# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3085333 - PVC Vent. Red.T-piece BL 235x160 3S |
| Unit: | 1 piece |
| Manufacturer: | Wavin - NL - Hardenberg - Verified |
| Address: | J.C. Kellerlaan 3<br>7772 SG Hardenberg<br>Netherlands |

With the new Ventiza air distribution system, Wavin offers a solution from the ventilation to the valve. A good indoor climate is arranged in no time!

| | |
|---|---|
| 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 |

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 | 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

**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

# Results

| Environmental impact SBK set 1 | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| ECI | euro | 0.35 | 0.01 | 0.03 | 0.38 | 0 | 0.11 | 0 | -0.18 | 0.31 |
| ADPE | kg Sb-eq | 2.85E-3 | 1.13E-6 | 6.27E-6 | 2.86E-3 | 9.42E-7 | 8.86E-6 | 1.05E-8 | -3.37E-5 | 2.83E-3 |
| ADPF | kg Sb-eq | 3.57E-2 | 3.25E-4 | 1.08E-3 | 3.71E-2 | 2.65E-4 | 3.01E-3 | 1.45E-5 | -1.90E-2 | 2.14E-2 |
| GWP | kg CO2-eq | 3.15E+0 | 4.42E-2 | 2.05E-1 | 3.40E+0 | 3.61E-2 | 1.02E+0 | 9.90E-3 | -1.67E+0 | 2.79E+0 |
| ODP | kg CFC-11-eq | 1.54E-6 | 7.84E-9 | 1.62E-8 | 1.56E-6 | 6.70E-9 | 1.24E-7 | 3.46E-10 | -8.04E-7 | 8.90E-7 |
| POCP | kg ethene-eq | 1.90E-3 | 2.67E-5 | 8.89E-5 | 2.02E-3 | 2.17E-5 | 2.47E-4 | 2.57E-6 | -9.00E-4 | 1.39E-3 |
| AP | kg SO2-eq | 1.29E-2 | 1.94E-4 | 8.80E-4 | 1.39E-2 | 1.55E-4 | 1.77E-3 | 7.82E-6 | -6.06E-3 | 9.81E-3 |
| EP | kg PO4 3−-eq | 1.74E-3 | 3.82E-5 | 1.13E-4 | 1.89E-3 | 3.10E-5 | 2.74E-4 | 3.07E-6 | -9.27E-4 | 1.27E-3 |
| HTP | kg 1,4-DB-eq | 1.16E+0 | 1.86E-2 | 9.51E-2 | 1.27E+0 | 1.54E-2 | 4.60E-1 | 8.21E-4 | -5.64E-1 | 1.19E+0 |
| FAETP | kg 1,4-DB-eq | 4.04E-2 | 5.43E-4 | 3.25E-3 | 4.42E-2 | 4.53E-4 | 7.11E-3 | 2.58E-4 | -1.98E-2 | 3.22E-2 |
| MAETP | kg 1,4-DB-eq | 8.21E+1 | 1.95E+0 | 1.28E+1 | 9.68E+1 | 1.62E+0 | 2.52E+1 | 3.14E-1 | -3.65E+1 | 8.74E+1 |
| TETP | kg 1,4-DB-eq | 8.69E-3 | 6.58E-5 | 7.07E-3 | 1.58E-2 | 5.47E-5 | 1.61E-3 | 2.75E-6 | -6.62E-3 | 1.09E-2 |
| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| GWP-total | kg CO2 eq | 3.23E+0 | 4.46E-2 | 2.34E-1 | 3.51E+0 | 3.64E-2 | 1.19E+0 | 1.15E-2 | -1.39E+0 | 3.36E+0 |
| GWP-f | kg CO2 eq | 3.22E+0 | 4.46E-2 | 1.80E-1 | 3.44E+0 | 3.64E-2 | 1.03E+0 | 1.15E-2 | -1.71E+0 | 2.81E+0 |
| GWP-b | kg CO2 eq | 1.07E-2 | 2.06E-5 | 3.71E-2 | 4.78E-2 | 2.21E-5 | 1.64E-1 | 1.45E-5 | 3.20E-1 | 5.32E-1 |
| GWP-luluc | kg CO2 eq | 4.26E-3 | 1.63E-5 | 1.71E-2 | 2.14E-2 | 1.29E-5 | 4.59E-4 | 3.05E-7 | -3.30E-3 | 1.85E-2 |
| ODP | kg CFC11 eq | 1.52E-6 | 9.84E-9 | 1.90E-8 | 1.55E-6 | 8.39E-9 | 1.28E-7 | 4.30E-10 | -7.96E-7 | 8.91E-7 |
| AP | mol H+ eq | 1.58E-2 | 2.59E-4 | 1.10E-3 | 1.71E-2 | 2.07E-4 | 2.23E-3 | 1.05E-5 | -7.38E-3 | 1.22E-2 |
| EP-fw | kg P eq | 1.55E-4 | 4.50E-7 | 3.15E-6 | 1.59E-4 | 3.00E-7 | 1.54E-5 | 1.37E-8 | -8.54E-5 | 8.89E-5 |
| EP-m | kg N eq | 2.98E-3 | 9.11E-5 | 2.59E-4 | 3.33E-3 | 7.42E-5 | 5.59E-4 | 6.45E-6 | -1.37E-3 | 2.60E-3 |
| EP-T | mol N eq | 3.10E-2 | 1.00E-3 | 2.86E-3 | 3.49E-2 | 8.18E-4 | 6.15E-3 | 4.17E-5 | -1.49E-2 | 2.70E-2 |
| POCP | kg NMVOC eq | 9.90E-3 | 2.87E-4 | 8.13E-4 | 1.10E-2 | 2.34E-4 | 1.84E-3 | 1.44E-5 | -4.75E-3 | 8.34E-3 |
| ADP-mm | kg Sb eq | 2.85E-3 | 1.13E-6 | 6.27E-6 | 2.86E-3 | 9.42E-7 | 8.86E-6 | 1.05E-8 | -3.37E-5 | 2.83E-3 |
| ADP-f | MJ | 7.57E+1 | 6.72E-1 | 2.01E+0 | 7.84E+1 | 5.59E-1 | 5.96E+0 | 3.14E-2 | -4.03E+1 | 4.47E+1 |
| WDP | m3 depriv. | 4.70E+0 | 2.41E-3 | 1.56E+0 | 6.26E+0 | 1.72E-3 | 2.29E-1 | 2.14E-4 | -2.70E+0 | 3.80E+0 |
| PM | disease inc. | 1.18E-7 | 4.00E-9 | 1.35E-8 | 1.35E-7 | 3.29E-9 | 2.79E-8 | 2.16E-10 | -6.82E-8 | 9.85E-8 |
| IR | kBq U-235 eq | 1.67E-1 | 2.82E-3 | 3.20E-3 | 1.73E-1 | 2.44E-3 | 2.12E-2 | 1.44E-4 | -9.20E-2 | 1.05E-1 |
| ETP-fw | CTUe | 1.11E+2 | 6.00E-1 | 4.67E+0 | 1.16E+2 | 4.54E-1 | 4.50E+1 | 4.92E-1 | -4.64E+1 | 1.16E+2 |
| HTP-c | CTUh | 2.51E-9 | 1.94E-11 | 1.62E-10 | 2.69E-9 | 1.61E-11 | 6.78E-10 | 8.72E-13 | -1.01E-9 | 2.38E-9 |
| HTP-nc | CTUh | 8.02E-8 | 6.56E-10 | 5.05E-9 | 8.59E-8 | 5.41E-10 | 1.58E-8 | 9.46E-11 | -3.47E-8 | 6.76E-8 |
| SQP | Pt | 2.44E+1 | 5.83E-1 | 1.50E-1 | 2.52E+1 | 4.78E-1 | 3.64E+0 | 8.04E-2 | -6.36E+1 | -3.43E+1 |

| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 6.53E+0 | 8.42E-3 | 9.78E+0 | 1.63E+1 | 8.02E-3 | 4.22E-1 | 1.16E-3 | -1.24E+1 | 4.31E+0 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 6.53E+0 | 8.42E-3 | 9.78E+0 | 1.63E+1 | 8.02E-3 | 4.22E-1 | 1.16E-3 | -1.24E+1 | 4.31E+0 |
| PENRE | MJ | 8.13E+1 | 7.14E-1 | 2.17E+0 | 8.42E+1 | 5.93E-1 | 6.34E+0 | 3.33E-2 | -4.33E+1 | 4.78E+1 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 8.13E+1 | 7.14E-1 | 2.17E+0 | 8.42E+1 | 5.93E-1 | 6.34E+0 | 3.33E-2 | -4.33E+1 | 4.78E+1 |
| PET | MJ | 8.78E+1 | 7.22E-1 | 1.20E+1 | 1.01E+2 | 6.01E-1 | 6.77E+0 | 3.45E-2 | -5.58E+1 | 5.21E+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 | 5.58E-2 | 8.19E-5 | 3.68E-2 | 9.26E-2 | 6.32E-5 | 6.32E-3 | 3.84E-5 | -3.56E-2 | 6.35E-2 |
| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| HWD | kg | 4.12E-4 | 1.70E-6 | 2.14E-6 | 4.16E-4 | 1.43E-6 | 9.94E-6 | 3.83E-8 | -3.49E-5 | 3.92E-4 |
| NHWD | kg | 3.33E-1 | 4.27E-2 | 3.30E-3 | 3.79E-1 | 3.46E-2 | 2.17E-1 | 1.38E-1 | -1.44E-1 | 6.25E-1 |
| RWD | kg | 1.47E-4 | 4.42E-6 | 3.96E-6 | 1.55E-4 | 3.80E-6 | 2.31E-5 | 2.04E-7 | -8.25E-5 | 9.98E-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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