Environmental Profile

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

Ecochain v3.5.80

Product:	3000466 - U3 Pipe BN KOMO 125 SN4 L=5 CH
Unit:	1 piece
Manufacturer:	Wavin - NL - Hardenberg - Verified
Address:	J.C. Kellerlaan 3 7772 SG Hardenberg Netherlands

Multi-layer U3 PVC pipes from Wavin made with recycled PVC in the middle layer. The tubes contain at least 40% recycled material.

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	0.8	0.04	0.06	0.91	0.02	0.5	0	-0.26	1.17
ADPE	kg Sb-eq	1.99E-4	8.13E-6	1.16E-5	2.19E-4	4.92E-6	4.08E-5	5.09E-8	-4.37E-5	2.21E-4
ADPF	kg Sb-eq	8.37E-2	2.34E-3	3.11E-3	8.91E-2	1.38E-3	1.44E-2	7.22E-5	-3.28E-2	7.22E-2
GWP	kg CO2-eq	7.12E+0	3.18E-1	5.53E-1	7.99E+0	1.89E-1	4.78E+0	4.56E-2	-2.94E+0	1.01E+1
ODP	kg CFC-11-eq	3.61E-6	5.65E-8	5.20E-8	3.72E-6	3.50E-8	5.76E-7	1.73E-9	-1.14E-6	3.19E-6
POCP	kg ethene-eq	4.58E-3	1.92E-4	2.44E-4	5.01E-3	1.13E-4	1.13E-3	1.21E-5	-1.25E-3	5.02E-3
AP	kg SO2-eq	2.76E-2	1.40E-3	2.17E-3	3.12E-2	8.11E-4	8.24E-3	3.84E-5	-7.48E-3	3.28E-2
EP	kg PO4 3−-eq	3.62E-3	2.75E-4	3.43E-4	4.24E-3	1.62E-4	1.25E-3	1.49E-5	-9.48E-4	4.72E-3
HTP	kg 1,4-DB-eq	2.73E+0	1.34E-1	2.09E-1	3.07E+0	8.07E-2	2.23E+0	3.95E-3	-7.13E-1	4.67E+0
FAETP	kg 1,4-DB-eq	3.25E-1	3.91E-3	8.50E-3	3.37E-1	2.36E-3	3.28E-2	1.21E-3	-1.51E-2	3.59E-1
MAETP	kg 1,4-DB-eq	2.01E+2	1.41E+1	3.47E+1	2.49E+2	8.44E+0	1.08E+2	1.47E+0	-4.46E+1	3.23E+2
TETP	kg 1,4-DB-eq	1.35E-1	4.74E-4	1.30E-2	1.49E-1	2.86E-4	7.94E-3	1.30E-5	-4.99E-3	1.52E-1
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	6.77E+0	3.21E-1	6.52E-1	7.74E+0	1.90E-1	5.56E+0	5.31E-2	-3.02E+0	1.05E+1
GWP-f	kg CO2 eq	7.27E+0	3.21E-1	5.10E-1	8.10E+0	1.90E-1	4.82E+0	5.31E-2	-3.00E+0	1.02E+1
GWP-b	kg CO2 eq	-5.32E-1	1.48E-4	1.10E-1	-4.21E-1	1.15E-4	7.43E-1	6.81E-5	-1.54E-2	3.07E-1
GWP-luluc	kg CO2 eq	3.65E-2	1.18E-4	3.11E-2	6.77E-2	6.73E-5	2.22E-3	1.43E-6	-1.52E-3	6.85E-2
ODP	kg CFC11 eq	3.57E-6	7.09E-8	6.16E-8	3.71E-6	4.38E-8	5.94E-7	2.15E-9	-1.14E-6	3.20E-6
AP	mol H+ eq	3.36E-2	1.86E-3	2.78E-3	3.83E-2	1.08E-3	1.03E-2	5.15E-5	-9.12E-3	4.06E-2
EP-fw	kg P eq	3.10E-4	3.24E-6	7.30E-6	3.20E-4	1.56E-6	7.38E-5	6.45E-8	-8.15E-5	3.14E-4
EP-m	kg N eq	6.46E-3	6.56E-4	8.20E-4	7.94E-3	3.87E-4	2.52E-3	3.16E-5	-1.71E-3	9.17E-3
EP-T	mol N eq	6.82E-2	7.23E-3	8.80E-3	8.42E-2	4.27E-3	2.78E-2	2.06E-4	-1.88E-2	9.77E-2
POCP	kg NMVOC eq	2.29E-2	2.07E-3	2.48E-3	2.74E-2	1.22E-3	8.35E-3	7.00E-5	-6.32E-3	3.08E-2
ADP-mm	kg Sb eq	1.99E-4	8.13E-6	1.16E-5	2.19E-4	4.92E-6	4.08E-5	5.09E-8	-4.37E-5	2.21E-4
ADP-f	MJ	1.77E+2	4.84E+0	5.91E+0	1.88E+2	2.92E+0	2.85E+1	1.56E-1	-6.70E+1	1.52E+2
WDP	m3 depriv.	1.09E+1	1.73E-2	3.99E+0	1.49E+1	8.95E-3	1.10E+0	8.51E-4	-3.13E+0	1.29E+1
PM	disease inc.	3.20E-7	2.88E-8	4.32E-8	3.92E-7	1.72E-8	1.30E-7	1.07E-9	-5.98E-8	4.81E-7
IR	kBq U-235 eq	3.66E-1	2.03E-2	1.07E-2	3.97E-1	1.28E-2	9.94E-2	7.16E-4	-1.05E-1	4.05E-1
ETP-fw	CTUe	1.20E+2	4.32E+0	9.85E+0	1.34E+2	2.37E+0	2.10E+2	2.31E+0	-3.44E+1	3.15E+2
HTP-c	CTUh	4.97E-9	1.40E-10	3.36E-10	5.44E-9	8.43E-11	3.11E-9	4.02E-12	-1.22E-9	7.42E-9
HTP-nc	CTUh	1.47E-7	4.72E-9	1.03E-8	1.62E-7	2.82E-9	7.45E-8	4.45E-10	-4.08E-8	1.99E-7
SQP	Pt	9.01E+1	4.20E+0	4.42E-1	9.48E+1	2.50E+0	1.79E+1	3.96E-1	-1.94E+1	9.61E+1

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.82E+1	6.06E-2	1.78E+1	3.61E+1	4.19E-2	2.03E+0	5.62E-3	-5.02E+0	3.31E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.82E+1	6.06E-2	1.78E+1	3.61E+1	4.19E-2	2.03E+0	5.62E-3	-5.02E+0	3.31E+1
PENRE	MJ	1.90E+2	5.14E+0	6.40E+0	2.01E+2	3.10E+0	3.04E+1	1.66E-1	-7.26E+1	1.62E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.90E+2	5.14E+0	6.40E+0	2.01E+2	3.10E+0	3.04E+1	1.66E-1	-7.26E+1	1.62E+2
PET	MJ	2.08E+2	5.20E+0	2.42E+1	2.37E+2	3.14E+0	3.24E+1	1.71E-1	-7.76E+1	1.95E+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	1.23E-1	5.90E-4	9.41E-2	2.17E-1	3.30E-4	3.01E-2	1.91E-4	-3.38E-2	2.14E-1
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.45E-4	1.23E-5	8.27E-6	1.65E-4	7.46E-6	4.59E-5	1.88E-7	-5.98E-5	1.59E-4
NHWD	kg	7.05E-1	3.07E-1	1.19E-2	1.02E+0	1.81E-1	1.06E+0	7.23E-1	-1.74E-1	2.82E+0
RWD	kg	3.31E-4	3.18E-5	1.49E-5	3.78E-4	1.98E-5	1.07E-4	1.02E-6	-9.47E-5	4.11E-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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