

# Environmental Profile

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

Ecochain v3.5.80



Product: 3023628 - PP-R Pipe GN 25 L=4 PN20  
Unit: 1 piece  
Manufacturer: Wavin - CZ - Horni Pocernice  
Location: Czechia  
Address: Do Čertous 2659  
193 00 Horní Počernice  
Czech Republic

LCA standard: EN15804+A2 (2019)  
Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
Externally verified: Yes  
Issue date: 04-10-2022  
End of validity: 04-10-2027  
Verifier: Martijn van Hövell - SGS Search



Use the Ekoplastik System when you prefer an all-plastic welded system or when you need pipes with larger diameters. The Ekoplastik system offers a maximum pipe diameter of 250 mm. Join pipes and fittings using a homogenous weld for secure and permanent connections.

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 - CZ - Horni Pocernice (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                                                                |    |    |     |     | Use stage                                                                                                             |     |     |     |     |     |     | End-of-Life stage                                                             |    |    |    |   |
| A1 Raw material supply A2 Transport A3 Manufacturing                         |    |    |     |     | B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment<br>B6 Operational energy use B7 Operational water use |     |     |     |     |     |     | C1 De-construction demolition C2 Transport C3 Waste processing<br>C4 Disposal |    |    |    |   |
| Construction process stage                                                   |    |    |     |     |                                                                                                                       |     |     |     |     |     |     | Benefits and loads beyond the system boundaries                               |    |    |    |   |
| A4 Transport gate to site<br>A5 Assembly / Construction installation process |    |    |     |     |                                                                                                                       |     |     |     |     |     |     | 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    | 2.23E+0  | 2.45E-1  | 3.43E-2  | 2.51E+0  | 2.86E-2  | 8.61E-1  | 1.35E-2  | -1.35E+0  | 2.07E+0  |
| GWP-f                | kg CO2 eq    | 2.22E+0  | 2.45E-1  | 2.79E-2  | 2.49E+0  | 2.86E-2  | 8.62E-1  | 1.35E-2  | -1.34E+0  | 2.06E+0  |
| GWP-b                | kg CO2 eq    | 9.06E-3  | 1.49E-4  | 5.86E-3  | 1.51E-2  | 1.74E-5  | -1.15E-3 | 1.17E-5  | -4.66E-3  | 9.30E-3  |
| GWP-luluc            | kg CO2 eq    | 6.09E-4  | 8.68E-5  | 5.60E-4  | 1.26E-3  | 1.01E-5  | 1.61E-4  | 2.32E-7  | -2.58E-4  | 1.17E-3  |
| ODP                  | kg CFC11 eq  | 4.20E-8  | 5.65E-8  | 3.50E-8  | 1.33E-7  | 6.59E-9  | 2.10E-8  | 3.38E-10 | -5.07E-8  | 1.11E-7  |
| AP                   | mol H+ eq    | 8.05E-3  | 1.40E-3  | 3.08E-4  | 9.75E-3  | 1.63E-4  | 8.82E-4  | 8.08E-6  | -3.74E-3  | 7.06E-3  |
| EP-fw                | kg P eq      | 3.35E-5  | 2.02E-6  | 1.40E-6  | 3.69E-5  | 2.35E-7  | 4.64E-6  | 1.06E-8  | -1.47E-5  | 2.72E-5  |
| EP-m                 | kg N eq      | 1.33E-3  | 5.00E-4  | 5.94E-5  | 1.89E-3  | 5.83E-5  | 2.57E-4  | 5.23E-6  | -6.63E-4  | 1.54E-3  |
| EP-T                 | mol N eq     | 1.52E-2  | 5.51E-3  | 6.97E-4  | 2.14E-2  | 6.43E-4  | 2.83E-3  | 3.28E-5  | -7.33E-3  | 1.75E-2  |
| POCP                 | kg NMVOC eq  | 6.87E-3  | 1.57E-3  | 1.54E-4  | 8.60E-3  | 1.84E-4  | 8.94E-4  | 1.23E-5  | -3.38E-3  | 6.31E-3  |
| ADP-mm               | kg Sb eq     | 3.78E-5  | 6.34E-6  | 2.70E-6  | 4.68E-5  | 7.40E-7  | 3.49E-6  | 8.17E-9  | -8.80E-6  | 4.23E-5  |
| ADP-f                | MJ           | 7.83E+1  | 3.76E+0  | 8.97E+0  | 9.10E+1  | 4.39E-1  | 2.79E+0  | 2.47E-2  | -4.22E+1  | 5.21E+1  |
| WDP                  | m3 depriv.   | 1.56E+0  | 1.15E-2  | 1.43E-1  | 1.72E+0  | 1.35E-3  | 5.47E-2  | 1.34E-4  | -7.27E-1  | 1.05E+0  |
| PM                   | disease inc. | 7.02E-8  | 2.21E-8  | 2.26E-9  | 9.46E-8  | 2.58E-9  | 1.45E-8  | 1.70E-10 | -3.12E-8  | 8.06E-8  |
| IR                   | kBq U-235 eq | 4.07E-2  | 1.64E-2  | 1.06E-1  | 1.63E-1  | 1.92E-3  | 8.42E-3  | 1.14E-4  | -1.95E-2  | 1.54E-1  |
| ETP-fw               | CTUe         | 1.25E+1  | 3.06E+0  | 3.07E+0  | 1.87E+1  | 3.57E-1  | 3.15E+0  | 2.07E-2  | -5.19E+0  | 1.70E+1  |
| HTP-c                | CTUh         | 5.45E-10 | 1.09E-10 | 5.83E-11 | 7.12E-10 | 1.27E-11 | 3.89E-10 | 6.11E-13 | -2.22E-10 | 8.92E-10 |
| HTP-nc               | CTUh         | 1.48E-8  | 3.64E-9  | 1.99E-9  | 2.04E-8  | 4.25E-10 | 4.73E-9  | 1.34E-11 | -6.28E-9  | 1.93E-8  |
| SQP                  | Pt           | 3.15E+0  | 3.22E+0  | 2.45E+0  | 8.82E+0  | 3.76E-1  | 2.23E+0  | 6.34E-2  | -1.13E+0  | 1.04E+1  |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3       | C4       | D         | Total    |
| PERE                 | MJ           | 1.16E+0  | 5.40E-2  | 1.28E+0  | 2.49E+0  | 6.30E-3  | 1.38E-1  | 9.52E-4  | -5.21E-1  | 2.12E+0  |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PERT                 | MJ           | 1.16E+0  | 5.40E-2  | 1.28E+0  | 2.49E+0  | 6.30E-3  | 1.38E-1  | 9.52E-4  | -5.21E-1  | 2.12E+0  |
| PENRE                | MJ           | 8.40E+1  | 3.99E+0  | 8.99E+0  | 9.70E+1  | 4.66E-1  | 2.98E+0  | 2.62E-2  | -4.55E+1  | 5.50E+1  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | 0        |
| PENRT                | MJ           | 8.40E+1  | 3.99E+0  | 8.99E+0  | 9.70E+1  | 4.66E-1  | 2.98E+0  | 2.62E-2  | -4.55E+1  | 5.50E+1  |
| PET                  | MJ           | 8.52E+1  | 4.05E+0  | 1.03E+1  | 9.95E+1  | 4.73E-1  | 3.11E+0  | 2.72E-2  | -4.60E+1  | 5.71E+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           | 2.38E-2  | 4.26E-4  | 4.72E-3  | 2.90E-2  | 4.97E-5  | 1.61E-3  | 3.04E-5  | -1.09E-2  | 1.98E-2  |

| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 1.06E-5 | 9.62E-6 | 7.37E-8 | 2.03E-5 | 1.12E-6 | 4.55E-6 | 2.99E-8 | -9.96E-6 | 1.60E-5 |
| NHWD                              | kg   | 9.66E-2 | 2.33E-1 | 4.17E-4 | 3.30E-1 | 2.72E-2 | 1.38E-1 | 1.09E-1 | -3.23E-2 | 5.72E-1 |
| RWD                               | kg   | 3.53E-5 | 2.56E-5 | 9.97E-8 | 6.10E-5 | 2.99E-6 | 1.07E-5 | 1.61E-7 | -1.76E-5 | 5.72E-5 |
| 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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