

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021 for:
Single product

SLM® 3.0 pipe system

From



Programme:

Programme operator:

EPD registration number:

Publication date:

Valid until:

The International EPD® System, www.environdec.com

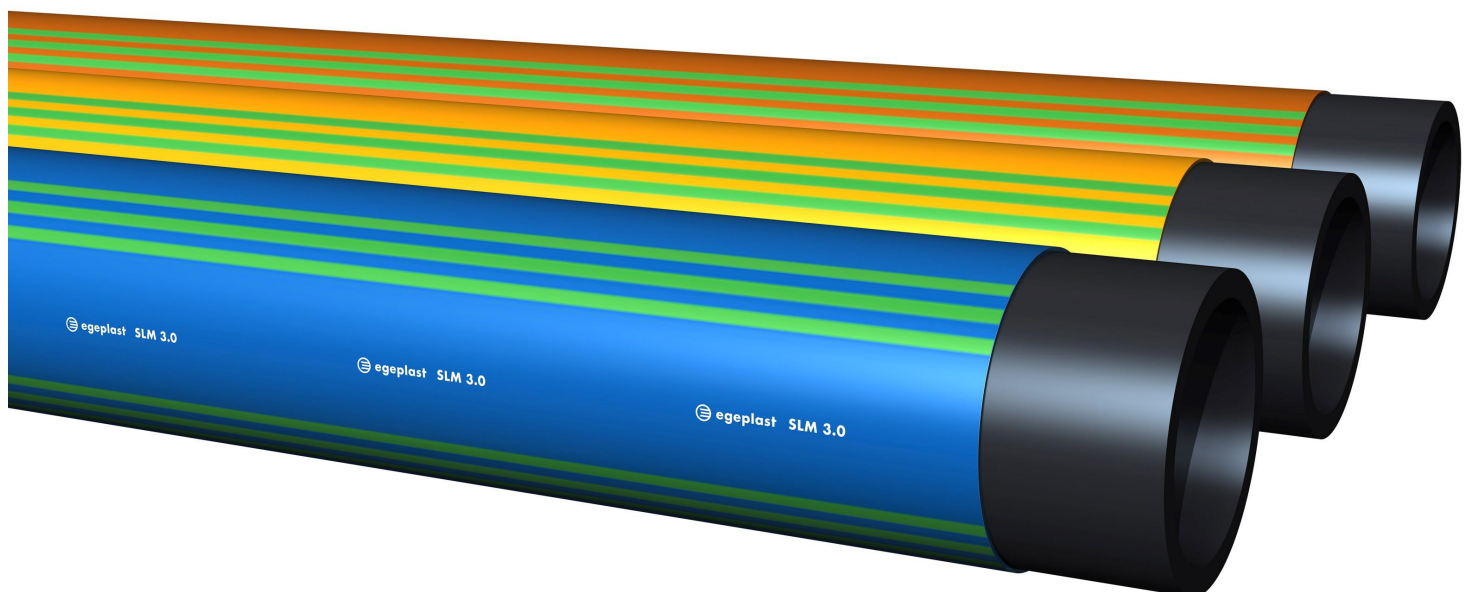
EPD International AB

EPD-IES-006188

2025-01-17

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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR):
PCR 2019:14 Construction products (EN 15804:A2)(1.3.4)

PCR review was conducted by: The *Technical Committee of the International EPD System*. See www.environdec.com for a list of members. Review Chair: *Claudia A. Peña, University of Concepción, Chile* The review panel may be contacted via the Secretariat www.environdec.com/contact.

Life Cycle Assessment (LCA)

LCA accountability: *Tyréns Sverige AB*

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

☒ EPD verification by individual verifier

Third-party verifier: *Marcus Wendin, Miljögraff AB* – Verifier of the pre-verified and integrated tool: *Tyréns EPD-generator 3.0.0 – Egeplast*.

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programs, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD:

Egeplast international GmbH, Robert-Bosch-Str. 7, D-48268 Greven, Germany

Contact:

Thorsten Spaeth,
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E-mail Thorsten.Spaeth@egeplast.de

Description of the organisation:

Egeplast is a highly innovative manufacturer of plastic pipe systems that has been setting standards for decades. Customers in over 30 countries rely on quality products and consulting solutions from Egeplast. Our customers include some of the largest and most demanding utility companies and network operators in the world. The product range offers a solution for almost every challenge our customers face. The focus is on intelligent pipe systems for modern trenchless installation and renovation methods and special solutions. The products give our customers maximum investment security - Egeplast pipe systems are future-proof. Research and development have a long tradition at Egeplast. The company is known as an innovator for multilayer pipes. Over 60 patents for products and manufacturing processes are proof of its technological leadership. Founded in 1908 by Engelbert Gröter, Egeplast is still family-owned and owner-managed today in the fourth generation. The initials of the founder can be found in the company name. Highly qualified and motivated employees are committed to our customers every day. The head office and production site is in Greven/Westphalia. Here, Egeplast operates the most modern plant for polymer pipe systems in Europe. We develop tailor-made solutions with our customers in a separate technology center. The Egeplast Group also has two pipe production sites in Sweden (Extena) and England (Westwood).

Name and location of production site(s):

Egeplast international GmbH, Robert-Bosch-Straße 7, D-48268 Greven, Germany

Product information

Product name: SLM® 3.0 pipe system

Product identification: SLM® 3.0, PE

Product description: The SLM® 3.0 pipe system is a patented, multi-layer protective jacket pipe system of the latest generation. When installed using alternative laying techniques, the protective jacket pipe ensures durability and cost-effectiveness for the network operator. Engineering offices and clients use the pipe to prove that the planning was flawless.

UN CPC code: 36320

Geographical scope:

Module A1 and A2 Material suppliers are European

Module A3 production is located in Germany
Module A5, B, C and D scenarios are for Europe

LCA information

Functional unit / declared unit: 1 kg pipe

Conversion factor for the product is 1 kg per kg

Reference service life: Not declared

Time representativeness: The LCA is based on production data from 2023 but is deemed to be representative of an average year of production.

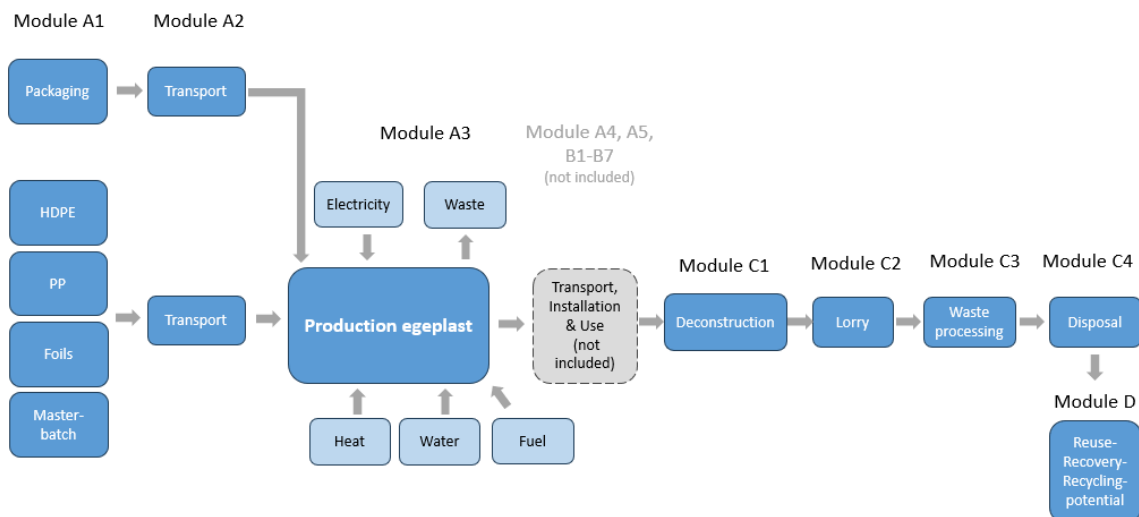
Database(s) and LCA software used: The LCA software is SimaPro Flow version 2.47 and the database is Ecoinvent 3.9.1. When modelling in Simapro, Ecoinvent data (updated November 2022) has been used for generic data.

Description of system boundaries:

Cradle to gate with modules C1-C4 and module D (A1-A3 + C + D)

Pre-verified and integrated EPD tool: This EPD is generated by Tyréns EPD-generator 3.0.0 – Egeplast. The tool is verified Marcus Wendin, Miljögraff AB.

System diagram:



Production

The raw materials are processed in the production facility in Germany. The pipes are manufactured by extrusion of plastic granules. The extrusion process begins with the raw material in bag silos, which is fed into the extruder where it is melted into a homogeneous plastic. The melt passes through a filter to remove impurities. The pipe is molded and cooled in a vacuum calibration, followed by further cooling in a spray bath. After cooling, it is marked with the appropriate information and pulled through the

process by a caterpillar haul-off to ensure consistent speed and quality. Finally, the tube is cut to length and prepared for shipment, ensuring high quality production.

The factory processes are allocated to the products with mass allocation.

The pipes are delivered with packaging materials to protect the goods from environmental elements during transport and storage at construction sites.

More information:

This EPD is generated with a pre-verified EPD tool. All processes are fixed and variable input data for each door i.e constituent material/components (Items) is governed by a menu. The results of the EPD is checked for plausibility. The review of the EPD-generator its constituent processes and the fixed content of the EPD is accepted based on the verification of the tool and the first EPD verification by the tool. Identification name and version number of the EPD-generator: Tyréns EPD-generator 3.0.0

The infrastructure or capital goods used in the product system for underlying processes are included for upstream and downstream processes, as infrastructure or capital goods can NOT be excluded in SimaPro FLOW. Therefore results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes. For core module infrastructure or capital goods are excluded.

Results for the additional impact categories particulate matter, ionising radiation, ecotoxicity (freshwater), human toxicity (cancer), human toxicity (non-cancer) and land use is not declared.

EN 15804 reference package based on EF 3.1 has been used.

Electricity data

Egeplast international GmbH (Robert-Bosch-Straße 7, D-48268 Greven, Germany) sources it's electricity from the German power. Infrastructure and net losses for high and medium net are included together with transformation losses when going from high voltage to medium voltage. Climate impact for the energy mix are 0.695 kg CO₂eq. per kWh (GWP-GHG).

Estimates and assumptions

- A1-A3 results includes the "balancing-out reporting" of the biogenic CO₂, PERM and PENRM of packaging released in module A5
- The excavation of the worn-out pipe is allocated to the installation of the new pipe that replace it, C1.
- The pipes is assumed to be transported 50 km, C2
- 95% of the pipes is assumed to go to energy recovery, C3
- 5% of the pipes is assumed to go to landfill, C4
- Truck transports within Europe is assumed to have class EURO 5.

Background data

The data quality of the background data is considered good. The assessment considers all available data from the production process, including all raw materials and auxiliary materials used as well as the energy consumption in relation to available Ecoinvent 3.9.1 datasets and EPD's.

Data quality

When modeling in Simapro, Ecoinvent data (updated November 2022) has been used for generic data. The database is considered to be of high quality.

Input data are gathered from the actual manufacturing plant with product-specific processes, specific amounts, specific waste, and spillage %, specific energy mix, specific transportation distances and transportation are specific data. Specific data are collected directly from supplier and production site.

The percentage specific data is estimated in this EPD for module A1-A3. Specific data are related to amount of energy, transportation and direct emission used throughout module A1-A3 and underlying EPD's. The reported share of primary data is associated with uncertainty, as one or several EPDs that are used as data source lack information on the share of primary data used.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	EU	ND	ND	ND	ND	ND	ND	ND	ND	ND	EU	EU	EU	EU	EU
Specific data used	24% *			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

* See chapter Data Quality for more information.

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight % and kg C/declared unit
Plastic	0.99	0.00 %	0.00 %
Additive	<0.01	0.00 %	0.00 %
TOTAL	0.99	0.00 %	0.00 %
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/declared unit
Wood	0.04	4.46 %	0.02
TOTAL	0.04	4.46 %	0.02

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
-	-	-	0.00

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per 1 kg pipe							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	2.48E+00	0.00E+00	9.29E-03	2.81E+00	6.20E-03	-1.88E+00
GWP-biogenic	kg CO ₂ eq.	1.99E-02	0.00E+00	8.40E-06	1.33E-04	6.48E-06	0.00E+00
GWP-luluc	kg CO ₂ eq.	8.51E-04	0.00E+00	4.51E-06	6.08E-06	1.13E-07	-1.63E-03
GWP-total	kg CO ₂ eq.	2.50E+00	0.00E+00	9.31E-03	2.81E+00	6.20E-03	-1.88E+00
ODP	kg CFC 11 eq.	2.04E-08	0.00E+00	2.02E-10	1.31E-09	1.45E-11	-1.96E-08
AP	mol H ⁺ eq.	8.27E-03	0.00E+00	3.03E-05	3.11E-04	3.25E-06	-1.30E-02
EP-freshwater	kg P eq.	4.67E-04	0.00E+00	6.50E-07	2.75E-06	3.41E-08	-1.05E-03
EP-marine	kg N eq.	1.65E-03	0.00E+00	1.04E-05	1.54E-04	2.34E-05	-1.80E-03
EP-terrestrial	mol N eq.	1.72E-02	0.00E+00	1.10E-04	1.64E-03	1.47E-05	-1.83E-02
POCP	kg NMVOC eq.	8.09E-03	0.00E+00	4.53E-05	4.43E-04	7.10E-06	-5.71E-03
ADP-minerals&metal s*	kg Sb eq.	1.04E-05	0.00E+00	2.98E-08	3.78E-08	9.96E-10	-1.35E-06
ADP-fossil*	MJ	7.85E+01	0.00E+00	1.32E-01	1.23E-01	1.15E-02	-2.57E+01
WDP*	m ³	1.11E+00	0.00E+00	7.66E-04	2.13E-02	5.90E-04	-7.48E-01
Acronyms		GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption					

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

**Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per 1 kg pipe							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	2.48E+00	0.00E+00	9.30E-03	2.81E+00	6.20E-03	-1.89E+00

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Use of resources

Results per 1 kg pipe							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	2.95E+00	0.00E+00	2.04E-03	7.33E-03	5.04E-04	-4.61E+00
PERM*	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.95E+00	0.00E+00	2.04E-03	7.33E-03	5.04E-04	-4.61E+00
PENRE	MJ	8.41E+01	0.00E+00	1.40E-01	1.32E-01	1.22E-02	-2.71E+01
PENRM*	MJ.	3.24E+01	0.00E+00	0.00E+00	-3.08E+01	-1.62E+00	0.00E+00
PENRT	MJ	1.16E+02	0.00E+00	1.40E-01	-3.06E+01	-1.61E+00	-2.71E+01
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m ³	6.78E-02	0.00E+00	3.01E-05	7.02E-04	1.57E-05	-2.10E-02
Acronyms		PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water					

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C.

**For the PERM and PENRM the new "GUIDANCE TO CALCULATING THE PRIMARY ENERGY USE INDICATORS" in Annex 3 of the PCR is followed and calculated according to option A.*

¹ The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste production and output flows

Waste production

Results per 1 kg pipe							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C

Output flows

Results per 1 kg pipe							
Indicator	Unit	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
Material for recycling	kg	4.37E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	3.73E-02	0.00E+00	0.00E+00	7.07E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	8.70E-02	0.00E+00	0.00E+00	2.37E+01	0.00E+00	0.00E+00

Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C

Additional information

ID: EPD Calculation Egeplast 17-01-2025 14:37

References

Ecoinvent, < <https://ecoinvent.org/the-ecoinvent-database/> >

General Programme Instructions of the International EPD® System. Version 4.0 and 5.0.

PCR 2019:14 Construction products (EN 15804:A2) (1.3.4)

SIS (2021). EN 15804:2012+A2:2019, "Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products". Svenska Institutet för Standarder

