Environmental Profile

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

Ecochain v3.5.80

Product:	3071014 - X-Stream PP Bend 15° BK 250 S/S Nor
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	3.52E+0	1.32E-1	1.13E-2	3.66E+0	5.32E-2	5.95E+0	2.51E-2	-3.32E+0	6.37E+0
GWP-f	kg CO2 eq	6.66E+0	1.32E-1	1.14E-2	6.81E+0	5.32E-2	2.64E+0	2.51E-2	-3.64E+0	5.89E+0
GWP-b	kg CO2 eq	-3.15E+0	8.01E-5	-1.20E-4	-3.15E+0	3.23E-5	3.31E+0	2.18E-5	3.22E-1	4.81E-1
GWP-luluc	kg CO2 eq	5.47E-3	4.67E-5	1.17E-5	5.53E-3	1.88E-5	3.23E-4	4.34E-7	-4.30E-3	1.57E-3
ODP	kg CFC11 eq	2.76E-7	3.04E-8	6.45E-10	3.07E-7	1.23E-8	4.95E-8	6.29E-10	-2.49E-7	1.20E-7
AP	mol H+ eq	2.68E-2	7.51E-4	1.15E-4	2.77E-2	3.03E-4	2.10E-3	1.50E-5	-1.18E-2	1.83E-2
EP-fw	kg P eq	1.39E-4	1.09E-6	6.43E-7	1.41E-4	4.38E-7	9.49E-6	1.98E-8	-7.77E-5	7.35E-5
EP-m	kg N eq	5.08E-3	2.69E-4	1.21E-5	5.36E-3	1.08E-4	6.57E-4	9.72E-6	-2.49E-3	3.64E-3
EP-T	mol N eq	5.61E-2	2.96E-3	1.45E-4	5.92E-2	1.19E-3	7.24E-3	6.10E-5	-2.83E-2	3.93E-2
POCP	kg NMVOC eq	2.30E-2	8.47E-4	4.90E-5	2.39E-2	3.42E-4	2.22E-3	2.29E-5	-1.10E-2	1.55E-2
ADP-mm	kg Sb eq	9.28E-5	3.41E-6	1.54E-6	9.78E-5	1.38E-6	7.79E-6	1.52E-8	-2.66E-5	8.03E-5
ADP-f	MJ	1.96E+2	2.02E+0	1.06E-1	1.98E+2	8.17E-1	5.94E+0	4.60E-2	-9.76E+1	1.08E+2
WDP	m3 depriv.	4.15E+0	6.21E-3	4.07E-3	4.16E+0	2.51E-3	1.09E-1	2.58E-4	-2.03E+0	2.24E+0
PM	disease inc.	2.88E-7	1.19E-8	7.09E-10	3.01E-7	4.80E-9	3.28E-8	3.16E-10	-1.47E-7	1.92E-7
IR	kBq U-235 eq	1.53E-1	8.85E-3	7.95E-5	1.62E-1	3.57E-3	1.89E-2	2.13E-4	-8.12E-2	1.03E-1
ETP-fw	CTUe	1.00E+2	1.64E+0	9.44E-1	1.03E+2	6.63E-1	7.29E+0	3.85E-2	-4.82E+1	6.26E+1
HTP-c	CTUh	3.37E-9	5.85E-11	4.82E-11	3.48E-9	2.36E-11	9.64E-10	1.14E-12	-1.78E-9	2.69E-9
HTP-nc	CTUh	6.28E-8	1.96E-9	1.22E-9	6.60E-8	7.90E-10	1.08E-8	2.49E-11	-2.90E-8	4.86E-8
SQP	Pt	2.90E+2	1.73E+0	1.75E-1	2.92E+2	6.99E-1	4.67E+0	1.18E-1	-2.79E+2	1.83E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	6.32E+1	2.91E-2	1.88E+0	6.51E+1	1.17E-2	2.80E-1	1.77E-3	-4.45E+1	2.09E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	6.32E+1	2.91E-2	1.88E+0	6.51E+1	1.17E-2	2.80E-1	1.77E-3	-4.45E+1	2.09E+1
PENRE	MJ	2.11E+2	2.15E+0	1.13E-1	2.13E+2	8.67E-1	6.33E+0	4.88E-2	-1.05E+2	1.15E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.11E+2	2.15E+0	1.13E-1	2.13E+2	8.67E-1	6.33E+0	4.88E-2	-1.05E+2	1.15E+2
PET	MJ	2.74E+2	2.18E+0	1.99E+0	2.78E+2	8.79E-1	6.61E+0	5.05E-2	-1.50E+2	1.36E+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	7.64E-2	2.29E-4	1.14E-4	7.68E-2	9.24E-5	3.47E-3	5.66E-5	-3.74E-2	4.29E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.50E-5	5.18E-6	2.13E-11	6.01E-5	2.09E-6	1.05E-5	5.56E-8	-5.08E-5	2.19E-5
NHWD	kg	4.53E-1	1.26E-1	8.23E-5	5.79E-1	5.06E-2	3.36E-1	2.02E-1	-2.13E-1	9.54E-1
RWD	kg	1.52E-4	1.38E-5	8.56E-12	1.66E-4	5.55E-6	2.44E-5	3.00E-7	-8.09E-5	1.15E-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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