HOLDING BACK THE FLOOD

ENVIRONMENTAL PRODUCT DECLARATION

EPD®

In accordance with ISO 14025 and EN 15804 for:

WaStop SS DN900
from
Wapro AB

ECO PLATFORM EPD VERIFIED

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-05009
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PROGRAMME INFORMATION

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product Category Rules (PCR): PCR 2019:14 Construction products. Version 1.11, date 2021-02-05
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Claudia A. Peña. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☑ EPD verification
Third party verifier: David Althoff Palm from Ramboll Sweden AB 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 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

Owner of the EPD:
Wapro AB

Description of the organisation:
Wapro is a Swedish company with a large international presence. We develop, manufacture, test, market and sell our products to 49 countries. Wapro is the market leader in high-quality protection against backflow and flow control. Wherever there is a need to prevent flooding in stormwater and wastewater networks as well as odors and pests from sewage pipes, we will be there.

Our goal is to be perceived as a company that creates peace of mind and simplicity for the customer's complex problems. We are responsive, inquisitive, down to earth, professional and customer focused.

We at Wapro are customer-centric, nimble and passionate with innovative solutions for backflow and flow regulation. Common-sense and simplicity, and a determination to perform above expectations, enable us to solve problems existing today, and tomorrow. Wapro's value comes from our belief in the value chain: value = company + product + you.

Wapro is ISO certified for 9001:2015, 14001:2015 with a number of CE marked products in our range.

Name and location of production site:
Wapro AB Karlshamn, Munkahusvägen 103, 374 31 Karlshamn

PRODUKT INFORMATION

Product name:
WaStop SS DN900

Product identification:
Article number: WS885-S3-316

Product description:
WaStop's ingenious function provides you with the best possible protection against flooding, odor control and backflow.
A wide size range makes it available to fit most types of pipes from DN75-DN2000.
Working on differential pressure the WaStop functions autonomously, without human interaction, without electricity and without constant maintenance. It just works.
WaStop is extremely adaptable in regards to installation options. It can be installed from horizontal to vertical and in both cases can be installed for use in both directions.

UN CPC code:
43240

Geographical scope:
Sweden

LCA INFORMATION

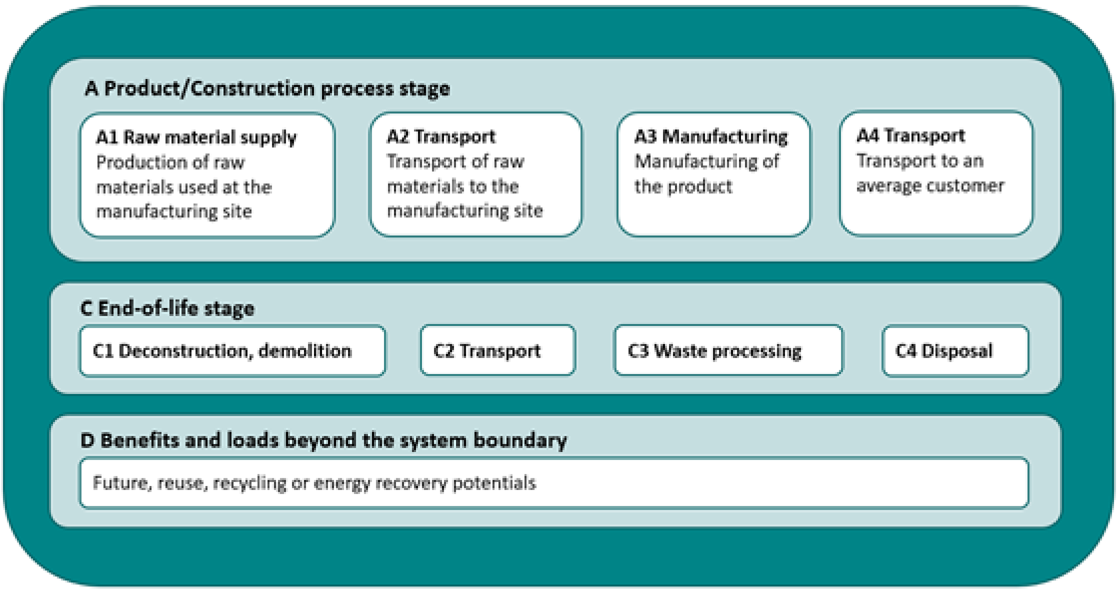
Declared unit:
1 piece of WaStop SS DN900 (134 kg)

Reference service life:
Not applicable

Time representativeness:
The data used to model product manufacturing corresponds to 2020/2021 (financial year). The data from generic databases are from 2014 – 2020. No data used is older than 10 years.

Database(s) and LCA software used:
The LCA was modelled using the LCA software GaBi 10 Professional and the respective generic life cycle inventory datasets provided by Sphera (2021).

System diagram:



Description of system:
Cradle to gate (A1-A3) with modules C1-C4, module D and with optional module A4. The life cycle stages included are described in the table below:

	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	Deconstruction, demolition	Transport	Waste processing	Disposal	Reuse, recycling or energy recovery potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	SE	SE	SE	SE	-	-	-	-	-	-	-	-	SE	SE	SE	SE	SE
Specific data used	3 %				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

X: Module declared
ND: Module not declared

Allocation:
The co-products from the factory in Karlshamn (A3) were allocated using factors based on physical relationships (produced quantities in mass). No other by-products are produced.

Scenarios:
The analysis is carried out using factory-specific data for use of energy and utilities and waste generation, as well as product-specific data for use of raw materials. Therefore, the results represent the product system, and no other scenarios were applied.

Data quality:
Site-specific production data has been retrieved for the financial year 2020/2021 from the production site. The upstream and downstream processes have been modelled based on data from the generic database provided by Sphera. The collected data was reviewed in terms of consistency, and it is deemed as good quality.

Cut-off criteria:
The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804.

Modelling of transportation modules:
Three types of transportation processes are included in this LCA study; the transport of raw materials and its packaging to the production sites (A2), the transport of the final products to the customers (A4) and the transport of waste materials from the production sites to the disposal (C2). The following table presents the transport scenarios applied and the modelling assumptions:

Transport module	Transport mode	Average distance (km)	Capacity utilization (%)
Suppliers to manufacturing (A2)	Truck	202	85
Manufacturing to costumer (A4)	Truck	550	85
(Customer to waste management (C2)	Truck	150	85

Modelling of product manufacturing (A3):
Wapro is purchasing components from their suppliers and their responsibility is to mount the different components together forming the finished check valve. Thereby generic processes such as injection moulding or steel stamping has been assumed for the different raw materials. In Wapro's factory mainly electricity and water are used. The electricity is obtained from the grid, which has been modelled using the Swedish residual electricity grid mix in the Sphera database.

The waste streams from the manufacturing site include combustible sorted waste and wood (to incineration for recycling) and corrugated board and mixed scrap (to recycling).

Modelling of End-Of-Life (C1-C4):

The impacts from deconstruction were modelled based on literature data for energy use in demolition, accounting for 0.004 MJ of diesel-powered machinery work per kg finished product. The entire product was assumed to be demolished at the End of Life and transported to a waste treatment facility.

Thereafter the parts made of stainless steel went through recycling with an efficiency of 95%, the rest (5%) was inertly incinerated without energy recovery. The plastic parts were incinerated with energy recovery.

The following end-of-life scenario has been applied:

Scenario	Kg per declared unit	Source for scenario
Recycling, waste processing at treatment plant (C3)	80.2	Assumption
Incineration with energy recovery (C3)	49.6	Assumption
Inert incineration without energy recovery (C4)	4.2	Assumption

Modelling of benefits beyond End-Of-Life (D):
For module D, the benefits from the recycling of waste are presented. The stainless steel recycled is credited with the avoided production of the raw material it would be displacing in the technosphere if recycled. A loss factor of 5 % for stainless steel was applied to the benefits from the recycling waste streams since losses exits in the recycling process, this assumption is based on the R2-factor in PEF for construction steel.

Furthermore, the steel was assumed to consist of 85% scrap which therefore was subtracted before crediting. The steel was credited with the dataset "EU-28: Stainless steel product (316) – value of scrap (Eurofer)"

Key estimates and assumptions:
The scenarios and assumptions applied in this study for all the life cycle stages included are based on data provided by Wapro and correspond to the most likely scenario.

CONTENT DECLARATION

Product components	Weight, kg	Post consumer material, weight %	Renewable material, weight%
Plastic	43.46	N.R.	N.R.
Rubber	6.52	N.R.	N.R.
Stainless steel	84.30	85	N.R.
Adhesive	0.05	N.R.	N.R.

Packaging materials	Weight, kg	Weight-% (versus the product)	
N.R.	N.R.	N.R.	

No substances that appear in the REACH candidate list of SVHC (Candidate List of Substances of Very High Concern) are present or used in the product concerning this EPD.

Packaging:
The product is transported to the customers on a euro pallet and no further packaging is needed.

ENVIRONMENTAL PERFORMANCE FOR WASTOP SS DN2000

Potential environmental impact per 1-piece WaStop SS DN900 (134 kg)

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4		D
Indicator for climate impact, GWP – GHG	kg CO2 eq.	4.98E+02	4.94E+02	1.19E+00	2.64E+00	5.07E+00	4.41E-02	1.17E+00	1.20E-02	4.59E-01		-9.15E+01
Climate Change - total	kg CO2 eq.	5.15E+02	5.05E+02	1.21E+00	8.62E+00	5.17E+00	4.50E-02	1.19E+00	1.21E-02	3.83E-01		-9.36E+01
Climate Change - fossil	kg CO2 eq.	5.08E+02	5.04E+02	1.20E+00	2.65E+00	5.14E+00	4.47E-02	1.18E+00	1.21E-02	3.81E-01		-9.36E+01
Climate Change - biogenic*	kg CO2 eq.	6.16E+00	1.77E-01	-1.54E-03	5.98E+00	-6.58E-00	-5.76E-05	-1.51E-03	9.40E-03	1.26E-03		2.60E-01
Climate Change - land use and land use change	kg CO2 eq.	5.56E-01	5.46E-01	9.91E-03	1.25E-04	4.23E-02	3.70E-04	9.71E-03	4.11E-03	4.72E-04		-3.29E-01
Ozone depletion	kg CFC-11 eq.	2.89E-12	2.84E-12	1.55E-16	4.21E-14	6.59E-16	5.77E-18	1.52E-16	2.35E-14	2.35E-15		-1.47E-13
Acidification	Mol H+ eq.	3.28E+00	3.28E+00	3.68E-03	3.27E-03	1.57E-02	2.60E-04	3.60E-03	1.22E-01	6.97E-04		-5.58E-01
Eutrophication aquatic freshwater	kg (PO4)3- eq.	1.15E-03	1.14E-03	3.59E-06	1.94E-06	1.53E-05	1.34E-07	3.52E-06	5.25E-06	1.62E-06		-9.090E-04
Eutrophication aquatic marine	kg N eq.	3.72E-01	3.69E-01	1.68E-03	1.23E-03	7.19E-03	1.27E-04	1.65E-03	5.89E-02	3.19E-03		-1.02E-01
Eutrophication terrestrial	mol N eq.	4.07E+00	4.04E+00	1.88E-02	1.59E-02	8.04E-02	1.41E-03	1.85E-02	6.80E-01	3.39E-03		-1.01E-00
Photochemical ozone formation	kg NMVOC eq.	1.23E+00	1.22E+00	3.31E-03	3.16E-03	1.41E-02	2.45E-04	3.25E-03	1.51E-01	8.43E-04		-2.78E-01
Depletion of abiotic resources - minerals and metals	Kg Sb eq.	9.79E-03	9.79E-03	9.21E-08	2.10E-08	3.93E-07	3.44E-09	9.03E-08	6.54E-07	4.40E-00		-2.21E-03
Depletion of abiotic resources - fossil fuels	MJ	1.00E+04	1.00E+04	1.61E+01	2.83E+00	6.87E+01	6.01E-01	1.58E+01	5.56E+01	6.06E+00		-1.33E+03
Water use	m3	1.22E+02	1.15E+02	1.05E-02	6.91E+00	4.48E-02	3.92E-04	1.03E-02	1.15E-01	5.56E-01		-4.26E+01

*Depending on the used datasets there is a mismatch between the uptake and emissions of biogenic carbon dioxide. Therefore, these values should be used with care.

Use of resources per 1-piece WaStop SS DN900 (134 kg)

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4		D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ	1.38E+03	1.38E+03	8.99E-01	5.57E-01	3.83E+00	3.35E-02	8.81E-01	9.12E-00	2.08E+00		-9.07E+02
Use of renewable 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	0.00E+00		0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	1.38E+03	1.38E+03	8.99E-01	5.57E-01	3.83E+00	3.35E-02	8.81E-01	9.12E-00	2.08E+00		-9.07E+02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ	8.56E+03	8.54E+03	1.61E+01	2.83E+00	6.88E+01	6.02E-01	1.58E+01	5.56E+01	6.06E+00		-1.33E+03
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	1.46E+03	1.46E+03	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 (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	1.00E+04	1.00E+04	1.61E+01	2.83E+00	6.88E+01	6.02E-01	1.58E+01	5.56E+01	6.06E+00		-1.33E+03
Use of secondary material (SM)	kg	7.41E+01	7.41E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		1.20E+01
Use of renewable secondary fuels (RSF)	MJ	1.99E-23	0.00E+00	0.00E+00	1.99E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Use of non renewable secondary fuels (NRSF)	MJ	2.33E-22	0.00E+00	0.00E+00	2.33E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Net use of fresh water (FW)	m3	5.19E+00	5.03E+00	1.03E-03	1.62E-01	4.39E-03	3.84E-05	1.01E-03	2.76E-01	1.43E-02		-1.95E+00

Waste production per 1-piece WaStop SS DN900 (134 kg)

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4		D
Hazardous waste disposed (HWD)	kg	1.13E-02	1.13E-02	8.13E-10	1.98E-09	3.47E-09	3.03E-11	7.97E-10	1.11E-08	1.02E-09		-7.03E-03
Non-hazardous waste disposed (NHWD)	kg	2.84E+01	2.82E+01	2.40E-03	2.01E-01	1.02E-02	8.94E-05	2.35E-03	4.47E-00	5.89E+01		-6.76E-01
Radioactive waste disposed (RWD)	kg	7.20E-01	7.20E-01	1.95E-05	1.90E-04	8.32E-05	7.28E-07	1.91E-05	2.20E-03	7.58E-04		-9.24E-02

Output flows per 1-piece WaStop SS DN900 (134 kg)

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4		D
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	0.00E+00		0.00E+00
Materials for Recycling (MFR)	kg	1.07E+00	0.00E+00	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	8.02E+01	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	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	1.23E+02	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	1.12E+03	0.00E+00		0.00E+00

Information on biogenic carbon content per 1-piece WaStop SS DN900 (134 kg)

Biogenic carbon content	Unit	Quantity
Biogenic carbon content in product	Kg C	N.R.
Biogenic carbon content in packaging	Kg C	N.R.

Information on energy content per 1-piece WaStop SS DN900 (134 kg)

Energy content	Unit	Quantity
Energy content in product	MJ	1408

Disclaimers

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
LCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals & metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2

Disclaimer 1 – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

ADDITIONAL INFORMATION

Certifications and labels:
Wapro is certified under ISO 14001 and ISO 9001.

REFERENCES

EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, European Committee for Standardization.

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CONTACT INFORMATION

EPD owner:	Email: sandra.edvardsson@wapro.se Telephone: +46(0)760-092102 Address: Munkahusvägen 103, 374 31 Karlshamn
LCA author:	IVL Swedish Environmental Research Institute, Box 210 60 SE-100 31 Stockholm, www.ivl.se. Contact: Anna Liljenroth (anna.liljenroth@ivl.se) Simon Andersson (simon.andersson@ivl.se)
Programme operator:	EPD International AB info@environdec.com