Environmental Profile

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

Ecochain v3.5.80

Product:	3000292 - U3 Pipe GY KOMO 500 SN8 L=5 SC/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	12.85	0.72	1.21	14.78	0.43	9.51	0.06	-3.23	21.55
ADPE	kg Sb-eq	3.65E-3	1.53E-4	2.20E-4	4.03E-3	9.32E-5	7.72E-4	9.62E-7	-4.30E-4	4.46E-3
ADPF	kg Sb-eq	1.31E+0	4.40E-2	5.89E-2	1.41E+0	2.62E-2	2.72E-1	1.37E-3	-4.23E-1	1.29E+0
GWP	kg CO2-eq	1.14E+2	5.99E+0	1.05E+1	1.30E+2	3.57E+0	9.13E+1	8.61E-1	-3.98E+1	1.86E+2
ODP	kg CFC-11-eq	5.40E-5	1.06E-6	9.84E-7	5.61E-5	6.63E-7	1.09E-5	3.28E-8	-1.17E-5	5.59E-5
POCP	kg ethene-eq	7.45E-2	3.61E-3	4.61E-3	8.27E-2	2.14E-3	2.14E-2	2.29E-4	-1.43E-2	9.22E-2
AP	kg SO2-eq	4.45E-1	2.63E-2	4.11E-2	5.12E-1	1.54E-2	1.56E-1	7.27E-4	-8.03E-2	6.04E-1
EP	kg PO4 3−-eq	5.97E-2	5.17E-3	6.49E-3	7.13E-2	3.07E-3	2.36E-2	2.86E-4	-1.07E-2	8.76E-2
HTP	kg 1,4-DB-eq	4.28E+1	2.52E+0	3.95E+0	4.93E+1	1.53E+0	4.21E+1	7.48E-2	-7.51E+0	8.55E+1
FAETP	kg 1,4-DB-eq	5.16E+0	7.36E-2	1.61E-1	5.39E+0	4.48E-2	6.20E-1	2.28E-2	-1.52E-1	5.93E+0
MAETP	kg 1,4-DB-eq	3.41E+3	2.65E+2	6.57E+2	4.33E+3	1.60E+2	2.04E+3	2.77E+1	-4.54E+2	6.10E+3
TETP	kg 1,4-DB-eq	2.14E+0	8.91E-3	2.46E-1	2.39E+0	5.41E-3	1.50E-1	2.46E-4	-4.98E-2	2.50E+0
Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.07E+2	6.04E+0	1.23E+1	1.26E+2	3.60E+0	1.06E+2	1.00E+0	-4.07E+1	1.96E+2
GWP-f	kg CO2 eq	1.16E+2	6.04E+0	9.66E+0	1.32E+2	3.60E+0	9.20E+1	1.00E+0	-4.05E+1	1.88E+2
GWP-b	kg CO2 eq	-9.73E+0	2.79E-3	2.09E+0	-7.63E+0	2.19E-3	1.41E+1	1.29E-3	-1.51E-1	6.36E+0
GWP-luluc	kg CO2 eq	5.75E-1	2.21E-3	5.89E-1	1.17E+0	1.27E-3	4.20E-2	2.68E-5	-1.59E-2	1.19E+0
ODP	kg CFC11 eq	5.35E-5	1.33E-6	1.17E-6	5.60E-5	8.30E-7	1.12E-5	4.08E-8	-1.18E-5	5.63E-5
AP	mol H+ eq	5.45E-1	3.50E-2	5.27E-2	6.32E-1	2.05E-2	1.96E-1	9.74E-4	-9.92E-2	7.50E-1
EP-fw	kg P eq	4.87E-3	6.09E-5	1.38E-4	5.06E-3	2.96E-5	1.39E-3	1.21E-6	-8.01E-4	5.69E-3
EP-m	kg N eq	1.08E-1	1.23E-2	1.55E-2	1.36E-1	7.34E-3	4.77E-2	6.05E-4	-2.01E-2	1.72E-1
EP-T	mol N eq	1.15E+0	1.36E-1	1.67E-1	1.45E+0	8.09E-2	5.26E-1	3.90E-3	-2.26E-1	1.83E+0
POCP	kg NMVOC eq	3.81E-1	3.88E-2	4.70E-2	4.67E-1	2.31E-2	1.58E-1	1.33E-3	-7.43E-2	5.75E-1
ADP-mm	kg Sb eq	3.65E-3	1.53E-4	2.20E-4	4.03E-3	9.32E-5	7.72E-4	9.62E-7	-4.30E-4	4.46E-3
ADP-f	MJ	2.76E+3	9.11E+1	1.12E+2	2.96E+3	5.53E+1	5.39E+2	2.95E+0	-8.43E+2	2.71E+3
WDP	m3 depriv.	1.63E+2	3.26E-1	7.56E+1	2.39E+2	1.70E-1	2.08E+1	1.55E-2	-3.02E+1	2.30E+2
PM	disease inc.	5.73E-6	5.42E-7	8.18E-7	7.09E-6	3.25E-7	2.47E-6	2.02E-8	-6.61E-7	9.24E-6
IR	kBq U-235 eq	5.73E+0	3.82E-1	2.02E-1	6.32E+0	2.42E-1	1.88E+0	1.36E-2	-1.07E+0	7.38E+0
ETP-fw	CTUe	1.90E+3	8.12E+1	1.87E+2	2.17E+3	4.49E+1	3.97E+3	4.36E+1	-3.76E+2	5.85E+3
HTP-c	CTUh	7.82E-8	2.63E-9	6.36E-9	8.72E-8	1.60E-9	5.84E-8	7.57E-11	-1.27E-8	1.35E-7
HTP-nc	CTUh	2.27E-6	8.88E-8	1.95E-7	2.56E-6	5.35E-8	1.41E-6	8.39E-9	-4.04E-7	3.62E-6
SQP	Pt	1.67E+3	7.90E+1	8.37E+0	1.75E+3	4.73E+1	3.39E+2	7.49E+0	-3.22E+2	1.82E+3

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.18E+2	1.14E+0	3.37E+2	6.56E+2	7.93E-1	3.84E+1	1.07E-1	-7.50E+1	6.20E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.18E+2	1.14E+0	3.37E+2	6.56E+2	7.93E-1	3.84E+1	1.07E-1	-7.50E+1	6.20E+2
PENRE	MJ	2.96E+3	9.67E+1	1.21E+2	3.18E+3	5.87E+1	5.74E+2	3.13E+0	-9.19E+2	2.89E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.96E+3	9.67E+1	1.21E+2	3.18E+3	5.87E+1	5.74E+2	3.13E+0	-9.19E+2	2.89E+3
PET	MJ	3.28E+3	9.78E+1	4.59E+2	3.83E+3	5.95E+1	6.12E+2	3.24E+0	-9.94E+2	3.51E+3
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	1.89E+0	1.11E-2	1.78E+0	3.68E+0	6.26E-3	5.70E-1	3.62E-3	-3.39E-1	3.92E+0
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.29E-3	2.31E-4	1.57E-4	2.68E-3	1.41E-4	8.68E-4	3.55E-6	-8.03E-4	2.89E-3
NHWD	kg	1.13E+1	5.78E+0	2.26E-1	1.73E+1	3.43E+0	2.01E+1	1.37E+1	-1.77E+0	5.28E+1
RWD	kg	5.30E-3	5.98E-4	2.81E-4	6.18E-3	3.76E-4	2.02E-3	1.93E-5	-9.93E-4	7.60E-3
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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