# Environmental Profile

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

Ecochain v3.5.80

| | |
|---|---|
| Product: | 3085208 - PVC Vent.Duct BL 160x2.5 L=5.5 Round |
| 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 | 2.15 | 0.05 | 0.09 | 2.29 | 0.03 | 0.75 | 0 | -1.07 | 2.01 |
| ADPE | kg Sb-eq | 1.20E-2 | 9.82E-6 | 1.71E-5 | 1.20E-2 | 7.07E-6 | 6.01E-5 | 7.64E-8 | -2.23E-4 | 1.19E-2 |
| ADPF | kg Sb-eq | 2.34E-1 | 2.83E-3 | 4.58E-3 | 2.42E-1 | 1.99E-3 | 2.11E-2 | 1.07E-4 | -1.27E-1 | 1.38E-1 |
| GWP | kg CO2-eq | 1.92E+1 | 3.84E-1 | 8.15E-1 | 2.04E+1 | 2.71E-1 | 7.39E+0 | 6.98E-2 | -1.07E+1 | 1.75E+1 |
| ODP | kg CFC-11-eq | 1.10E-5 | 6.82E-8 | 7.66E-8 | 1.11E-5 | 5.03E-8 | 8.63E-7 | 2.55E-9 | -5.53E-6 | 6.48E-6 |
| POCP | kg ethene-eq | 1.16E-2 | 2.32E-4 | 3.59E-4 | 1.22E-2 | 1.63E-4 | 1.66E-3 | 1.83E-5 | -5.43E-3 | 8.58E-3 |
| AP | kg SO2-eq | 7.68E-2 | 1.69E-3 | 3.20E-3 | 8.17E-2 | 1.17E-3 | 1.22E-2 | 5.71E-5 | -3.46E-2 | 6.05E-2 |
| EP | kg PO4 3−-eq | 9.29E-3 | 3.32E-4 | 5.05E-4 | 1.01E-2 | 2.33E-4 | 1.85E-3 | 2.20E-5 | -4.20E-3 | 8.03E-3 |
| HTP | kg 1,4-DB-eq | 7.52E+0 | 1.62E-1 | 3.08E-1 | 7.99E+0 | 1.16E-1 | 3.26E+0 | 5.90E-3 | -3.36E+0 | 8.01E+0 |
| FAETP | kg 1,4-DB-eq | 1.90E-1 | 4.72E-3 | 1.25E-2 | 2.07E-1 | 3.40E-3 | 4.96E-2 | 1.79E-3 | -7.36E-2 | 1.88E-1 |
| MAETP | kg 1,4-DB-eq | 5.14E+2 | 1.70E+1 | 5.11E+1 | 5.82E+2 | 1.21E+1 | 1.63E+2 | 2.19E+0 | -2.16E+2 | 5.42E+2 |
| TETP | kg 1,4-DB-eq | 5.30E-2 | 5.72E-4 | 1.91E-2 | 7.26E-2 | 4.11E-4 | 1.16E-2 | 1.97E-5 | -2.45E-2 | 6.02E-2 |
| Environmental impact | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| GWP-total | kg CO2 eq | 1.87E+1 | 3.88E-1 | 9.60E-1 | 2.00E+1 | 2.74E-1 | 8.68E+0 | 8.13E-2 | -1.10E+1 | 1.80E+1 |
| GWP-f | kg CO2 eq | 1.97E+1 | 3.88E-1 | 7.52E-1 | 2.09E+1 | 2.73E-1 | 7.45E+0 | 8.13E-2 | -1.09E+1 | 1.77E+1 |
| GWP-b | kg CO2 eq | -1.08E+0 | 1.79E-4 | 1.63E-1 | -9.13E-1 | 1.66E-4 | 1.23E+0 | 1.03E-4 | -7.61E-2 | 2.45E-1 |
| GWP-luluc | kg CO2 eq | 1.72E-2 | 1.42E-4 | 4.58E-2 | 6.32E-2 | 9.68E-5 | 3.29E-3 | 2.19E-6 | -7.23E-3 | 5.93E-2 |
| ODP | kg CFC11 eq | 1.08E-5 | 8.55E-8 | 9.08E-8 | 1.10E-5 | 6.30E-8 | 8.89E-7 | 3.16E-9 | -5.48E-6 | 6.46E-6 |
| AP | mol H+ eq | 9.28E-2 | 2.25E-3 | 4.10E-3 | 9.91E-2 | 1.56E-3 | 1.53E-2 | 7.64E-5 | -4.18E-2 | 7.42E-2 |
| EP-fw | kg P eq | 9.04E-4 | 3.91E-6 | 1.07E-5 | 9.19E-4 | 2.25E-6 | 1.09E-4 | 9.86E-8 | -4.03E-4 | 6.27E-4 |
| EP-m | kg N eq | 1.58E-2 | 7.92E-4 | 1.21E-3 | 1.78E-2 | 5.57E-4 | 3.73E-3 | 4.65E-5 | -7.30E-3 | 1.48E-2 |
| EP-T | mol N eq | 1.73E-1 | 8.73E-3 | 1.30E-2 | 1.95E-1 | 6.14E-3 | 4.11E-2 | 3.05E-4 | -7.85E-2 | 1.64E-1 |
| POCP | kg NMVOC eq | 5.78E-2 | 2.49E-3 | 3.66E-3 | 6.39E-2 | 1.76E-3 | 1.23E-2 | 1.04E-4 | -2.69E-2 | 5.13E-2 |
| ADP-mm | kg Sb eq | 1.20E-2 | 9.82E-6 | 1.71E-5 | 1.20E-2 | 7.07E-6 | 6.01E-5 | 7.64E-8 | -2.23E-4 | 1.19E-2 |
| ADP-f | MJ | 4.99E+2 | 5.85E+0 | 8.70E+0 | 5.13E+2 | 4.20E+0 | 4.18E+1 | 2.30E-1 | -2.65E+2 | 2.94E+2 |
| WDP | m3 depriv. | 3.29E+1 | 2.09E-2 | 5.88E+0 | 3.88E+1 | 1.29E-2 | 1.64E+0 | 1.51E-3 | -1.57E+1 | 2.48E+1 |
| PM | disease inc. | 6.55E-7 | 3.48E-8 | 6.36E-8 | 7.53E-7 | 2.47E-8 | 1.91E-7 | 1.58E-9 | -2.71E-7 | 6.99E-7 |
| IR | kBq U-235 eq | 1.10E+0 | 2.45E-2 | 1.57E-2 | 1.14E+0 | 1.83E-2 | 1.46E-1 | 1.05E-3 | -5.08E-1 | 7.93E-1 |
| ETP-fw | CTUe | 4.36E+2 | 5.21E+0 | 1.45E+1 | 4.56E+2 | 3.41E+0 | 3.16E+2 | 3.49E+0 | -1.57E+2 | 6.22E+2 |
| HTP-c | CTUh | 1.54E-8 | 1.69E-10 | 4.95E-10 | 1.61E-8 | 1.21E-10 | 4.74E-9 | 6.23E-12 | -5.83E-9 | 1.51E-8 |
| HTP-nc | CTUh | 4.96E-7 | 5.70E-9 | 1.51E-8 | 5.17E-7 | 4.06E-9 | 1.11E-7 | 6.72E-10 | -2.01E-7 | 4.32E-7 |
| SQP | Pt | 1.78E+2 | 5.07E+0 | 6.51E-1 | 1.84E+2 | 3.59E+0 | 2.60E+1 | 5.86E-1 | -5.21E+1 | 1.62E+2 |

| Resource use | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 4.17E+1 | 7.32E-2 | 2.62E+1 | 6.80E+1 | 6.02E-2 | 3.01E+0 | 8.34E-3 | -1.62E+1 | 5.48E+1 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 4.17E+1 | 7.32E-2 | 2.62E+1 | 6.80E+1 | 6.02E-2 | 3.01E+0 | 8.34E-3 | -1.62E+1 | 5.48E+1 |
| PENRE | MJ | 5.35E+2 | 6.21E+0 | 9.43E+0 | 5.51E+2 | 4.46E+0 | 4.45E+1 | 2.44E-1 | -2.86E+2 | 3.14E+2 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 5.35E+2 | 6.21E+0 | 9.43E+0 | 5.51E+2 | 4.46E+0 | 4.45E+1 | 2.44E-1 | -2.86E+2 | 3.14E+2 |
| PET | MJ | 5.77E+2 | 6.28E+0 | 3.57E+1 | 6.19E+2 | 4.52E+0 | 4.75E+1 | 2.53E-1 | -3.02E+2 | 3.69E+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 | 3.63E-1 | 7.12E-4 | 1.39E-1 | 5.02E-1 | 4.75E-4 | 4.49E-2 | 2.81E-4 | -1.64E-1 | 3.84E-1 |
| Output flows and waste categories | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D | Total |
| HWD | kg | 1.85E-3 | 1.48E-5 | 1.22E-5 | 1.88E-3 | 1.07E-5 | 6.75E-5 | 2.80E-7 | -2.21E-4 | 1.74E-3 |
| NHWD | kg | 2.00E+0 | 3.71E-1 | 1.76E-2 | 2.38E+0 | 2.60E-1 | 1.56E+0 | 1.04E+0 | -8.45E-1 | 4.40E+0 |
| RWD | kg | 9.53E-4 | 3.84E-5 | 2.19E-5 | 1.01E-3 | 2.85E-5 | 1.57E-4 | 1.50E-6 | -4.48E-4 | 7.52E-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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