Environmental Profile

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

Ecochain v3.5.80

Product:	3024241 - X-Stream PP Branch 45° BK 300x200
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	3.39E+0	4.62E-1	4.28E-2	3.89E+0	1.64E-1	1.69E+1	7.74E-2	-9.06E+0	1.20E+1
GWP-f	kg CO2 eq	1.53E+1	4.62E-1	4.32E-2	1.58E+1	1.64E-1	4.90E+0	7.74E-2	-9.03E+0	1.19E+1
GWP-b	kg CO2 eq	-1.19E+1	2.80E-4	-4.56E-4	-1.19E+1	9.97E-5	1.20E+1	6.74E-5	-2.69E-2	6.68E-2
GWP-luluc	kg CO2 eq	1.00E-2	1.63E-4	4.41E-5	1.02E-2	5.81E-5	9.53E-4	1.32E-6	-6.73E-3	4.49E-3
ODP	kg CFC11 eq	6.06E-7	1.06E-7	2.44E-9	7.15E-7	3.78E-8	1.33E-7	1.94E-9	-4.93E-7	3.95E-7
AP	mol H+ eq	6.00E-2	2.63E-3	4.36E-4	6.31E-2	9.35E-4	5.62E-3	4.63E-5	-3.14E-2	3.83E-2
EP-fw	kg P eq	2.86E-4	3.80E-6	2.43E-6	2.93E-4	1.35E-6	2.76E-5	6.04E-8	-1.54E-4	1.67E-4
EP-m	kg N eq	1.12E-2	9.41E-4	4.58E-5	1.22E-2	3.35E-4	1.70E-3	3.01E-5	-6.53E-3	7.73E-3
EP-T	mol N eq	1.27E-1	1.04E-2	5.48E-4	1.38E-1	3.69E-3	1.87E-2	1.88E-4	-7.49E-2	8.55E-2
POCP	kg NMVOC eq	5.46E-2	2.96E-3	1.85E-4	5.78E-2	1.05E-3	5.81E-3	7.06E-5	-3.07E-2	3.40E-2
ADP-mm	kg Sb eq	2.34E-4	1.19E-5	5.81E-6	2.52E-4	4.25E-6	2.14E-5	4.67E-8	-7.60E-5	2.02E-4
ADP-f	MJ	4.94E+2	7.09E+0	4.01E-1	5.01E+2	2.52E+0	1.70E+1	1.42E-1	-2.64E+2	2.57E+2
WDP	m3 depriv.	9.45E+0	2.17E-2	1.54E-2	9.48E+0	7.73E-3	3.20E-1	7.14E-4	-4.62E+0	5.20E+0
PM	disease inc.	7.19E-7	4.17E-8	2.68E-9	7.63E-7	1.48E-8	9.00E-8	9.74E-10	-3.80E-7	4.89E-7
IR	kBq U-235 eq	3.55E-1	3.10E-2	3.01E-4	3.86E-1	1.10E-2	5.28E-2	6.57E-4	-1.84E-1	2.67E-1
ETP-fw	CTUe	1.34E+2	5.75E+0	3.57E+0	1.44E+2	2.05E+0	1.90E+1	1.19E-1	-7.72E+1	8.76E+1
HTP-c	CTUh	9.16E-9	2.05E-10	1.82E-10	9.54E-9	7.28E-11	2.45E-9	3.46E-12	-5.18E-9	6.88E-9
HTP-nc	CTUh	1.45E-7	6.86E-9	4.63E-9	1.57E-7	2.44E-9	2.85E-8	7.63E-11	-7.11E-8	1.17E-7
SQP	Pt	1.03E+3	6.06E+0	6.62E-1	1.04E+3	2.16E+0	1.35E+1	3.64E-1	-7.77E+2	2.79E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.88E+2	1.02E-1	7.10E+0	1.95E+2	3.62E-2	8.20E-1	5.49E-3	-1.20E+2	7.60E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.88E+2	1.02E-1	7.10E+0	1.95E+2	3.62E-2	8.20E-1	5.49E-3	-1.20E+2	7.60E+1
PENRE	MJ	5.30E+2	7.52E+0	4.27E-1	5.38E+2	2.68E+0	1.81E+1	1.50E-1	-2.85E+2	2.74E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.30E+2	7.52E+0	4.27E-1	5.38E+2	2.68E+0	1.81E+1	1.50E-1	-2.85E+2	2.74E+2
PET	MJ	7.18E+2	7.62E+0	7.53E+0	7.33E+2	2.71E+0	1.89E+1	1.56E-1	-4.04E+2	3.50E+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	1.52E-1	8.02E-4	4.31E-4	1.53E-1	2.85E-4	9.80E-3	1.75E-4	-7.49E-2	8.82E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.47E-4	1.81E-5	8.07E-11	1.66E-4	6.45E-6	2.83E-5	1.71E-7	-1.15E-4	8.50E-5
NHWD	kg	1.09E+0	4.39E-1	3.12E-4	1.53E+0	1.56E-1	8.64E-1	6.24E-1	-6.13E-1	2.56E+0
RWD	kg	3.58E-4	4.82E-5	3.24E-11	4.07E-4	1.71E-5	6.75E-5	9.25E-7	-1.85E-4	3.07E-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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