

# Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.80



Product: 3024596 - Wfx PVC Branch 45° BR/GD 160 SN8 S/S/S  
 Unit: 1 piece  
 Manufacturer: Wavin - NL - Hardenberg - Verified  
 Address: J.C. Kellerlaan 3  
 7772 SG Hardenberg  
 Netherlands

LCA standard: NMD Bepalingsmethode 1.1 (2022)  
 Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
 Externally verified: Yes  
 Issue date: 08-06-2023  
 End of validity: 08-06-2028  
 Verifier: Martijn van Hövell - SGS Search



Wavin carries a complete PVC range of outdoor sewers. With PVC as a material, a smooth-walled, flexible and completely watertight piping system is obtained. Moreover, PVC is absolutely resistant to all substances that occur in domestic waste water. By working with a light material, large pipe lengths and plug connections, a very fast installation is guaranteed.

This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard.

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin - NL - Hardenberg - Verified (2020). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	☑	☑	☑	☑									

## Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

## Construction process stage

A4 Transport gate to site  
 A5 Assembly / Construction installation process

## Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment  
 B6 Operational energy use B7 Operational water use

## End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing  
 C4 Disposal

## Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

## Environmental impacts and parameters

**ECI** = Environmental Costs Indicator [euro]; **ADPE** = Abiotic depletion potential for non-fossil resources [kg Sb-eq]; **ADPF** = Abiotic depletion potential for fossil resources [kg Sb-eq]; **GWP** = Global warming potential [kg CO2-eq]; **ODP** = Depletion potential of the stratospheric ozone layer [kg CFC-11-eq]; **POCP** = Formation potential of tropospheric ozone photochemical oxidants [kg ethene-eq]; **AP** = Acidification potential of land and water [kg SO2-eq]; **EP** = Eutrophication potential [kg PO4 3--eq]; **HTP** = Human toxicity potential [kg 1,4-DB-eq]; **FAETP** = Freshwater aquatic ecotoxicity potential [kg 1,4-DB-eq]; **MAETP** = Marine aquatic ecotoxicity potential [kg 1,4-DB-eq]; **TETP** = Terrestrial ecotoxicity potential [kg 1,4-DB-eq]; **GWP-total** = EF EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

## Statement of Confidentiality

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# Results

Environmental impact SBK set 1	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
ECI	euro	0.45	0.01	0.03	0.48	0.01	0.15	0	-0.23	0.41
ADPE	kg Sb-eq	3.88E-3	1.47E-6	6.46E-6	3.89E-3	1.35E-6	1.19E-5	1.51E-8	-4.57E-5	3.86E-3
ADPF	kg Sb-eq	4.95E-2	4.22E-4	1.11E-3	5.11E-2	3.80E-4	4.12E-3	2.09E-5	-2.69E-2	2.87E-2
GWP	kg CO2-eq	4.05E+0	5.74E-2	2.11E-1	4.32E+0	5.18E-2	1.45E+0	1.46E-2	-2.27E+0	3.56E+0
ODP	kg CFC-11-eq	2.15E-6	1.02E-8	1.67E-8	2.18E-6	9.60E-9	1.68E-7	4.98E-10	-1.10E-6	1.25E-6
POCP	kg ethene-eq	2.44E-3	3.47E-5	9.16E-5	2.56E-3	3.11E-5	3.29E-4	3.75E-6	-1.20E-3	1.73E-3
AP	kg SO2-eq	1.62E-2	2.53E-4	9.06E-4	1.73E-2	2.23E-4	2.39E-3	1.12E-5	-7.68E-3	1.23E-2
EP	kg PO4 3--eq	2.06E-3	4.96E-5	1.17E-4	2.23E-3	4.45E-5	3.65E-4	4.65E-6	-1.03E-3	1.61E-3
HTP	kg 1,4-DB-eq	1.55E+0	2.42E-2	9.80E-2	1.67E+0	2.21E-2	6.34E-1	1.20E-3	-7.21E-1	1.61E+0
FAETP	kg 1,4-DB-eq	4.67E-2	7.06E-4	3.35E-3	5.07E-2	6.48E-4	9.75E-3	4.26E-4	-2.03E-2	4.13E-2
MAETP	kg 1,4-DB-eq	1.10E+2	2.54E+0	1.32E+1	1.25E+2	2.32E+0	3.30E+1	5.02E-1	-4.66E+1	1.15E+2
TETP	kg 1,4-DB-eq	1.12E-2	8.55E-5	7.28E-3	1.86E-2	7.84E-5	2.24E-3	3.92E-6	-6.75E-3	1.42E-2
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	4.19E+0	5.80E-2	2.41E-1	4.48E+0	5.22E-2	1.55E+0	1.71E-2	-2.14E+0	3.96E+0
GWP-f	kg CO2 eq	4.14E+0	5.79E-2	1.85E-1	4.39E+0	5.22E-2	1.46E+0	1.71E-2	-2.33E+0	3.59E+0
GWP-b	kg CO2 eq	3.76E-2	2.67E-5	3.83E-2	7.59E-2	3.17E-5	8.65E-2	2.10E-5	1.86E-1	3.48E-1
GWP-luluc	kg CO2 eq	4.54E-3	2.12E-5	1.76E-2	2.22E-2	1.85E-5	6.35E-4	4.34E-7	-2.80E-3	2.00E-2
ODP	kg CFC11 eq	2.13E-6	1.28E-8	1.96E-8	2.16E-6	1.20E-8	1.73E-7	6.18E-10	-1.09E-6	1.26E-6
AP	mol H+ eq	1.97E-2	3.36E-4	1.13E-3	2.11E-2	2.97E-4	3.00E-3	1.50E-5	-9.30E-3	1.52E-2
EP-fw	kg P eq	1.94E-4	5.84E-7	3.25E-6	1.98E-4	4.29E-7	2.12E-5	1.97E-8	-9.72E-5	1.22E-4
EP-m	kg N eq	3.50E-3	1.18E-4	2.67E-4	3.89E-3	1.06E-4	7.40E-4	9.78E-6	-1.66E-3	3.08E-3
EP-T	mol N eq	3.79E-2	1.31E-3	2.94E-3	4.21E-2	1.17E-3	8.15E-3	6.00E-5	-1.79E-2	3.36E-2
POCP	kg NMVOC eq	1.24E-2	3.73E-4	8.38E-4	1.36E-2	3.35E-4	2.44E-3	2.07E-5	-6.02E-3	1.04E-2
ADP-mm	kg Sb eq	3.88E-3	1.47E-6	6.46E-6	3.89E-3	1.35E-6	1.19E-5	1.51E-8	-4.57E-5	3.86E-3
ADP-f	MJ	1.06E+2	8.74E-1	2.07E+0	1.08E+2	8.01E-1	8.16E+0	4.51E-2	-5.66E+1	6.08E+1
WDP	m3 depriv.	6.55E+0	3.12E-3	1.60E+0	8.16E+0	2.46E-3	3.17E-1	2.88E-4	-3.42E+0	5.05E+0
PM	disease inc.	1.38E-7	5.20E-9	1.40E-8	1.57E-7	4.71E-9	3.76E-8	3.11E-10	-7.24E-8	1.27E-7
IR	kBq U-235 eq	2.35E-1	3.66E-3	3.29E-3	2.42E-1	3.50E-3	2.87E-2	2.08E-4	-1.13E-1	1.61E-1
ETP-fw	CTUe	1.23E+2	7.79E-1	4.81E+0	1.28E+2	6.50E-1	6.13E+1	6.76E-1	-4.52E+1	1.46E+2
HTP-c	CTUh	3.30E-9	2.53E-11	1.67E-10	3.49E-9	2.31E-11	9.12E-10	1.24E-12	-1.26E-9	3.17E-9
HTP-nc	CTUh	1.08E-7	8.52E-10	5.20E-9	1.14E-7	7.75E-10	2.16E-8	1.31E-10	-4.35E-8	9.33E-8
SQP	Pt	2.15E+1	7.58E-1	1.55E-1	2.24E+1	6.85E-1	5.04E+0	1.16E-1	-4.16E+1	-1.34E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.70E+0	1.09E-2	1.01E+1	1.68E+1	1.15E-2	5.82E-1	1.70E-3	-8.82E+0	8.56E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.70E+0	1.09E-2	1.01E+1	1.68E+1	1.15E-2	5.82E-1	1.70E-3	-8.82E+0	8.56E+0
PENRE	MJ	1.13E+2	9.27E-1	2.24E+0	1.16E+2	8.50E-1	8.68E+0	4.79E-2	-6.10E+1	6.49E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.13E+2	9.27E-1	2.24E+0	1.16E+2	8.50E-1	8.68E+0	4.79E-2	-6.10E+1	6.49E+1
PET	MJ	1.20E+2	9.38E-1	1.23E+1	1.33E+2	8.62E-1	9.26E+0	4.96E-2	-6.98E+1	7.35E+1
SM	kg	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m3	7.53E-2	1.06E-4	3.79E-2	1.13E-1	9.06E-5	8.71E-3	5.53E-5	-4.05E-2	8.17E-2
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.54E-4	2.21E-6	2.20E-6	5.58E-4	2.05E-6	1.34E-5	5.49E-8	-4.60E-5	5.28E-4
NHWD	kg	4.19E-1	5.54E-2	3.40E-3	4.77E-1	4.96E-2	2.99E-1	1.98E-1	-1.82E-1	8.42E-1
RWD	kg	2.09E-4	5.74E-6	4.08E-6	2.19E-4	5.45E-6	3.10E-5	2.94E-7	-1.01E-4	1.55E-4
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0



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