

# Environmental Product Declaration

In accordance with ISO 14025 and EN 15804 for:

## Polymer concrete drainage channels

from

**MEA Group**



Programme:

Programme operator:

Publication date:

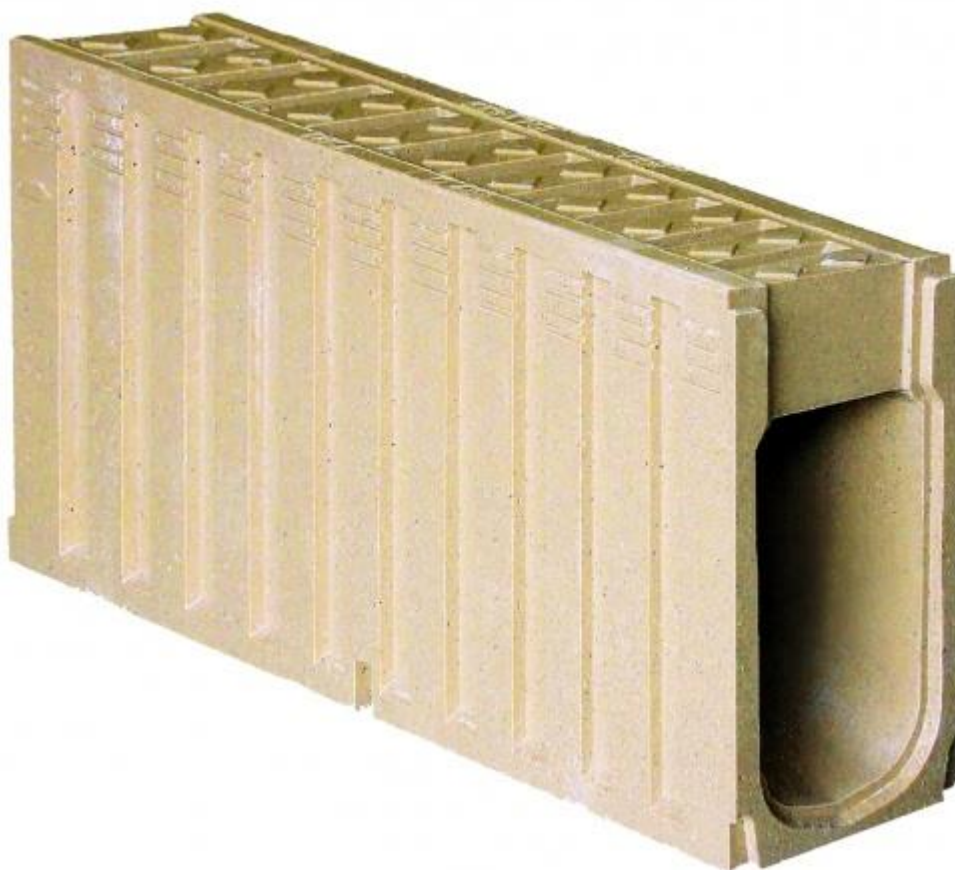
Valid until:

National programme of environmental labelling

Ministry of Environment

2022-01-05



2026-12-12





## Programme information

<b>Programme:</b>	Česká informační agentura životního prostředí Moskevská 1523/63 Praha 10 101 00 Česká republika  <a href="http://www.cenia.cz">www.cenia.cz</a> <a href="mailto:info@cenia.cz">info@cenia.cz</a>
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Independent third-party verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification
Third party verifier: Hüdai Kara, Metsims Sustainability Consulting, United Kingdom, <a href="http://www.metsims.com">www.metsims.com</a> 
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
LCA author: LCA Studio s.r.o. prof. Ing. Vladimír Kočí, Ph.D., MBA, Ing. et Ing. Tatiana Trecáková, Ph.D. Šárecká 1962/5, 16000 Prague 6, Czech Republic, <a href="http://www.lcastudio.cz">www.lcastudio.cz</a> 

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.



## Company information

Owner of the EPD: MEA Group

Contact: Ing. Pavel Růžička, pavel.ruzicka@mea-group.com

Description of the organisation:

MEA has been established more than 130 years ago, its water management division 30 years ago. Since then the water management business has grown to a company delivering its products to almost all continents, offering wide range of drainage and water management solutions.

Product-related or management system-related certifications:

Drainage channels are produced according to EN ISO 1433.

MEA is ISO 9001 certified.

Name and location of production site: MEA Metal Applications s.r.o., Domažlická 180, 314 00, Plzeň

## Product information

Product name: Polymer-concrete drainage channels

Product identification: MEA produces 1032 types/shapes of channels using the same production line and input materials.

Product description: There are various product groups – namely linear drainage systems, line drainage for terraces and facades, rail solutions, rainwater solutions, point drainage and foot scraper casings. Also the applications are very variable – from traffic and infrastructure, to landscaping, industry, urban architecture, agriculture and home and garden uses.

The products meet the product requirements laid down in BRL 5211 "Line drainage elements" in accordance with the Kiwa Regulations for Certification. The quality system and product characteristics associated with linear drainage elements are checked periodically (6 times per year).

Product family	Loading class	Length [mm]	Width [mm]	Height [mm]	Weight (in kg)
MEADRAIN PG 1000	C 250	1000	100	50	7 - 7,24
MEADRAIN PG 1500	C 250	1000	150	50	10,87 - 11,5
MEADRAIN PG 3000	C 250	1000	300	50	22,85
MEADRAIN SV 1000	B 125/D 400/ E 600	500/1000	133	80 - 305	4,9 - 24,27
MEADRAIN SE 1000	E 600	500/1000	133	80 - 305	4,9 - 24,5
MEADRAIN SV 1000	E 600	1000	133	200-205	17,703
MEADRAIN SV 1000	E 600	500/1000	133	205-305	12,51 - 24,27
MEADRAIN SG 1000	E 600	500/1000	133	80 - 305	4,9 - 24,5
MEADRAIN SV 1000	E 600	1000	133	200-205	17,703
MEADRAIN SV 1500	E 600	1000	183	120	14,93
MEADRAIN SVF 1500	E 600	1000	183	120	14,9
MEADRAIN SV 1500	E 600	500/1000	183	220 - 320	11,5 - 29,2
MEADRAIN SV 1501	C 250	1000	183	220	33,32
MEADRAIN SV 1502	D 400	1000	183	220	33,32
MEADRAIN SE 1500	E 600	500/1000	183	120 - 320	11,1 - 29,2
MEADRAIN SG 1500	E 600	500/1000	183	120 - 320	11,19 - 29,2
MEADRAIN SV 2000	E 600	500/1000	233	100 - 380	9,52 - 40



MEADRAIN SV 2001	C 250	1000	233	280	44,64
MEADRAIN SV 2002	D 400	1000	233	280	46,2
MEADRAIN SE 2000	E 600	500/1000	233	100 - 380	10 - 40
MEADRAIN SG 2000	E 600	500/1000	233	100 - 380	9,52 - 40
MEADRAIN SV 2000	E 600	500/1000	233	230 - 380	14,68 - 40
MEADRAIN SE 2000	E 600	500/1000	233	230 - 380	14,68 - 40
MEADRAIN SG 2000	E 600	500/1000	233	230 - 380	14,68 - 40
MEADRAIN SVS 1500	E 600	500/1000	183	150	8,5 - 17,9
MEADRAIN SES 1500	E 600	500/1000	183	150	8,5 - 17,9
MEADRAIN SGS 1500	E 600	500/1000	183	150	8,5 - 17,9
MEADRAIN SVS 2000	E 600	500/1000	233	200	11 - 23,5
MEADRAIN SES 2000	E 600	500/1000	233	200	11 - 23,5
MEADRAIN SGS 2000	E 600	500/1000	233	200	11 - 23,5
MEADRAIN SV 3000	E 600	500/1000	333	300 - 400	17,3 - 69,6
MEADRAIN SE 3000	E 600	500/1000	333	300 - 400	17,3 - 43,306
MEADRAIN SG 3000	E 600	500/1000	333	300 - 400	17,3 - 43,306
MEADRAIN EN 1000	F 900	500/100	140	150 - 585	8,433 - 31,64
MEADRAIN EN 1500	F 900	500/100	190	180 - 390	13,62 - 34,89
MEADRAIN EN 2000	F 900	500/100	240	100 - 430	9,8 - 43,48
MEADRAIN ENS 3000	F 900	500/100	394	400 - 550	32,3 - 67
MEADRAIN ENS 3070	F 900	500/100	394	760	51 - 109,3
MEADRAIN ENS 4000	F 900	500/100	494	465	35 - 72,25
MEAKERB 320	D 400	500	154	195 - 375	20,51
MEAKERB 500	D 400	500	154	415 - 555	24 - 60
MEAKERB BRIDGE160	D 400	500	220	200	22,5 - 23,78
MEAKERB SPLAY	D 400	500	154 - 234	210 - 500	21,1 - 33,,7
MEADRAIN DM CITY	D 400	1000	133	225	27,6
MEADRAIN DM 1010	D 400/ F 900	500/100	154	265	17,7 - 47
MEADRAIN DM 1500	D 400/ F 900	500/100	204	280	31,5 - 86,5
MEADRAIN DM CITY	D 400	1000	233	330	69,5
MEADRAIN DMS 2000	D 400	1000	254	320	80,4
MEADRAIN DM 2000	D 400/ E 600/ F 900	500/100	254	320 - 615	23,5 - 109
MEADRAIN SL 1000	C 250	500/100	133	115 - 270	6,42 - 21,3
MEAGARD II	PKW-drivable with car/ B 125	500/100	130	110 - 293	4,25 - 14
MEAGARD Fassadenstein	passable	1000	75	300	18
MEAGARD Hofablauf	PKW-drivable with car/ B 125	282/300	282/300	427/452	22,65 - 30,4

UN CPC code: 37750

HS Code: 68109100

Geographical scope: Global

Estimated life-time: 30 years



## LCA information

Functional unit / declared unit: Declared unit is 1 kilogram of Polymer concrete drainage channel.

Reference service life: 30 years

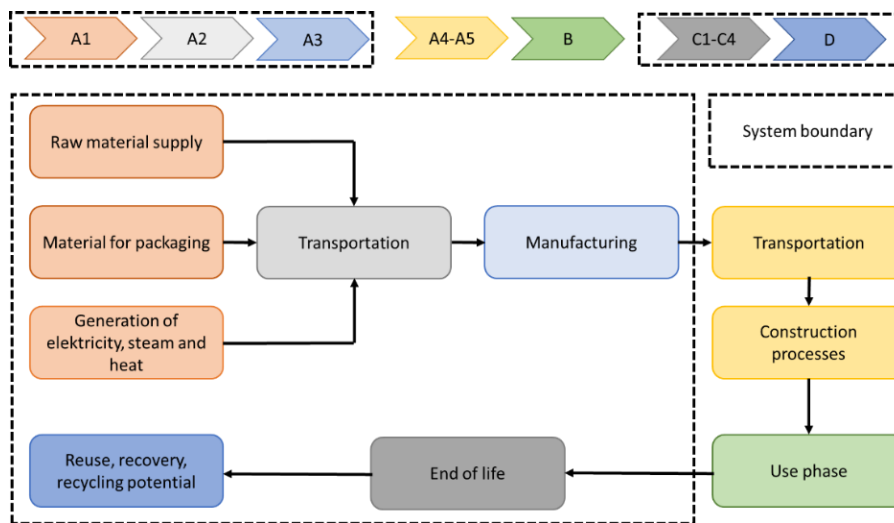
Time representativeness: Site specific data from producer are based on 1 year average for process data (reference year 2020). Time scope less than 10-years were applied for background data. Time scope less than 2-years were applied for specific data.

Database(s) and LCA software used: GaBi software, GaBi database and EcoInvent database

Description of system boundaries: The system boundary is Cradle to gate with modules C1–C4 and module D according to EN 15804 + A2. It covers the production of raw materials, all relevant transport down to factory gate, manufacturing by MEA Metal Applications, Czech Republic, transport and disposal of used channels. The review framework comprises the following details:

- ✓ Raw materials acquisition and transport,
- ✓ Further processing of raw materials,
- ✓ Production operations,
- ✓ Energy and water consumption,
- ✓ Waste management,
- ✓ Packaging of the final product for delivery,
- ✓ Transport of used channels and disposal to landfill.

### System Boundary of the LCA study conducted on polymer concrete drainage channels



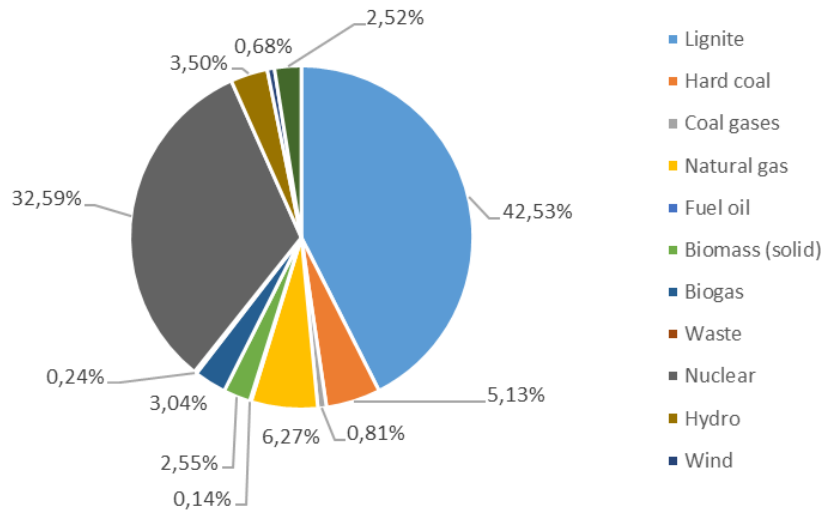
Excluded lifecycle stages: De-construction is not covered in the LCA study because of assumption that energy spent for the de-construction of 1 kilogram of polymer concrete is negligible.

Cut off rules: The cut-off criterion was chosen based on the used PCR. According to the used PCR, more than 95 % of flows were included.

Allocations: All material and energy flows were assigned to one product. Allocation was not necessary. No secondary fuels or materials are used in production. Generic process data for production of input materials and components were used.

More information: Generation of electricity consumed within MEA production was based on the Czech electricity grid mix.

### Czech electricity grid mix from GaBi (Sphera, 2017)



### Description of the system boundary

<b>A1 - A3 Product stage</b>	Raw material supply	A1	X
	Transport	A2	X
	Manufacturing	A3	X
<b>A4 - A5 Construction process</b>	Transport from the gate to the site	A4	ND
	Assembly	A5	ND
<b>B1 - B7 Use stage</b>	Use	B1	ND
	Maintenance	B2	ND
	Repair	B3	ND
	Replacement	B4	ND
	Refurbishment	B5	ND
	Operational water use	B6	ND
	Operational energy use	B7	ND
<b>C1 - C4 End of life stage</b>	De-construction	C1	X
	Transport	C2	X
	Waste processing	C3	X
	Disposal	C4	X
<b>D Benefits and loads beyond the system boundaries</b>	Reuse- Recycling - Recovery Potential	D	X

(X = Declared, Included in LCA, ND = Module Not Declared)



## Content declaration

### Product

Polymer concrete drainage channels consist mainly of sand and CaCO<sub>3</sub>. The rest are various styrene based chemicals. None of the materials are listed on the list of Substances of Very High Concern (SVHC).

Materials / chemical substances	(w/w) %	Environmental / hazardous properties
Resin	9,5	H225, H315, H319, H335, H361d, H372
Additives	2,4	H226, H361d, H372, H315, H319
Peroxide	0,2	H242, H302, H314
Cobalt	0,3	H226, H332, H315, H319, H317, H361fd, H372
Sand	70,1	-
CaCO <sub>3</sub>	17,5	-

### Packaging

Distribution packaging: As distribution packaging wooden pallets, PET tapes and cardboard protective corners are used. For 1 kg of products is used ca 37 g of packaging material.

Consumer packaging: No consumer packaging is used.

### Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product: No recycled or post-consumer materials are used in the production.



## Environmental performance

### Environmental impact indicators

Parameter	A1	A2	A3	C1	C2	C3	C4	D
Climate Change - total [kg CO2 eq.]	7,93E-01	1,81E-02	1,02E-02	0,00E+00	3,81E-03	0,00E+00	1,47E-02	0,00E+00
Climate Change, fossil [kg CO2 eq.]	7,86E-01	1,80E-02	2,89E-03	0,00E+00	3,78E-03	0,00E+00	1,51E-02	0,00E+00
Climate Change, biogenic [kg CO2 eq.]	7,20E-03	-2,98E-05	7,33E-03	0,00E+00	-4,84E-06	0,00E+00	-4,39E-04	0,00E+00
Climate Change, land use and land use change [kg CO2 eq.]	3,36E-04	1,49E-04	3,19E-06	0,00E+00	3,11E-05	0,00E+00	4,44E-05	0,00E+00
Ozone depletion [kg CFC-11 eq.]	3,63E-08	2,33E-18	1,06E-15	0,00E+00	4,85E-19	0,00E+00	5,88E-17	0,00E+00
Acidification [Mole of H+ eq.]	3,15E-03	1,76E-05	1,66E-04	0,00E+00	3,68E-06	0,00E+00	1,08E-04	0,00E+00
Eutrophication, freshwater [kg P eq.]	9,80E-05	5,40E-08	7,17E-08	0,00E+00	1,13E-08	0,00E+00	2,54E-08	0,00E+00
Eutrophication, marine [kg N eq.]	4,32E-04	5,50E-06	8,91E-06	0,00E+00	1,15E-06	0,00E+00	2,80E-05	0,00E+00
Eutrophication, terrestrial [Mole of N eq.]	4,23E-03	6,59E-05	7,52E-04	0,00E+00	1,38E-05	0,00E+00	3,07E-04	0,00E+00
Photochemical ozone formation, human health [kg NMVOC eq.]	1,53E-03	1,52E-05	4,18E-04	0,00E+00	3,18E-06	0,00E+00	8,47E-05	0,00E+00
Resource use, mineral and metals [kg Sb eq.]	9,82E-06	1,39E-09	1,92E-07	0,00E+00	2,89E-10	0,00E+00	1,43E-09	0,00E+00
Resource use, fossils [MJ]	1,48E+01	2,42E-01	5,42E-02	0,00E+00	5,05E-02	0,00E+00	2,01E-01	0,00E+00
Water use [m <sup>3</sup> world equiv.]	9,18E-02	1,58E-04	-2,73E-03	0,00E+00	3,30E-05	0,00E+00	1,62E-03	0,00E+00

### Resource use indicators

Parameter	A1	A2	A3	C1	C2	C3	C4	D
Use of renewable primary energy (PERE) [MJ]	2,92E+00	1,35E-02	2,68E-02	0,00E+00	2,82E-03	0,00E+00	2,70E-02	0,00E+00
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
Total use of renewable primary energy resources (PERT) [MJ]	2,92E+00	1,35E-02	2,68E-02	0,00E+00	2,82E-03	0,00E+00	2,70E-02	0,00E+00
Use of non-renewable primary energy (PENRE) [MJ]	1,49E+01	2,43E-01	5,44E-02	0,00E+00	5,06E-02	0,00E+00	2,01E-01	0,00E+00
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
Total use of non-renewable primary energy resources (PENRT) [MJ]	1,49E+01	2,43E-01	5,44E-02	0,00E+00	5,06E-02	0,00E+00	2,01E-01	0,00E+00
Input of secondary material (SM) [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
Use of renewable secondary fuels (RSF) [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





Parameter	A1	A2	A3	C1	C2	C3	C4	D
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
Use of net fresh water (FW) [m3]	3,48E-03	1,55E-05	-5,98E-05	0,00E+00	3,23E-06	0,00E+00	4,95E-05	0,00E+00

### Output flows and waste categories

Parameter	A1	A2	A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	1,42E-09	1,22E-11	3,68E-11	0,00E+00	2,55E-12	0,00E+00	2,13E-11	0,00E+00
Non-hazardous waste disposed (NHWD) [kg]	3,34E-02	3,60E-05	5,45E-04	0,00E+00	7,52E-06	0,00E+00	1,00E+00	0,00E+00
Radioactive waste disposed (RWD) [kg]	1,34E-04	2,93E-07	-4,64E-07	0,00E+00	6,12E-08	0,00E+00	2,11E-06	0,00E+00
Components for re-use (CRU) [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
Materials for Recycling (MFR) [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
Material for Energy Recovery (MER) [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
Exported electrical energy (EEE) [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
Exported thermal energy (EET) [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

### Optional indicators

Parameter	A1	A2	A3	C1	C2	C3	C4	D
Particulate matter [Disease incidences]	2,86E-08	1,06E-10	1,21E-09	0,00E+00	2,21E-11	0,00E+00	1,34E-09	0,00E+00
Ionising radiation, human health [kBq U235 eq.]	7,23E-02	4,20E-05	4,84E-05	0,00E+00	8,76E-06	0,00E+00	2,22E-04	0,00E+00
Ecotoxicity, freshwater [CTUe]	6,47E+01	1,75E-01	4,25E-02	0,00E+00	3,65E-02	0,00E+00	1,14E-01	0,00E+00
Human toxicity, cancer [CTUh]	6,13E-10	3,53E-12	1,27E-09	0,00E+00	7,37E-13	0,00E+00	1,69E-11	0,00E+00
Human toxicity, non-cancer [CTUh]	3,42E-08	1,83E-10	1,06E-10	0,00E+00	3,82E-11	0,00E+00	1,86E-09	0,00E+00
Land Use [Pt]	1,70E+00	8,32E-02	2,48E-02	0,00E+00	1,74E-02	0,00E+00	4,05E-02	0,00E+00

## References

ISO 14020:2000 Environmental labels and declarations — General principles, 2000-09

ISO 14025:2006: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework, 2006-07

ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines, 2006-07

EN 15804+A2:2019 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, 2019

Ecoinvent: Ecoinvent Centre, [www.Eco-invent.org](http://www.Eco-invent.org)

Sphera: GaBi software version 10, 2021, Sphera solutions