



Issuance date: 20.07.2023
Validity date: 20.07.2028

CONCRETE PREFABRICATED ELEMENTS, SETTLING TANKS AND SEPARATORS



Owner of the EPD:

Ecol-Unicon Sp. z o.o.
Address: Równa 2,
80-067 Gdańsk, Poland
Tel.: +48 58 340 48 30
Website: <http://ecol-unicon.com/>
Contact: bok@ecol-unicon.com

EPD Program Operator:

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

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

Basic information

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

Life cycle analysis (LCA): A1-A3, C1-C4 and D modules in accordance with EN 15804+A2
(Cradle-to-Gate with options)

The year of preparing the EPD: 2023

Service Life: 50 years

PCR: ITB-PCRA

Declared unit: 1 ton

Reasons for performing LCA: B2B

Representativeness: Poland, European, 2021

Type III Environmental Product Declaration No. 485/2023

Table 5 Life cycle assessment (LCA) results of the CONCRETE PREFABRICATED ELEMENTS – environmental impacts (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO ₂	2.54E+02	2.01E+01	6.03E+00	2.80E+02	6.98E+00	1.67E+01	1.59E+01	5.32E-01	-2.31E+01
Greenhouse potential - fossil	eq. kg CO ₂	2.42E+02	2.01E+01	6.03E+00	2.68E+02	6.85E+00	1.66E+01	1.58E+01	5.26E-01	-2.31E+01
Greenhouse potential - biogenic	eq. kg CO ₂	1.20E+01	1.46E-02	1.01E-02	1.20E+01	2.00E-01	5.68E-02	5.40E-02	5.31E-03	-5.40E-02
Global warming potential - land use and land use change	eq. kg CO ₂	5.33E-02	9.23E-03	8.26E-04	6.33E-02	2.40E-03	6.52E-03	6.20E-03	5.33E-04	-4.43E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	1.12E-06	4.38E-07	7.74E-08	1.64E-06	1.40E-07	3.85E-06	3.65E-06	1.60E-07	-2.27E-06
Soil and water acidification potential	eq. mol H ⁺	6.25E-01	4.15E-02	4.93E-02	7.16E-01	7.60E-02	6.75E-02	6.41E-02	4.44E-03	-4.53E-01
Eutrophication potential - freshwater	eq. kg P	2.70E-02	1.39E-03	7.02E-03	3.54E-02	1.30E-02	1.12E-03	1.06E-03	1.53E-04	-2.03E-02
Eutrophication potential - seawater	eq. kg N	1.86E-01	1.03E-02	7.06E-03	2.03E-01	1.10E-02	2.04E-02	1.93E-02	1.53E-03	-4.73E-02
Eutrophication potential - terrestrial	eq. mol N	2.08E+00	1.04E-01	6.31E-02	2.25E+00	9.30E-02	2.22E-01	2.11E-01	1.67E-02	-6.06E-01
Potential for photochemical ozone synthesis	eq. kg NMVOC	5.88E-01	6.49E-02	2.06E-02	6.73E-01	2.60E-02	6.80E-02	6.46E-02	4.82E-03	-1.83E-01
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	8.92E-04	6.61E-05	2.12E-06	9.60E-04	3.34E-05	5.89E-05	5.60E-05	1.78E-06	-3.10E-03
Abiotic depletion potential - fossil fuels	MJ	1.30E+03	2.85E+02	9.18E+01	1.67E+03	1.16E+02	2.47E+02	2.34E+02	1.22E+01	-4.45E+02
Water deprivation potential	eq. m ³	3.48E+01	1.38E+00	1.22E+00	3.74E+01	2.40E+00	1.14E+00	1.08E+00	7.06E-02	-2.65E+01

Table 6 Life cycle assessment (LCA) results of the CONCRETE PREFABRICATED ELEMENTS – additional impacts indicators (DU: 1 ton)

Indicator	Unit	A1-A3	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

Type III Environmental Product Declaration No. 485/2023

Table 7 Life cycle assessment (LCA) results of the CONCRETE PREFABRICATED ELEMENTS - the resource use (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.75E+02	4.94E+00	5.25E+00	1.85E+02	8.60E+00	3.54E+00	3.36E+00	0.00E+00	-4.77E+01
Consumption of renewable primary energy resources used as raw materials	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
Total consumption of renewable primary energy resources	MJ	1.75E+02	4.94E+00	5.26E+00	1.85E+02	8.60E+00	3.54E+00	3.36E+00	2.14E-01	-4.77E+01
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.03E+03	2.85E+02	8.26E+01	1.39E+03	1.16E+02	2.47E+02	2.34E+02	0.00E+00	-4.41E+02
Consumption of non-renewable primary energy resources used as raw materials	MJ	2.70E+02	0.00E+00	6.42E+00	2.77E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	1.30E+03	2.85E+02	9.21E+01	1.67E+03	1.16E+02	2.47E+02	2.34E+02	1.31E+01	-4.41E+02
Consumption of secondary materials	kg	3.90E+01	1.23E-01	7.70E-03	3.91E+01	1.06E-02	8.27E-02	7.86E-02	0.00E+00	7.02E+02
Consumption of renew. secondary fuels	MJ	5.17E-03	1.25E-03	3.63E-05	6.45E-03	5.91E-05	9.11E-04	8.66E-04	0.00E+00	-1.47E-02
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m ³	3.65E+00	3.48E-02	2.15E-01	3.90E+00	3.15E-02	3.10E-02	2.95E-02	1.90E-03	-7.04E-01

Table 8 Life cycle assessment (LCA) results of the CONCRETE PREFABRICATED ELEMENTS – waste categories (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous waste	kg	3.67E-03	1.77E-01	5.41E-01	7.21E-01	1.20E-03	2.77E-01	2.63E-01	1.91E-05	2.33E+00
Non-hazardous waste	kg	1.25E+02	6.15E+00	3.36E+01	1.65E+02	6.24E-02	4.92E+00	4.67E+00	5.01E+01	6.28E+01
Radioactive waste	kg	4.07E-06	1.12E-04	1.63E-05	1.33E-04	8.70E-05	1.84E-05	1.75E-05	7.39E-05	6.38E-04
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	7.23E+00	2.14E-03	4.98E-04	7.24E+00	1.20E-04	7.64E-04	7.26E-04	0.00E+00	4.52E-03
Materials for energy recovery	kg	1.96E+00	5.72E-06	9.25E-07	1.96E+00	1.05E-06	6.18E-06	5.87E-06	0.00E+00	4.20E-04
Exported Energy	MJ	1.97E+00	4.03E-01	5.41E-02	2.42E+00	3.46E-01	0.00E+00	0.00E+00	0.00E+00	9.07E-01

Type III Environmental Product Declaration No. 485/2023

Table 9 Life cycle assessment (LCA) results of the SEPARATORS – environmental impacts (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO ₂	2.49E+02	2.01E+01	6.03E+00	2.75E+02	6.98E+00	1.67E+01	1.59E+01	5.32E-01	-2.31E+01
Greenhouse potential - fossil	eq. kg CO ₂	2.37E+02	2.01E+01	6.03E+00	2.63E+02	6.85E+00	1.66E+01	1.58E+01	5.26E-01	-2.31E+01
Greenhouse potential - biogenic	eq. kg CO ₂	1.19E+01	1.46E-02	1.01E-02	1.19E+01	2.00E-01	5.68E-02	5.40E-02	5.31E-03	-5.40E-02
Global warming potential - land use and land use change	eq. kg CO ₂	4.89E-02	9.23E-03	8.26E-04	5.90E-02	2.40E-03	6.52E-03	6.20E-03	5.33E-04	-4.43E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	1.11E-06	4.38E-07	7.74E-08	1.63E-06	1.40E-07	3.85E-06	3.65E-06	1.60E-07	-2.27E-06
Soil and water acidification potential	eq. mol H ⁺	6.09E-01	4.15E-02	4.93E-02	6.99E-01	7.60E-02	6.75E-02	6.41E-02	4.44E-03	-4.53E-01
Eutrophication potential - freshwater	eq. kg P	2.68E-02	1.39E-03	7.02E-03	3.52E-02	1.30E-02	1.12E-03	1.06E-03	1.53E-04	-2.03E-02
Eutrophication potential - seawater	eq. kg N	1.80E-01	1.03E-02	7.06E-03	1.98E-01	1.10E-02	2.04E-02	1.93E-02	1.53E-03	-4.73E-02
Eutrophication potential - terrestrial	eq. mol N	2.03E+00	1.04E-01	6.31E-02	2.19E+00	9.30E-02	2.22E-01	2.11E-01	1.67E-02	-6.06E-01
Potential for photochemical ozone synthesis	eq. kg NMVOC	5.73E-01	6.49E-02	2.06E-02	6.59E-01	2.60E-02	6.80E-02	6.46E-02	4.82E-03	-1.83E-01
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	8.85E-04	6.61E-05	2.12E-06	9.53E-04	3.34E-05	5.89E-05	5.60E-05	1.78E-06	-3.10E-03
Abiotic depletion potential - fossil fuels	MJ	1.25E+03	2.85E+02	9.18E+01	1.63E+03	1.16E+02	2.47E+02	2.34E+02	1.22E+01	-4.45E+02
Water deprivation potential	eq. m ³	3.45E+01	1.38E+00	1.22E+00	3.71E+01	2.40E+00	1.14E+00	1.08E+00	7.06E-02	-2.65E+01

Table 10 Life cycle assessment (LCA) results of the SEPARATORS – additional impacts indicators (DU: 1 ton)

Indicator	Unit	A1-A3	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

Type III Environmental Product Declaration No. 485/2023

Table 11 Life cycle assessment (LCA) results of the SEPARATORS - the resource use (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.74E+02	4.94E+00	5.25E+00	1.84E+02	8.60E+00	3.54E+00	3.36E+00	0.00E+00	-4.77E+01
Consumption of renewable primary energy resources used as raw materials	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
Total consumption of renewable primary energy resources	MJ	1.74E+02	4.94E+00	5.26E+00	1.84E+02	8.60E+00	3.54E+00	3.36E+00	2.14E-01	-4.77E+01
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.02E+03	2.85E+02	8.26E+01	1.39E+03	1.16E+02	2.47E+02	2.34E+02	0.00E+00	-4.41E+02
Consumption of non-renewable primary energy resources used as raw materials	MJ	2.30E+02	0.00E+00	6.42E+00	2.36E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	1.25E+03	2.85E+02	9.21E+01	1.63E+03	1.16E+02	2.47E+02	2.34E+02	1.31E+01	-4.41E+02
Consumption of secondary materials	kg	3.30E+01	1.23E-01	7.70E-03	3.31E+01	1.06E-02	8.27E-02	7.86E-02	0.00E+00	7.02E+02
Consumption of renew. secondary fuels	MJ	5.41E-03	1.25E-03	3.63E-05	6.69E-03	5.91E-05	9.11E-04	8.66E-04	0.00E+00	-1.47E-02
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m ³	3.60E+00	3.48E-02	2.15E-01	3.85E+00	3.15E-02	3.10E-02	2.95E-02	1.90E-03	-7.04E-01

Table 12 Life cycle assessment (LCA) results of the SEPARATORS – waste categories (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous waste	kg	3.64E-03	1.77E-01	5.41E-01	7.21E-01	1.20E-03	2.77E-01	2.63E-01	1.91E-05	-2.33E+00
Non-hazardous waste	kg	1.24E+02	6.15E+00	3.36E+01	1.64E+02	6.24E-02	4.92E+00	4.67E+00	5.01E+01	-6.28E+01
Radioactive waste	kg	3.80E-06	1.12E-04	1.63E-05	1.32E-04	8.70E-05	1.84E-05	1.75E-05	7.39E-05	6.38E-04
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	6.12E+00	2.14E-03	4.98E-04	6.12E+00	1.20E-04	7.64E-04	7.26E-04	0.00E+00	-4.52E-03
Materials for energy recovery	kg	1.66E+00	5.72E-06	9.25E-07	1.66E+00	1.05E-06	6.18E-06	5.87E-06	0.00E+00	-4.20E-04
Exported Energy	MJ	1.95E+00	4.03E-01	5.41E-02	2.41E+00	3.46E-01	0.00E+00	0.00E+00	0.00E+00	-9.07E-01

Type III Environmental Product Declaration No. 485/2023

Table 139 Life cycle assessment (LCA) results of the SETTLING TANKS – environmental impacts (DU: 1 ton)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO ₂	2.52E+02	2.01E+01	6.03E+00	2.78E+02	6.98E+00	1.67E+01	1.59E+01	5.32E-01	-2.31E+01
Greenhouse potential - fossil	eq. kg CO ₂	2.40E+02	2.01E+01	6.03E+00	2.66E+02	6.85E+00	1.66E+01	1.58E+01	5.26E-01	-2.31E+01
Greenhouse potential - biogenic	eq. kg CO ₂	1.21E+01	1.46E-02	1.01E-02	1.21E+01	2.00E-01	5.68E-02	5.40E-02	5.31E-03	-5.40E-02
Global warming potential - land use and land use change	eq. kg CO ₂	4.95E-02	9.23E-03	8.26E-04	5.96E-02	2.40E-03	6.52E-03	6.20E-03	5.33E-04	-4.43E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	1.13E-06	4.38E-07	7.74E-08	1.64E-06	1.40E-07	3.85E-06	3.65E-06	1.60E-07	-2.27E-06
Soil and water acidification potential	eq. mol H ⁺	6.16E-01	4.15E-02	4.93E-02	7.07E-01	7.60E-02	6.75E-02	6.41E-02	4.44E-03	-4.53E-01
Eutrophication potential - freshwater	eq. kg P	2.71E-02	1.39E-03	7.02E-03	3.55E-02	1.30E-02	1.12E-03	1.06E-03	1.53E-04	-2.03E-02
Eutrophication potential - seawater	eq. kg N	1.83E-01	1.03E-02	7.06E-03	2.00E-01	1.10E-02	2.04E-02	1.93E-02	1.53E-03	-4.73E-02
Eutrophication potential - terrestrial	eq. mol N	2.05E+00	1.04E-01	6.31E-02	2.22E+00	9.30E-02	2.22E-01	2.11E-01	1.67E-02	-6.06E-01
Potential for photochemical ozone synthesis	eq. kg NMVOC	5.80E-01	6.49E-02	2.06E-02	6.66E-01	2.60E-02	6.80E-02	6.46E-02	4.82E-03	-1.83E-01
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	8.95E-04	6.61E-05	2.12E-06	9.63E-04	3.34E-05	5.89E-05	5.60E-05	1.78E-06	-3.10E-03
Abiotic depletion potential - fossil fuels	MJ	1.26E+03	2.85E+02	9.18E+01	1.64E+03	1.16E+02	2.47E+02	2.34E+02	1.22E+01	-4.45E+02
Water deprivation potential	eq. m ³	3.49E+01	1.38E+00	1.22E+00	3.75E+01	2.40E+00	1.14E+00	1.08E+00	7.06E-02	-2.65E+01

Table 14 Life cycle assessment (LCA) results of the SETTLING TANKS – additional impacts indicators (DU: 1 ton)

Indicator	Unit	A1-A3	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



Instytut Techniki Budowlanej

00-611 Warsaw, Filtrów 1

Thermal Physics, Acoustics and Environment Department

02-656 Warsaw, Kaawerów 21

CERTIFICATE No 485/2023 of TYPE III ENVIRONMENTAL DECLARATION

Products:

CONCRETE PREFABRICATED ELEMENTS, SETTLING TANKS AND SEPARATORS

Manufacturer:

Ecol-Unicon Sp. z o.o.

ul. Równa 2, 80-067 Gdańsk, 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 20th July 2023 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physics, Acoustics
and Environment Department


Agnieszka Winkler-Skalna, PhD



Deputy Director
for Research and Innovation


Krzysztof Kućzyński, PhD

Warsaw, July 2023