

# Environmental Profile

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

Ecochain v3.5.80



Product: 3031547 - X-Stream Click Inlet 160SW/600U VI BK  
Unit: 1 piece  
Manufacturer: Wavin - PL -Buk - Extra products

Wavin X-Stream is a new generation of double-walled pipes and fittings made of polypropylene. The system is

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



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                                                                |    |    |     |     | 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    | 4.95E+0  | 1.42E-2  | 1.45E-4  | 4.97E+0  | 6.22E-2  | 3.64E+0 | 2.15E-2  | -2.91E+0 | 5.78E+0  |
| GWP-f                | kg CO2 eq    | 6.00E+0  | 1.42E-2  | 1.46E-4  | 6.01E+0  | 6.21E-2  | 2.43E+0 | 2.15E-2  | -3.15E+0 | 5.38E+0  |
| GWP-b                | kg CO2 eq    | -1.05E+0 | 8.64E-6  | -1.54E-6 | -1.05E+0 | 3.77E-5  | 1.20E+0 | 2.66E-5  | 2.47E-1  | 3.98E-1  |
| GWP-luluc            | kg CO2 eq    | 6.24E-3  | 5.04E-6  | 1.49E-7  | 6.25E-3  | 2.20E-5  | 7.54E-4 | 5.17E-7  | -4.06E-3 | 2.96E-3  |
| ODP                  | kg CFC11 eq  | 2.73E-6  | 3.28E-9  | 8.26E-12 | 2.74E-6  | 1.43E-8  | 2.10E-7 | 7.70E-10 | -1.29E-6 | 1.67E-6  |
| AP                   | mol H+ eq    | 2.81E-2  | 8.10E-5  | 1.47E-6  | 2.81E-2  | 3.54E-4  | 3.69E-3 | 1.87E-5  | -1.20E-2 | 2.02E-2  |
| EP-fw                | kg P eq      | 2.52E-4  | 1.17E-7  | 8.24E-9  | 2.52E-4  | 5.11E-7  | 2.53E-5 | 2.38E-8  | -1.22E-4 | 1.56E-4  |
| EP-m                 | kg N eq      | 4.98E-3  | 2.90E-5  | 1.55E-7  | 5.00E-3  | 1.27E-4  | 9.29E-4 | 1.41E-5  | -2.29E-3 | 3.79E-3  |
| EP-T                 | mol N eq     | 5.36E-2  | 3.20E-4  | 1.85E-6  | 5.39E-2  | 1.40E-3  | 1.02E-2 | 7.47E-5  | -2.50E-2 | 4.07E-2  |
| POCP                 | kg NMVOC eq  | 1.90E-2  | 9.13E-5  | 6.28E-7  | 1.91E-2  | 3.99E-4  | 3.04E-3 | 2.59E-5  | -8.45E-3 | 1.42E-2  |
| ADP-mm               | kg Sb eq     | 3.93E-4  | 3.68E-7  | 1.97E-8  | 3.93E-4  | 1.61E-6  | 1.42E-5 | 1.84E-8  | -6.26E-5 | 3.47E-4  |
| ADP-f                | MJ           | 1.51E+2  | 2.18E-1  | 1.36E-3  | 1.51E+2  | 9.54E-1  | 9.73E+0 | 5.62E-2  | -7.33E+1 | 8.82E+1  |
| WDP                  | m3 depriv.   | 8.24E+0  | 6.70E-4  | 5.22E-5  | 8.24E+0  | 2.93E-3  | 3.84E-1 | 2.62E-4  | -4.00E+0 | 4.63E+0  |
| PM                   | disease inc. | 2.36E-7  | 1.28E-9  | 9.08E-12 | 2.37E-7  | 5.61E-9  | 4.51E-8 | 3.86E-10 | -1.08E-7 | 1.80E-7  |
| IR                   | kBq U-235 eq | 3.27E-1  | 9.55E-4  | 1.02E-6  | 3.28E-1  | 4.17E-3  | 3.45E-2 | 2.61E-4  | -1.41E-1 | 2.25E-1  |
| ETP-fw               | CTUe         | 1.35E+2  | 1.77E-1  | 1.21E-2  | 1.35E+2  | 7.75E-1  | 7.47E+1 | 8.22E-1  | -5.99E+1 | 1.51E+2  |
| HTP-c                | CTUh         | 4.21E-9  | 6.31E-12 | 6.17E-13 | 4.22E-9  | 2.76E-11 | 1.05E-9 | 1.48E-12 | -1.87E-9 | 3.43E-9  |
| HTP-nc               | CTUh         | 1.23E-7  | 2.11E-10 | 1.57E-11 | 1.23E-7  | 9.23E-10 | 2.61E-8 | 1.60E-10 | -5.39E-8 | 9.68E-8  |
| SQP                  | Pt           | 1.21E+2  | 1.87E-1  | 2.24E-3  | 1.22E+2  | 8.16E-1  | 5.94E+0 | 1.44E-1  | -1.31E+2 | -3.04E+0 |
| Resource use         | Unit         | A1       | A2       | A3       | A1-A3    | C2       | C3      | C4       | D        | Total    |
| PERE                 | MJ           | 3.67E+1  | 3.13E-3  | 2.40E-2  | 3.68E+1  | 1.37E-2  | 6.94E-1 | 2.20E-3  | -2.29E+1 | 1.46E+1  |
| PERM                 | MJ           | 0        | 0        | 0        | 0        | 0        | 0       | 0        | 0        | 0        |
| PERT                 | MJ           | 3.67E+1  | 3.13E-3  | 2.40E-2  | 3.68E+1  | 1.37E-2  | 6.94E-1 | 2.20E-3  | -2.29E+1 | 1.46E+1  |
| PENRE                | MJ           | 1.61E+2  | 2.32E-1  | 1.44E-3  | 1.62E+2  | 1.01E+0  | 1.03E+1 | 5.96E-2  | -7.91E+1 | 9.40E+1  |
| PENRM                | MJ           | 0        | 0        | 0        | 0        | 0        | 0       | 0        | 0        | 0        |
| PENRT                | MJ           | 1.61E+2  | 2.32E-1  | 1.44E-3  | 1.62E+2  | 1.01E+0  | 1.03E+1 | 5.96E-2  | -7.91E+1 | 9.40E+1  |
| PET                  | MJ           | 1.98E+2  | 2.35E-1  | 2.55E-2  | 1.98E+2  | 1.03E+0  | 1.10E+1 | 6.18E-2  | -1.02E+2 | 1.09E+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           | 9.89E-2  | 2.47E-5  | 1.46E-6  | 9.89E-2  | 1.08E-4  | 1.12E-2 | 6.94E-5  | -4.96E-2 | 6.07E-2  |

| Output flows and waste categories | Unit | A1      | A2      | A3       | A1-A3   | C2      | C3      | C4      | D        | Total   |
|-----------------------------------|------|---------|---------|----------|---------|---------|---------|---------|----------|---------|
| HWD                               | kg   | 1.21E-4 | 5.58E-7 | 2.73E-13 | 1.21E-4 | 2.44E-6 | 1.64E-5 | 6.75E-8 | -6.54E-5 | 7.47E-5 |
| NHWD                              | kg   | 6.06E-1 | 1.35E-2 | 1.05E-6  | 6.20E-1 | 5.91E-2 | 3.71E-1 | 2.48E-1 | -2.55E-1 | 1.04E+0 |
| RWD                               | kg   | 3.19E-4 | 1.49E-6 | 1.10E-13 | 3.20E-4 | 6.49E-6 | 3.73E-5 | 3.67E-7 | -1.29E-4 | 2.35E-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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