Environmental Profile

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

Ecochain v3.5.80

Product:	3024240 - X-Stream PP Branch 45° BK 300x150
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	2.11E+0	4.75E-1	4.28E-2	2.62E+0	1.48E-1	1.64E+1	6.96E-2	-8.29E+0	1.10E+1
GWP-f	kg CO2 eq	1.40E+1	4.75E-1	4.32E-2	1.45E+1	1.48E-1	4.41E+0	6.96E-2	-8.26E+0	1.09E+1
GWP-b	kg CO2 eq	-1.19E+1	2.88E-4	-4.56E-4	-1.19E+1	8.97E-5	1.20E+1	6.06E-5	-2.42E-2	6.47E-2
GWP-luluc	kg CO2 eq	1.07E-2	1.68E-4	4.41E-5	1.09E-2	5.23E-5	8.61E-4	1.19E-6	-6.58E-3	5.21E-3
ODP	kg CFC11 eq	5.81E-7	1.09E-7	2.44E-9	6.93E-7	3.40E-8	1.21E-7	1.75E-9	-4.62E-7	3.88E-7
AP	mol H+ eq	5.57E-2	2.70E-3	4.36E-4	5.89E-2	8.41E-4	5.12E-3	4.17E-5	-2.93E-2	3.56E-2
EP-fw	kg P eq	2.68E-4	3.91E-6	2.43E-6	2.74E-4	1.22E-6	2.50E-5	5.44E-8	-1.46E-4	1.55E-4
EP-m	kg N eq	1.05E-2	9.68E-4	4.58E-5	1.15E-2	3.01E-4	1.55E-3	2.71E-5	-6.14E-3	7.27E-3
EP-T	mol N eq	1.19E-1	1.07E-2	5.48E-4	1.31E-1	3.32E-3	1.71E-2	1.69E-4	-7.07E-2	8.04E-2
POCP	kg NMVOC eq	5.09E-2	3.05E-3	1.85E-4	5.41E-2	9.49E-4	5.30E-3	6.35E-5	-2.87E-2	3.17E-2
ADP-mm	kg Sb eq	2.20E-4	1.23E-5	5.81E-6	2.38E-4	3.82E-6	1.94E-5	4.20E-8	-7.09E-5	1.91E-4
ADP-f	MJ	4.48E+2	7.29E+0	4.01E-1	4.56E+2	2.27E+0	1.54E+1	1.28E-1	-2.40E+2	2.34E+2
WDP	m3 depriv.	8.62E+0	2.24E-2	1.54E-2	8.66E+0	6.96E-3	2.88E-1	6.47E-4	-4.20E+0	4.76E+0
PM	disease inc.	6.81E-7	4.29E-8	2.68E-9	7.27E-7	1.33E-8	8.16E-8	8.77E-10	-3.62E-7	4.61E-7
IR	kBq U-235 eq	3.32E-1	3.19E-2	3.01E-4	3.64E-1	9.91E-3	4.79E-2	5.91E-4	-1.72E-1	2.50E-1
ETP-fw	CTUe	1.27E+2	5.92E+0	3.57E+0	1.37E+2	1.84E+0	1.71E+1	1.07E-1	-7.42E+1	8.19E+1
HTP-c	CTUh	8.86E-9	2.11E-10	1.82E-10	9.25E-9	6.55E-11	2.23E-9	3.12E-12	-5.06E-9	6.49E-9
HTP-nc	CTUh	1.37E-7	7.05E-9	4.63E-9	1.49E-7	2.20E-9	2.58E-8	6.87E-11	-6.74E-8	1.09E-7
SQP	Pt	1.03E+3	6.23E+0	6.62E-1	1.04E+3	1.94E+0	1.23E+1	3.27E-1	-7.76E+2	2.77E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.86E+2	1.05E-1	7.10E+0	1.93E+2	3.25E-2	7.40E-1	4.94E-3	-1.20E+2	7.44E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.86E+2	1.05E-1	7.10E+0	1.93E+2	3.25E-2	7.40E-1	4.94E-3	-1.20E+2	7.44E+1
PENRE	MJ	4.81E+2	7.74E+0	4.27E-1	4.89E+2	2.41E+0	1.64E+1	1.35E-1	-2.58E+2	2.50E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.81E+2	7.74E+0	4.27E-1	4.89E+2	2.41E+0	1.64E+1	1.35E-1	-2.58E+2	2.50E+2
PET	MJ	6.67E+2	7.84E+0	7.53E+0	6.82E+2	2.44E+0	1.71E+1	1.40E-1	-3.78E+2	3.24E+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	1.40E-1	8.25E-4	4.31E-4	1.41E-1	2.57E-4	8.88E-3	1.57E-4	-6.87E-2	8.16E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.43E-4	1.86E-5	8.07E-11	1.61E-4	5.80E-6	2.57E-5	1.54E-7	-1.10E-4	8.33E-5
NHWD	kg	1.05E+0	4.52E-1	3.12E-4	1.51E+0	1.41E-1	7.85E-1	5.62E-1	-5.94E-1	2.40E+0
RWD	kg	3.38E-4	4.96E-5	3.24E-11	3.88E-4	1.54E-5	6.14E-5	8.32E-7	-1.75E-4	2.91E-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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