

# Environmental Profile

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

Ecochain v3.5.80



Product: 3072514 - PVCU Branch 45° BR 315x200 SN4 UD FIN  
 Unit: 1 piece  
 Manufacturer: Wavin - PL -Buk - Extra products

LCA standard: EN15804+A2 (2019)  
 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



PVC external sewage pipes with a solid wall are produced in two classes of circumferential stiffness (SN8, SN4), which enables optimal selection depending on the load conditions. A wide portfolio of system fittings facilitates the construction of many schemes of sewage networks, as well as connections with systems made of other materials. Diameter range DN/OD 110-500mm. The pipes meet the requirements of the PN-EN 1401-1 standard.

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 - PL -Buk - Extra products (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 | MND | MND | MND | MND | MND | MND | MND | MND | 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

**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 | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3      | C4       | D        | Total    |
|----------------------|--------------|----------|----------|----------|----------|----------|---------|----------|----------|----------|
| GWP-total            | kg CO2 eq    | 1.30E+1  | 2.32E-1  | 1.45E-4  | 1.32E+1  | 1.95E-1  | 1.23E+1 | 6.07E-2  | -8.52E+0 | 1.72E+1  |
| GWP-f                | kg CO2 eq    | 1.83E+1  | 2.32E-1  | 1.46E-4  | 1.85E+1  | 1.95E-1  | 5.93E+0 | 6.06E-2  | -1.02E+1 | 1.45E+1  |
| GWP-b                | kg CO2 eq    | -5.38E+0 | 1.41E-4  | -1.54E-6 | -5.38E+0 | 1.18E-4  | 6.33E+0 | 7.89E-5  | 1.70E+0  | 2.64E+0  |
| GWP-luluc            | kg CO2 eq    | 2.47E-2  | 8.20E-5  | 1.49E-7  | 2.48E-2  | 6.90E-5  | 2.57E-3 | 1.53E-6  | -2.03E-2 | 7.20E-3  |
| ODP                  | kg CFC11 eq  | 9.06E-6  | 5.34E-8  | 8.26E-12 | 9.11E-6  | 4.50E-8  | 7.30E-7 | 2.30E-9  | -4.44E-6 | 5.45E-6  |
| AP                   | mol H+ eq    | 8.35E-2  | 1.32E-3  | 1.47E-6  | 8.48E-2  | 1.11E-3  | 1.26E-2 | 5.57E-5  | -4.48E-2 | 5.38E-2  |
| EP-fw                | kg P eq      | 8.25E-4  | 1.91E-6  | 8.24E-9  | 8.27E-4  | 1.61E-6  | 8.66E-5 | 7.06E-8  | -4.95E-4 | 4.21E-4  |
| EP-m                 | kg N eq      | 1.62E-2  | 4.72E-4  | 1.55E-7  | 1.67E-2  | 3.98E-4  | 3.17E-3 | 3.54E-5  | -8.74E-3 | 1.15E-2  |
| EP-T                 | mol N eq     | 1.71E-1  | 5.21E-3  | 1.85E-6  | 1.77E-1  | 4.38E-3  | 3.50E-2 | 2.23E-4  | -9.63E-2 | 1.20E-1  |
| POCP                 | kg NMVOC eq  | 5.63E-2  | 1.49E-3  | 6.28E-7  | 5.78E-2  | 1.25E-3  | 1.04E-2 | 7.65E-5  | -3.14E-2 | 3.81E-2  |
| ADP-mm               | kg Sb eq     | 4.83E-4  | 6.00E-6  | 1.97E-8  | 4.89E-4  | 5.05E-6  | 4.96E-5 | 5.50E-8  | -1.95E-4 | 3.49E-4  |
| ADP-f                | MJ           | 4.41E+2  | 3.56E+0  | 1.36E-3  | 4.44E+2  | 2.99E+0  | 3.32E+1 | 1.68E-1  | -2.34E+2 | 2.46E+2  |
| WDP                  | m3 depriv.   | 2.68E+1  | 1.09E-2  | 5.22E-5  | 2.68E+1  | 9.19E-3  | 1.29E+0 | 7.68E-4  | -1.48E+1 | 1.33E+1  |
| PM                   | disease inc. | 7.10E-7  | 2.09E-8  | 9.08E-12 | 7.31E-7  | 1.76E-8  | 1.56E-7 | 1.16E-9  | -4.65E-7 | 4.40E-7  |
| IR                   | kBq U-235 eq | 9.63E-1  | 1.56E-2  | 1.02E-6  | 9.78E-1  | 1.31E-2  | 1.20E-1 | 7.78E-4  | -5.33E-1 | 5.79E-1  |
| ETP-fw               | CTUe         | 4.96E+2  | 2.89E+0  | 1.21E-2  | 4.99E+2  | 2.43E+0  | 2.57E+2 | 2.82E+0  | -2.70E+2 | 4.91E+2  |
| HTP-c                | CTUh         | 1.32E-8  | 1.03E-10 | 6.17E-13 | 1.33E-8  | 8.65E-11 | 3.60E-9 | 4.42E-12 | -7.44E-9 | 9.57E-9  |
| HTP-nc               | CTUh         | 3.78E-7  | 3.44E-9  | 1.57E-11 | 3.81E-7  | 2.90E-9  | 8.89E-8 | 5.35E-10 | -2.04E-7 | 2.69E-7  |
| SQP                  | Pt           | 5.86E+2  | 3.04E+0  | 2.24E-3  | 5.89E+2  | 2.56E+0  | 2.01E+1 | 4.32E-1  | -7.26E+2 | -1.13E+2 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3      | C4       | D        | Total    |
| PERE                 | MJ           | 1.01E+2  | 5.10E-2  | 2.40E-2  | 1.01E+2  | 4.30E-2  | 2.37E+0 | 6.45E-3  | -1.24E+2 | -2.06E+1 |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0       | 0        | 0        | 0        |
| PERT                 | MJ           | 1.01E+2  | 5.10E-2  | 2.40E-2  | 1.01E+2  | 4.30E-2  | 2.37E+0 | 6.45E-3  | -1.24E+2 | -2.06E+1 |
| PENRE                | MJ           | 4.73E+2  | 3.78E+0  | 1.44E-3  | 4.77E+2  | 3.18E+0  | 3.54E+1 | 1.78E-1  | -2.52E+2 | 2.63E+2  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0       | 0        | 0        | 0        |
| PENRT                | MJ           | 4.73E+2  | 3.78E+0  | 1.44E-3  | 4.77E+2  | 3.18E+0  | 3.54E+1 | 1.78E-1  | -2.52E+2 | 2.63E+2  |
| PET                  | MJ           | 5.74E+2  | 3.83E+0  | 2.55E-2  | 5.78E+2  | 3.22E+0  | 3.77E+1 | 1.85E-1  | -3.76E+2 | 2.43E+2  |
| 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           | 3.04E-1  | 4.03E-4  | 1.46E-6  | 3.04E-1  | 3.39E-4  | 3.57E-2 | 2.07E-4  | -1.98E-1 | 1.43E-1  |

| Output flows and waste categories | Unit | A1      | A2      | A3       | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|----------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 3.95E-4 | 9.10E-6 | 2.73E-13 | 4.04E-4 | 7.66E-6 | 5.55E-5 | 2.02E-7 | -2.24E-4 | 2.43E-4 |
| NHWD                              | kg   | 2.11E+0 | 2.21E-1 | 1.05E-6  | 2.33E+0 | 1.86E-1 | 1.22E+0 | 7.42E-1 | -9.96E-1 | 3.47E+0 |
| RWD                               | kg   | 8.77E-4 | 2.42E-5 | 1.10E-13 | 9.01E-4 | 2.04E-5 | 1.30E-4 | 1.10E-6 | -4.88E-4 | 5.64E-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       |



Ecochain Technologies BV  
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands  
<https://www.ecochain.com>  
+31 20 3035 777