

# Environmental Profile

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

Ecochain v3.5.80



Product: 3023014 - PP-R Reduc.Sleeve Metal M/T GY 40x5/4";  
Unit: 1 piece  
Manufacturer: Wavin - CZ - Kostelec - Verified

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.

LCA standard: NMD Bepalingsmethode 1.1 (2022)  
Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
Externally verified: Yes  
Issue date: 27-01-2023  
End of validity: 27-01-2028  
Verifier: Martijn van Hövell - SGS Search



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 - Kostelec - 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 | 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

**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         | 2.23    | 0.02     | 0        | 2.25    | 0        | 0.01     | 0        | -0.17    | 2.08    |
| ADPE                           | kg Sb-eq     | 7.46E-3 | 1.45E-6  | 9.62E-7  | 7.46E-3 | 2.44E-7  | 5.13E-7  | 1.92E-9  | -3.49E-3 | 3.98E-3 |
| ADPF                           | kg Sb-eq     | 1.04E-2 | 6.07E-4  | 1.45E-4  | 1.12E-2 | 6.88E-5  | 1.25E-4  | 2.77E-6  | -3.26E-3 | 8.13E-3 |
| GWP                            | kg CO2-eq    | 1.40E+0 | 9.10E-2  | 2.56E-2  | 1.51E+0 | 9.37E-3  | 6.28E-2  | 8.80E-4  | -3.81E-1 | 1.21E+0 |
| ODP                            | kg CFC-11-eq | 7.95E-8 | 1.56E-8  | 2.15E-8  | 1.17E-7 | 1.74E-9  | 1.86E-9  | 6.72E-11 | -2.65E-8 | 9.38E-8 |
| POCP                           | kg ethene-eq | 5.01E-3 | 9.08E-5  | 1.43E-5  | 5.12E-3 | 5.63E-6  | 1.36E-5  | 3.26E-7  | -4.67E-4 | 4.67E-3 |
| AP                             | kg SO2-eq    | 1.02E-1 | 1.47E-3  | 1.06E-4  | 1.04E-1 | 4.03E-5  | 9.54E-5  | 1.48E-6  | -7.45E-3 | 9.65E-2 |
| EP                             | kg PO4 3--eq | 5.59E-3 | 1.78E-4  | 1.61E-5  | 5.79E-3 | 8.06E-6  | 1.45E-5  | 3.77E-7  | -6.82E-4 | 5.13E-3 |
| HTP                            | kg 1,4-DB-eq | 1.67E+1 | 4.56E-2  | 2.77E-2  | 1.68E+1 | 4.01E-3  | 2.42E-2  | 1.25E-4  | -1.10E+0 | 1.57E+1 |
| FAETP                          | kg 1,4-DB-eq | 3.87E-1 | 9.73E-4  | 9.49E-4  | 3.89E-1 | 1.17E-4  | 7.35E-4  | 6.32E-5  | -4.68E-2 | 3.43E-1 |
| MAETP                          | kg 1,4-DB-eq | 1.70E+3 | 4.00E+0  | 2.05E+0  | 1.70E+3 | 4.20E-1  | 1.55E+0  | 6.72E-2  | -1.61E+2 | 1.54E+3 |
| TETP                           | kg 1,4-DB-eq | 4.58E-2 | 1.44E-4  | 7.88E-4  | 4.67E-2 | 1.42E-5  | 7.47E-5  | 2.64E-7  | -2.90E-3 | 4.39E-2 |
| Environmental impact           | Unit         | A1      | A2       | A3       | A1-A3   | C2       | C3       | C4       | D        | Total   |
| GWP-total                      | kg CO2 eq    | 1.43E+0 | 9.17E-2  | 2.92E-2  | 1.55E+0 | 9.46E-3  | 6.29E-2  | 1.01E-3  | -3.94E-1 | 1.23E+0 |
| GWP-f                          | kg CO2 eq    | 1.43E+0 | 9.16E-2  | 2.32E-2  | 1.55E+0 | 9.45E-3  | 6.31E-2  | 1.01E-3  | -3.87E-1 | 1.23E+0 |
| GWP-b                          | kg CO2 eq    | 8.07E-4 | 1.04E-5  | 5.84E-3  | 6.66E-3 | 5.74E-6  | -2.60E-4 | 1.05E-6  | -6.07E-3 | 3.36E-4 |
| GWP-luluc                      | kg CO2 eq    | 2.06E-3 | 4.92E-5  | 1.83E-4  | 2.29E-3 | 3.34E-6  | 1.61E-5  | 5.75E-8  | -6.22E-4 | 1.69E-3 |
| ODP                            | kg CFC11 eq  | 8.69E-8 | 1.96E-8  | 1.27E-8  | 1.19E-7 | 2.18E-9  | 2.19E-9  | 8.44E-11 | -2.69E-8 | 9.68E-8 |
| AP                             | mol H+ eq    | 1.17E-1 | 1.86E-3  | 1.33E-4  | 1.19E-1 | 5.38E-5  | 1.21E-4  | 1.96E-6  | -8.97E-3 | 1.10E-1 |
| EP-fw                          | kg P eq      | 9.36E-4 | 5.49E-7  | 5.74E-7  | 9.38E-4 | 7.78E-8  | 6.49E-7  | 2.39E-9  | -7.53E-5 | 8.63E-4 |
| EP-m                           | kg N eq      | 5.97E-3 | 4.83E-4  | 3.08E-5  | 6.48E-3 | 1.93E-5  | 3.11E-5  | 8.30E-7  | -1.02E-3 | 5.51E-3 |
| EP-T                           | mol N eq     | 8.76E-2 | 5.36E-3  | 3.17E-4  | 9.33E-2 | 2.12E-4  | 3.50E-4  | 7.58E-6  | -1.43E-2 | 7.95E-2 |
| POCP                           | kg NMVOC eq  | 2.34E-2 | 1.41E-3  | 8.37E-5  | 2.49E-2 | 6.07E-5  | 1.04E-4  | 2.38E-6  | -3.37E-3 | 2.17E-2 |
| ADP-mm                         | kg Sb eq     | 7.46E-3 | 1.45E-6  | 9.62E-7  | 7.46E-3 | 2.44E-7  | 5.13E-7  | 1.92E-9  | -3.49E-3 | 3.98E-3 |
| ADP-f                          | MJ           | 1.98E+1 | 1.28E+0  | 3.02E+0  | 2.41E+1 | 1.45E-1  | 2.58E-1  | 5.84E-3  | -6.82E+0 | 1.77E+1 |
| WDP                            | m3 depriv.   | 1.20E+0 | 2.90E-3  | 7.22E-2  | 1.27E+0 | 4.45E-4  | 3.45E-3  | 2.00E-4  | -3.33E-1 | 9.44E-1 |
| PM                             | disease inc. | 2.62E-7 | 5.31E-9  | 1.47E-9  | 2.68E-7 | 8.53E-10 | 1.84E-9  | 3.89E-11 | -3.36E-8 | 2.38E-7 |
| IR                             | kBq U-235 eq | 6.35E-2 | 5.54E-3  | 3.38E-2  | 1.03E-1 | 6.34E-4  | 9.22E-4  | 2.48E-5  | -2.60E-2 | 7.84E-2 |
| ETP-fw                         | CTUe         | 1.16E+3 | 9.32E-1  | 1.14E+0  | 1.16E+3 | 1.18E-1  | 5.30E-1  | 4.08E-3  | -1.64E+2 | 9.95E+2 |
| HTP-c                          | CTUh         | 1.68E-8 | 4.68E-11 | 3.27E-11 | 1.68E-8 | 4.19E-12 | 3.45E-11 | 1.03E-13 | -3.66E-9 | 1.32E-8 |
| HTP-nc                         | CTUh         | 1.35E-6 | 9.50E-10 | 8.34E-10 | 1.35E-6 | 1.40E-10 | 6.70E-10 | 2.82E-12 | -2.34E-7 | 1.12E-6 |
| SQP                            | Pt           | 1.76E+1 | 6.36E-1  | 8.41E-1  | 1.91E+1 | 1.24E-1  | 2.97E-1  | 1.30E-2  | -3.36E+0 | 1.62E+1 |

| Resource use                      | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE                              | MJ   | 3.80E+0 | 1.35E-2 | 4.09E-1 | 4.22E+0 | 2.08E-3 | 1.99E-2 | 9.47E-5 | -1.01E+0 | 3.24E+0 |
| PERM                              | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PERT                              | MJ   | 3.80E+0 | 1.35E-2 | 4.09E-1 | 4.22E+0 | 2.08E-3 | 1.99E-2 | 9.47E-5 | -1.01E+0 | 3.24E+0 |
| PENRE                             | MJ   | 2.12E+1 | 1.36E+0 | 3.04E+0 | 2.56E+1 | 1.54E-1 | 2.75E-1 | 6.20E-3 | -7.30E+0 | 1.87E+1 |
| PENRM                             | MJ   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0        | 0       |
| PENRT                             | MJ   | 2.12E+1 | 1.36E+0 | 3.04E+0 | 2.56E+1 | 1.54E-1 | 2.75E-1 | 6.20E-3 | -7.30E+0 | 1.87E+1 |
| PET                               | MJ   | 2.50E+1 | 1.37E+0 | 3.45E+0 | 2.98E+1 | 1.56E-1 | 2.95E-1 | 6.30E-3 | -8.30E+0 | 2.19E+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   | 3.07E-2 | 1.06E-4 | 2.13E-3 | 3.29E-2 | 1.64E-5 | 1.19E-4 | 6.49E-6 | -8.57E-3 | 2.45E-2 |
| Output flows and waste categories | Unit | A1      | A2      | A3      | A1-A3   | C2      | C3      | C4      | D        | Total   |
| HWD                               | kg   | 9.30E-4 | 2.23E-6 | 2.83E-7 | 9.33E-4 | 3.71E-7 | 5.25E-7 | 8.28E-9 | -4.38E-4 | 4.96E-4 |
| NHWD                              | kg   | 4.45E-1 | 4.13E-2 | 7.90E-3 | 4.94E-1 | 8.99E-3 | 1.15E-2 | 3.59E-2 | -1.53E-1 | 3.97E-1 |
| RWD                               | kg   | 5.34E-5 | 8.80E-6 | 4.23E-7 | 6.26E-5 | 9.86E-7 | 1.15E-6 | 3.83E-8 | -2.08E-5 | 4.39E-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       |



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