Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for

Roof drainage system

from

Wijo AB

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-05588
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EPD Profile

	EPD Owner **Wijo AB** Mikael Pettersson, Ariavägen 2 Box 26 SE – 893 31 Bjästa +46 660 26 65 80 mikael.pettersson@wijo.se
	EPD Programme The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
	EPD Developer DGE Mark och Miljö Box 258 391 23 Kalmar
	Third party Verifier Vladimír Kočí, LCA studio Approved by: The International EPD® System

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): The International EPD System PCR for Construction 2019:14, version 1.11 and PCR 2019:14
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: Vladimír Kočí, LCA studio
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 from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

Company information

Description of the organization

Wijo AB manufactures, sells, and delivers roof drainage system and accessories to professional customers and retailers on the Swedish market. We are your personal and flexible supplier of roof drainage products. We produce a roof drainage system with a tight fit and beautiful design at the same time protecting your facade and foundation. Our headquarters are located at Bjästa, with the production site at Örnsköldsvik in Västernorrland county.

For more information regarding the products or the organization, see EPD owner's website: www.wijo.se

Name and location of production sites

The roof drainage system and accessories covered in this EPD are produced in Örnsköldsvik in Sweden, located in Västernorrland county.

EPD Product information

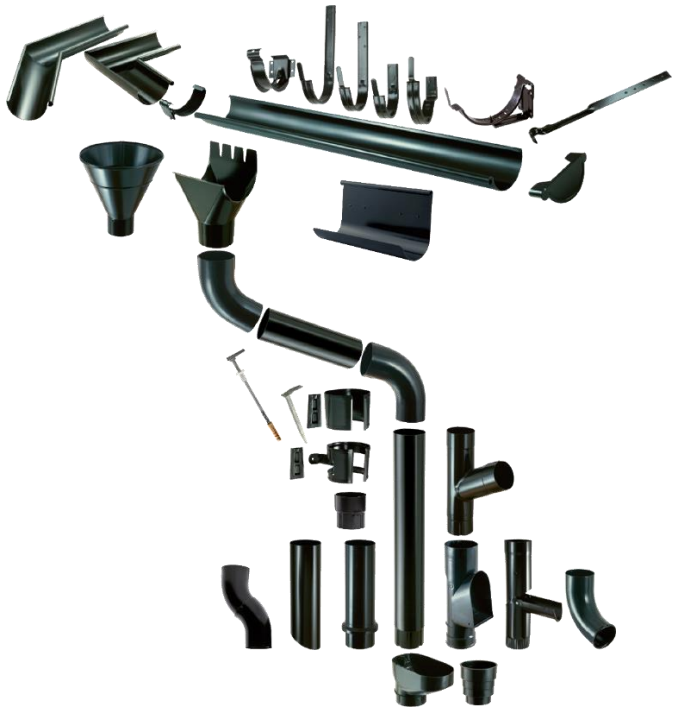
Product name: Roof drainage system and accessories.

Product identification:

This EPD covers roof drainage system and accessories, all identified with product name in Appendix A.

Product description:

The roof drainage system is made of steel sheets, glue, rubber, and steel rivets.



This EPD is valid for all products listed in Appendix A. Specifications for each product can be found at www.wijo.se

UN CFC code: 4128

LCA Information

Functional unit: 1 kg of the Roof drainage system and accessories.

Reference service life: 50 years

Time representativeness: The data and information collected and modelled for refers to the production year of 2020. The general datasets from used databases are all representative and valid for the year of 2020.

Geographical scope: Sweden
The geographical coverage of this LCA is scenario adapted, i.e. set to Sweden for the manufacturing and to region specifics, when possible, for the raw material extraction and production. This means that the data used for raw material extraction and production is adapted to the geographical region it is extracted from and produced in. The geographical coverage for transports is set to Europe.

Database(s) and LCA software used:
The LCA software SimaPro 9.1.1.1 was used in the assessment, with data from specific raw material EPDs and the databases Ecoinvent 3.6, Environmental footprint (EF) database 2.0 and Industry data 2.0.

Description of system boundaries:
Cradle-to-grave, i.e. life cycle stages A1- A4 and stages C1-C4

Excluded lifecycle stages: Life cycle stages A5, B1-B7 and D are neither considered nor declared.

Allocation methodology: The cut-off method has been applied within the product system. For allocations between product systems, the Polluter-pays allocation method has been used.

Cut-off: All raw materials according to the product formula, including their respective energy demands during extraction and production have been considered, as well as the main packaging materials used to prepare the final product for distribution. Some packaging materials & production solvents that constitute less than 1% of the product weight have been excluded. This cut-off rule does not apply for hazardous material and substances.

Average compilation: Since the assessed product category includes a variety of products an average was complied. This is done based on the amount of raw material (Steel sheets 1&2, glue, rubber and steel rivets) used divided by the total production volume of the assessed product category for the referred year of 2020.

More information:
The EPD obtained for steel sheet 1 from the supplier is produced in accordance to the PCR 2012. Hence it lacks information regarding the additional impact categories considered by the PCR 2019.

For more information about the EPD owner, visit www.wijo.se

For more information about the EPD producer, visit www.dge.se.
For more information about the underlying LCA study, contact the LCA practitioner Sayali Bhalekar (Sayali.Bhalekar@dge.se).

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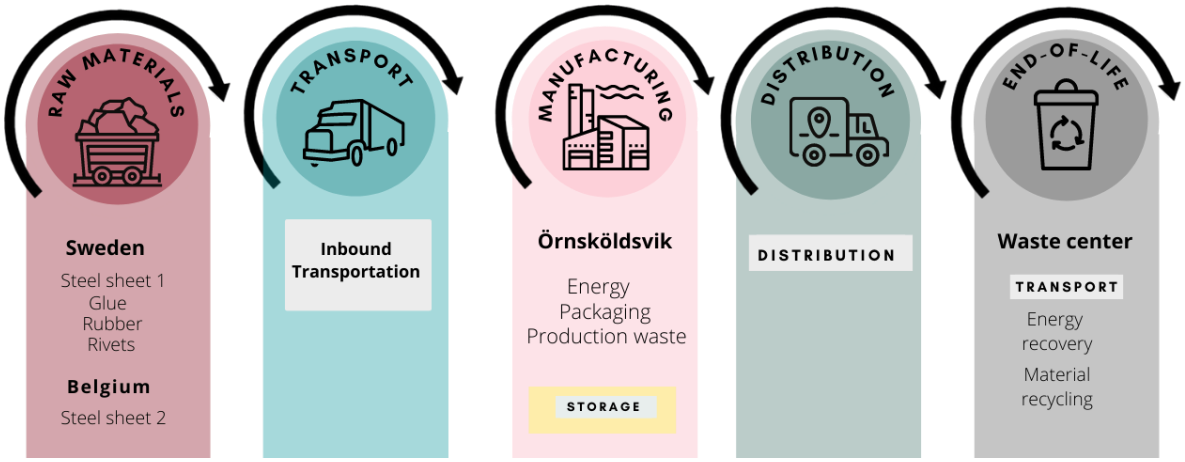
System diagram



	Product stage			Construction process stage		Use stage							End of life stage			
	Raw materials	Transport	Manufacturing	Transport	Construction-Installation	Use stage	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Modules declared	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X
Geography	RER				-	-	-	-	-	-	-	-	SE			
Specific data used					N/A											
Variation - products	N/R															
Variation - sites	N/R															

**RER: Europe *SE Sweden *N/R Not Relevant *N/A Not Applicable*

Description of life cycle stages A1-C4: Raw material extraction and production, transport from supplier, manufacturing on site, distribution, and end of life.

Table 1 The life cycle stages included in this EPD and a description of each stage.

Stage	Description
A1 Raw materials	Extraction and processing of all raw materials occurring upstream from the manufacturing process, including the waste generated for these processes. The energy generation needed for these processes (extraction, refining and transport of energy from primary energy sources) as well as the production of energy needed for the manufacturing process (A3).
A2 Transport	The external transportation of raw materials to the manufacturing site. The modelling includes transportation on road, water and/or rail, with processes for each raw material.
A3 Manufacturing	The manufacturing of the roof drainage system and accessories takes place at Wijo's production site in Örnsköldsvik. All raw materials are weighted in by a computer driven process. The steel sheets are formed into different products through a number of forming processes. Rubber is used as a sealing material for which glue is used to fix the rubber on the metal part. Rivets are used to join two metal parts of the gutter to form the gutter joints. The gutters and downpipes which form the roof drainage system are packed in plastic bags, these bags are transported on wooden crates or returnable steel crates. Gutter hooks and other accessories are packed in cardboard boxes; these boxes are placed on EU pallets for the transport. Electricity, fuel, waste generation, and packaging materials are all included in this stage.
A4 Distribution	When the gutters, downpipes, gutter hooks and accessories are produced and packaged, they are either stored at the storage near the manufacturing site before distribution or distributed directly to the end user.
C1-C4 End of life	The service life for roof drainage system and accessories is 50 years. After its lifetime, the effete product is assumed to be deconstructed and transported to a waste management centre. The majority of the product is made of steel and assumed to be material recycled.

Content declaration per functional unit

1 kg of roof drainage system and accessories

Table 2 Content declaration for the functional unit. None of the substances are regarded as SVHCs (Substances of very high concern) as defined in the REACH legislation.

Raw materials	Weight, g/FU	Post-consumer material, weight-%	Renewable material, weight-%
Steel sheet 1	0,975	20%	-
Steel sheet 2	0,024	17,3%	-
Glue	0,02		
Rivets	1,45		
Rubber	0,02		

Packaging materials	Weight, g	Post-consumer material, weight-%	weight-% (versus the product)
Plastic	7,5		0,7%
EU-Pallet	10,35	100%	1,0%
Wooden crates	11,3		1,1%
Cardboard	13,2	40%	1,3%

For construction product EPDs complaint with EN15804, the content declaration shall list substances contained in the products that are listed in the “Candidate List of Substances of Very High Concern for Authorization” when their content exceeds the limits for registration with the European Chemicals Agency: i.e. >0.1 % of the weight of the product. **No such substances are used in the production of the products covered in this EPD.**

Environmental performance

Potential environmental impacts according to EN 15804 results per FU

1 kg of the **roof drainage system and accessories.**		A1 Raw material extraction and production	A2 Transport from supplier	A3 Manufacturing	A4 Distribution	C1-C4 End of life
Impact category	**Unit**					
Acidification	Mol H^+ eq.	6,27E-3	1,22E-4	2,62E-4	4,69E-5	5,48E-5
Eutrophication (Aquatic freshwater)	kg P eq.	1,79E-3	2,81E-6	1,74E-5	1,22E-6	2,67E-6
Eutrophication (Aquatic marine)	Kg N eq	2,54E-3	2,73E-5	7,97E-5	9,51E-6	1,63E-5
Eutrophication (Terrestrial)	mol N eq	2,70E-2	2,99E-4	7,98E-4	1,04E-4	1,81E-4
Global warming (GWP – Fossil)	kg CO_2 eq.	5,02	0,04	0,05	0,02	0,01
Global warming (GWP – Biogenic)	kg CO_2 eq.	-1,92E-3	2,88E-5	3,43E-5	8,78E-6	4,13E-3
Global warming (GWP – Land use and Land use change)	kg CO_2 eq.	1,25E-3	1,16E-5	6,91E-4	5,81E-6	3,45E-6
Total global warming potential (GWP)	kg CO_2 eq.	5,02	4,00E-2	5,07E-2	2,00E-2	1,41E-2
Photochemical oxidation	kg NMVOC	9,09E-4	1,17E-4	2,36E-4	3,98E-5	5,62E-5
Abiotic depletion, minerals and metals	kg Sb eq.	3,04E-4	6,77E-7	5,26E-7	4,51E-7	1,81E-7
Abiotic depletion, fossil fuels	MJ	32,63	0,61	0,89	0,24	0,07
Ozone layer depletion	kg CFC-11 eq.	5,50E-9	7,44E-9	1,10E-8	2,97E-9	8,51E-10
Human toxicity Cancer	CTUh	2,00E-8	1,20E-11	2,34E-11	5,45E-12	4,91E-12
Human toxicity Non-Cancer	CTUh	8,57E-8	5,40E-10	6,11E-10	2,10E-10	2,34E-10
Ecotoxicity, freshwater	CTUe	121,88	0,49	2,43	0,20	0,21

Use of resources

1 kg of roof drainage system and accessories

1 kg of **roof drainage system and accessories**			A1 Raw material extraction and production	A2 Transport from supplier	A3 Manufacturing	A4 Distribution	C1- C4 End of life	TOTAL
Parameter		**Unit**						
Primary energy resources - Renewable	Use as energy carrier	MJ, net calorific value	2,45	0,01	0,66	0	0,01	3,13
	Used as raw materials	MJ, net calorific value	0	0	0,44	0	0	0,44
	TOTAL	**MJ, net calorific value**	2,45	0,01	1,1	0	0,01	**3,57**
Primary energy resources - Non-renewable	Use as energy carrier	MJ, net calorific value	34,46	0,62	1,96	0,25	0,08	37,37
	Used as raw materials	MJ, net calorific value	0,36	0	0	0	0	0,36
	TOTAL	**MJ, net calorific value**	34,82	0,62	1,96	0,25	0,08	**37,73**
Secondary material		kg	0,03	0	0	0	0	**0,03**
Renewable secondary fuels		MJ, net calorific value	2,57E-10	0	0	0	0	**2,57E-10**
Non-renewable secondary fuels		MJ, net calorific value	3,27E-9	0	0	0	0	**3,27E-9**
Net use fresh water		m^3	2,48E-3	1,29E-4	8,41E-4	4,27E-5	2,29E-5	**3,51E-3**

Waste production and output flows

1 kg of roof drainage system and accessories

Waste production

1 kg of **roof drainage system and accessories**		A1 Raw material extraction and production	A2 Transport from supplier	A3 Manufacturing	A4 Distribution	C1-C4 End of life	TOTAL
Impact category	**Unit**						
Hazardous waste disposed	kg	0.06	0	0	0	0	**0,06**
Non-hazardous waste disposed	kg	0,08	0	0	0	0	**0,08**
Radioactive waste disposed	kg	0	0	0	0	0	**0**

Output flows

1 kg of **roof drainage system and accessories**		A1 Raw material extraction and production	A2 Transport from supplier	A3 Manufacturing	A4 Distribution	C1-C4 End of life	TOTAL
Impact category	**Unit**						
Materials for reuse	kg	0	0	0	0	0	**0**
Materials for recycling	kg	0	0	0,001	0	0,999	**1,000**
Materials for energy recovery	kg	0	0	0,002	0	0,001	**0,003**
Energy recovery	MJ	0	0	0	0	0	**0**

Information on biogenic carbon content

Results per functional unit		
Biogenic carbon content	**Unit**	**Quantity**
Biogenic carbon content in product	**kg C**	**0**
Biogenic carbon content in packaging	**kg C**	**0,13**

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

References

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Appendix A

Products	Specification
Gutter **Gutter accessories** - **Gutter angle** - **Gutter joints** - **Gutter ends** - **Gutter outlets**	All sizes and colors
Downpipes **Downpipe accessories** - **Intermediate pipes** - **Pipe bends** - **Pipe wraps** - **Pipe branches** - **Shoes** - **Drain shoes** - **Fold-out shoes**	All sizes and colors
Gutter hooks	All sizes and colors
Other Accessories - **Drain trap** - **Extension pipe** - **Base elbow** - **Hopper** - **Drain flange** - **Sleeve joint** - **Straps** - **Overflow protection** - **Gutter strainer**	All sizes and colors