Environmental Profile

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

Ecochain v3.5.80

Product:	3015625 - X-Stream PP Branch 45° BK 400x200
Unit:	1 piece
Manufacturer:	Wavin - PL -Buk - Extra products

Wavin X-Stream is a new generation of double-walled pipes and □ttings 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

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

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	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	5.42E+0	8.25E-1	8.32E-3	6.25E+0	2.73E-1	2.82E+1	1.29E-1	-1.50E+1	1.99E+1
GWP-f	kg CO2 eq	2.53E+1	8.24E-1	8.40E-3	2.62E+1	2.73E-1	8.11E+0	1.29E-1	-1.49E+1	1.97E+1
GWP-b	kg CO2 eq	-1.99E+1	5.00E-4	-8.86E-5	-1.99E+1	1.66E-4	2.01E+1	1.12E-4	-4.48E-2	1.12E-1
GWP-luluc	kg CO2 eq	1.67E-2	2.92E-4	8.58E-6	1.70E-2	9.66E-5	1.58E-3	2.19E-6	-1.11E-2	7.58E-3
ODP	kg CFC11 eq	1.01E-6	1.90E-7	4.75E-10	1.20E-6	6.29E-8	2.22E-7	3.23E-9	-8.26E-7	6.58E-7
AP	mol H+ eq	9.97E-2	4.69E-3	8.47E-5	1.04E-1	1.55E-3	9.37E-3	7.70E-5	-5.22E-2	6.33E-2
EP-fw	kg P eq	4.76E-4	6.78E-6	4.73E-7	4.83E-4	2.24E-6	4.60E-5	1.01E-7	-2.56E-4	2.75E-4
EP-m	kg N eq	1.86E-2	1.68E-3	8.91E-6	2.03E-2	5.56E-4	2.83E-3	5.00E-5	-1.08E-2	1.29E-2
EP-T	mol N eq	2.11E-1	1.85E-2	1.07E-4	2.30E-1	6.13E-3	3.13E-2	3.12E-4	-1.25E-1	1.43E-1
POCP	kg NMVOC eq	9.06E-2	5.29E-3	3.61E-5	9.59E-2	1.75E-3	9.70E-3	1.17E-4	-5.08E-2	5.67E-2
ADP-mm	kg Sb eq	3.84E-4	2.13E-5	1.13E-6	4.07E-4	7.06E-6	3.56E-5	7.76E-8	-1.26E-4	3.23E-4
ADP-f	MJ	8.18E+2	1.26E+1	7.79E-2	8.31E+2	4.19E+0	2.82E+1	2.36E-1	-4.38E+2	4.25E+2
WDP	m3 depriv.	1.57E+1	3.88E-2	3.00E-3	1.57E+1	1.29E-2	5.32E-1	1.21E-3	-7.68E+0	8.60E+0
PM	disease inc.	1.21E-6	7.44E-8	5.22E-10	1.28E-6	2.46E-8	1.50E-7	1.62E-9	-6.28E-7	8.31E-7
IR	kBq U-235 eq	5.90E-1	5.53E-2	5.85E-5	6.46E-1	1.83E-2	8.77E-2	1.09E-3	-3.04E-1	4.49E-1
ETP-fw	CTUe	2.22E+2	1.03E+1	6.94E-1	2.33E+2	3.40E+0	3.15E+1	1.97E-1	-1.29E+2	1.39E+2
HTP-c	CTUh	1.52E-8	3.65E-10	3.54E-11	1.56E-8	1.21E-10	4.10E-9	5.77E-12	-8.53E-9	1.13E-8
HTP-nc	CTUh	2.39E-7	1.22E-8	8.99E-10	2.52E-7	4.05E-9	4.75E-8	1.27E-10	-1.18E-7	1.86E-7
SQP	Pt	1.73E+3	1.08E+1	1.29E-1	1.74E+3	3.58E+0	2.25E+1	6.04E-1	-1.28E+3	4.94E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.09E+2	1.81E-1	1.38E+0	3.11E+2	6.01E-2	1.36E+0	9.11E-3	-1.97E+2	1.15E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.09E+2	1.81E-1	1.38E+0	3.11E+2	6.01E-2	1.36E+0	9.11E-3	-1.97E+2	1.15E+2
PENRE	MJ	8.77E+2	1.34E+1	8.30E-2	8.91E+2	4.45E+0	3.01E+1	2.50E-1	-4.71E+2	4.54E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.77E+2	1.34E+1	8.30E-2	8.91E+2	4.45E+0	3.01E+1	2.50E-1	-4.71E+2	4.54E+2
PET	MJ	1.19E+3	1.36E+1	1.46E+0	1.20E+3	4.51E+0	3.14E+1	2.59E-1	-6.69E+2	5.69E+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	2.52E-1	1.43E-3	8.38E-5	2.54E-1	4.74E-4	1.63E-2	2.90E-4	-1.24E-1	1.47E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.46E-4	3.23E-5	1.57E-11	2.78E-4	1.07E-5	4.71E-5	2.84E-7	-1.90E-4	1.46E-4
NHWD	kg	1.82E+0	7.84E-1	6.06E-5	2.60E+0	2.60E-1	1.44E+0	1.04E+0	-1.01E+0	4.33E+0
RWD	kg	5.95E-4	8.60E-5	6.30E-12	6.81E-4	2.85E-5	1.12E-4	1.54E-6	-3.06E-4	5.18E-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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