50 % of plastic waste processing while the remaining part is forwarded to landfill in the form of mixed construction and demolition wastes. A potential credits resulting from the recycling of plastic are presented in module D. Utilization of packaging material which constitute less than 0.1 % of the total system flows was not taken into consideration.

Table 1. End-of-life scenario for a plastic profiles and elements

Material	Waste processing		Landfilling
	Material recovery (reuse, recycling)	**Energy recovery** (incineration)	
Plastic	30%	20%	50%

Data collection period

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

Data quality

The data selected for LCA originate from ITB-LCI questionnaires completed by PIPELIFE Polska S.A. and verified during data audit. No data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency is judged as good. The background data for the processes come from the following resources database Ecoinvent v.3.10. 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 2013 GWP method with a 100-year horizon. Emission of acidifying substances, emission of substances to water contributing to oxygen depletion, emission of gases that contribute to the creation of ground-level ozone, abiotic depletion, and ozone depletion emissions where all calculated with the CML-IA baseline method.

Additional information

Polish electricity (Ecoinvent v 3.10 supplemented by actual national KOBiZE data) emission factor used is 0.685 kg CO_2/kWh (National for 2023). As a general rule, no particular environmental or health protection measures other than those specified by law are necessary.

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to declared unit (DU) – 1 kg of Chambers, manholes and polypropylene (PP) systems for sewerage and drainage produced in Poland. The following life cycle modules (Table 2) were included in the analysis. The following tables 3-6 show the environmental impacts of the life cycle of selected modules (A1-A5+C1-C4+D).

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**	**NMD**	**MND**	**MD**	**MD**	**MD**	**MD**	**MD**

Table 3 Life cycle assessment (LCA) results for specific product – environmental impacts (DU: 1 kg)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	2.57E+00	1.16E-01	4.92E-01	3.17E+00	1.67E-02	1.37E-03	6.87E-03	1.67E-02	7.96E-01	3.26E-01	-1.21E+00
Greenhouse potential - fossil	eq. kg CO_2	2.70E+00	1.16E-01	4.71E-01	3.29E+00	1.66E-02	1.37E-03	6.85E-03	1.66E-02	6.55E-01	3.26E-01	-1.19E+00
Greenhouse potential - biogenic	eq. kg CO_2	-1.41E-01	6.37E-05	2.08E-02	-1.20E-01	5.68E-05	3.69E-06	1.85E-05	5.68E-05	1.41E-01	6.78E-05	-1.81E-02
Global warming potential - land use and land use change	eq. kg CO_2	2.47E-03	3.67E-05	1.27E-04	2.64E-03	6.52E-06	2.14E-07	1.07E-06	6.52E-06	3.07E-05	5.14E-05	-1.90E-04
Stratospheric ozone depletion potential	eq. kg CFC 11	9.66E-08	2.32E-09	6.98E-08	1.69E-07	3.85E-09	7.53E-12	3.77E-11	3.85E-09	7.96E-01	3.98E+00	-6.20E-08
Soil and water acidification potential	eq. mol H+	2.82E-02	2.36E-04	7.09E-04	2.91E-02	6.75E-05	1.45E-05	7.25E-05	6.75E-05	1.17E-02	2.71E-03	-1.11E-03
Eutrophication potential - freshwater	eq. kg P	6.28E-04	7.59E-06	2.22E-05	6.58E-04	1.12E-06	2.36E-06	1.18E-05	1.12E-06	4.55E-06	2.20E-06	-5.88E-05
Eutrophication potential - seawater	eq. kg N	2.13E-03	5.58E-05	2.42E-04	2.42E-03	2.04E-05	2.05E-06	1.03E-05	2.04E-05	7.70E-03	9.23E-03	-2.37E-04
Eutrophication potential - terrestrial	eq. mol N	2.01E-02	6.03E-04	2.52E-03	2.32E-02	2.22E-04	1.79E-05	8.95E-05	2.22E-04	6.76E-02	1.75E-02	-2.33E-03
Potential for photochemical ozone synthesis	eq. kg NMVOC	1.56E-02	3.90E-04	2.91E-03	1.89E-02	6.80E-05	5.15E-06	2.57E-05	6.80E-05	1.66E-02	3.80E-03	-6.12E-04
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	2.06E-05	3.79E-07	4.88E-07	2.15E-05	5.89E-08	5.16E-10	2.58E-09	5.89E-08	3.11E-07	7.37E-08	-1.33E-06
Abiotic depletion potential - fossil fuels	MJ	6.78E+01	1.62E+00	2.80E+01	9.74E+01	2.47E-01	2.16E-02	1.08E-01	2.47E-01	2.01E-01	3.09E-01	-1.01E+01
Water deprivation potential	eq. m^3	1.62E+00	7.77E-03	3.51E-02	1.67E+00	1.14E-03	4.14E-04	2.07E-03	1.14E-03	2.01E-02	7.25E-03	-4.13E-02

Table 4 Life cycle assessment (LCA) results for specific product – additional impacts indicators (DU: 1 kg)

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 for specific product - the resource use (DU: 1 kg)

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	3.49E+00	3.12E-02	1.55E+00	5.07E+00	3.54E-03	1.78E-03	8.90E-03	3.54E-03	5.16E-02	5.67E-03	-3.25E-01
Consumption of renewable primary energy resources used as raw materials	MJ	1.24E+00	0.00E+00	0.00E+00	1.24E+00	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	4.73E+00	3.12E-02	1.55E+00	6.31E+00	3.54E-03	1.78E-03	8.90E-03	3.54E-03	5.16E-02	5.67E-03	-3.25E-01
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	4.15E+01	1.62E+00	4.04E+00	4.71E+01	2.47E-01	2.16E-02	1.08E-01	2.47E-01	-2.17E+01	-1.50E+01	-1.27E+01
Consumption of non-renewable primary energy resources used as raw materials	MJ	2.65E+01	0.00E+00	2.39E+01	5.04E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E+01	1.53E+01	-1.11E+01
Total consumption of non-renewable primary energy resources	MJ	6.80E+01	1.62E+00	2.80E+01	9.76E+01	2.47E-01	2.16E-02	1.08E-01	2.47E-01	2.01E-01	3.09E-01	-1.61E+00
Consumption of secondary materials	kg	4.80E-02	7.10E-04	4.39E-03	5.31E-02	8.27E-05	1.88E-06	9.40E-06	8.27E-05	7.75E-04	1.40E-04	3.19E-01
Consumption of renew. secondary fuels	MJ	1.93E-02	7.19E-06	1.01E-01	1.21E-01	9.11E-07	9.49E-09	4.75E-08	9.11E-07	1.01E-05	1.90E-06	-1.53E-06
Consumption of non-renewable secondary fuels	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	0.00E+00	-1.10E-05
Net consumption of freshwater	m^3	3.98E-02	2.19E-04	1.06E-03	4.11E-02	3.10E-05	6.21E-05	3.11E-04	3.10E-05	3.11E-04	2.73E-04	-1.19E-03

Table 6 Life cycle assessment (LCA) results for specific product – waste categories (DU: 1 kg)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	2.49E-01	2.11E-03	1.26E-02	2.64E-01	2.77E-04	1.68E-04	8.38E-04	2.77E-04	2.85E-03	2.22E-08	-4.75E-03
Non-hazardous waste	kg	2.69E+01	4.97E-02	1.53E-01	2.71E+01	4.92E-03	1.13E-02	5.65E-02	4.92E-03	5.40E-02	5.80E-02	-4.08E-01
Radioactive waste	kg	5.70E-05	6.19E-07	1.24E-02	1.25E-02	1.84E-08	3.25E-09	1.62E-08	1.84E-08	1.27E-06	1.65E-06	-8.11E-06
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	8.32E-04	1.29E-05	8.14E-03	8.99E-03	7.64E-07	1.45E-07	7.26E-07	7.64E-07	2.72E-01	2.06E-06	-2.70E-04
Materials for energy recovery	kg	3.96E-06	3.62E-08	4.67E-07	4.46E-06	6.18E-09	2.33E-10	1.17E-09	6.18E-09	8.08E-08	2.57E-08	-1.15E-07
Exported Energy	MJ	4.29E-01	2.34E-03	1.31E-02	4.45E-01	0.00E+00	6.92E-05	3.46E-04	0.00E+00	3.93E-01	3.15E-01	-9.15E-03

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 data, audit and verification: Michał Chwedaczuk, M.Sc. Eng. LCA, LCI audit and input data verification: Michał Piasecki, PhD., D.Sc., Eng.

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

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

Normative references

- ITB PCR A General Product Category Rules for Construction Products (v. 1.6, 2023)
- 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
- KOBiZE Wskaźniki emisyjności CO_2, SO_2, NO_x, CO i pyłu całkowitego dla energii elektrycznej. December 2023
- https://ecoinvent.org/

LCA,LCI, input data verification
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Thermal Physics, Acoustics and Environment Department
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CERTIFICATE № 806/2025
of TYPE III ENVIRONMENTAL DECLARATION

Products:

Chambers, manholes and polypropylene (PP) systems for sewerage and drainage

Manufacturer:

PIPELIFE Polska S.A.

ul. Torfowa 4, 84-110 Krokowa, Kartoszyno, 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 30th June 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, June 2025