Environmental Profile

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

Ecochain v3.5.80

Product:	3010955 - X-Stream PP Plug BK 600
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	1.08E+1	9.57E-1	2.14E-2	1.18E+1	3.82E-1	3.51E+1	1.80E-1	-2.02E+1	2.73E+1
GWP-f	kg CO2 eq	3.45E+1	9.56E-1	2.16E-2	3.54E+1	3.82E-1	1.13E+1	1.80E-1	-2.01E+1	2.71E+1
GWP-b	kg CO2 eq	-2.36E+1	5.80E-4	-2.28E-4	-2.36E+1	2.32E-4	2.39E+1	1.57E-4	-6.23E-2	1.72E-1
GWP-luluc	kg CO2 eq	2.07E-2	3.38E-4	2.21E-5	2.11E-2	1.35E-4	2.21E-3	3.04E-6	-1.28E-2	1.06E-2
ODP	kg CFC11 eq	1.25E-6	2.20E-7	1.22E-9	1.47E-6	8.80E-8	3.06E-7	4.51E-9	-1.01E-6	8.65E-7
AP	mol H+ eq	1.31E-1	5.44E-3	2.18E-4	1.37E-1	2.18E-3	1.30E-2	1.08E-4	-6.83E-2	8.36E-2
EP-fw	kg P eq	6.12E-4	7.86E-6	1.22E-6	6.21E-4	3.14E-6	6.40E-5	1.40E-7	-3.19E-4	3.70E-4
EP-m	kg N eq	2.46E-2	1.95E-3	2.29E-5	2.65E-2	7.78E-4	3.94E-3	7.03E-5	-1.39E-2	1.74E-2
EP-T	mol N eq	2.78E-1	2.15E-2	2.74E-4	3.00E-1	8.58E-3	4.35E-2	4.37E-4	-1.61E-1	1.92E-1
POCP	kg NMVOC eq	1.20E-1	6.14E-3	9.27E-5	1.26E-1	2.45E-3	1.35E-2	1.64E-4	-6.55E-2	7.67E-2
ADP-mm	kg Sb eq	4.41E-4	2.47E-5	2.90E-6	4.69E-4	9.88E-6	4.93E-5	1.08E-7	-1.61E-4	3.67E-4
ADP-f	MJ	1.13E+3	1.47E+1	2.00E-1	1.15E+3	5.86E+0	3.92E+1	3.29E-1	-6.00E+2	5.91E+2
WDP	m3 depriv.	2.17E+1	4.50E-2	7.71E-3	2.18E+1	1.80E-2	7.44E-1	1.58E-3	-1.04E+1	1.21E+1
PM	disease inc.	1.62E-6	8.63E-8	1.34E-9	1.71E-6	3.45E-8	2.08E-7	2.26E-9	-7.84E-7	1.17E-6
IR	kBq U-235 eq	7.78E-1	6.41E-2	1.50E-4	8.43E-1	2.56E-2	1.21E-1	1.53E-3	-3.84E-1	6.07E-1
ETP-fw	CTUe	2.64E+2	1.19E+1	1.78E+0	2.78E+2	4.76E+0	4.39E+1	2.76E-1	-1.64E+2	1.63E+2
HTP-c	CTUh	1.74E-8	4.24E-10	9.11E-11	1.79E-8	1.69E-10	5.71E-9	7.99E-12	-9.78E-9	1.40E-8
HTP-nc	CTUh	2.85E-7	1.42E-8	2.31E-9	3.01E-7	5.67E-9	6.61E-8	1.77E-10	-1.49E-7	2.24E-7
SQP	Pt	2.08E+3	1.26E+1	3.31E-1	2.09E+3	5.01E+0	3.12E+1	8.46E-1	-1.39E+3	7.41E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.36E+2	2.10E-1	3.55E+0	3.39E+2	8.41E-2	1.90E+0	1.28E-2	-2.19E+2	1.23E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.36E+2	2.10E-1	3.55E+0	3.39E+2	8.41E-2	1.90E+0	1.28E-2	-2.19E+2	1.23E+2
PENRE	MJ	1.21E+3	1.56E+1	2.13E-1	1.23E+3	6.22E+0	4.17E+1	3.49E-1	-6.46E+2	6.31E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.21E+3	1.56E+1	2.13E-1	1.23E+3	6.22E+0	4.17E+1	3.49E-1	-6.46E+2	6.31E+2
PET	MJ	1.55E+3	1.58E+1	3.76E+0	1.57E+3	6.31E+0	4.36E+1	3.62E-1	-8.65E+2	7.54E+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	3.44E-1	1.66E-3	2.16E-4	3.46E-1	6.63E-4	2.29E-2	4.07E-4	-1.66E-1	2.03E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.09E-4	3.75E-5	4.03E-11	3.46E-4	1.50E-5	6.51E-5	3.96E-7	-2.32E-4	1.95E-4
NHWD	kg	2.24E+0	9.09E-1	1.56E-4	3.15E+0	3.63E-1	2.02E+0	1.45E+0	-1.18E+0	5.81E+0
RWD	kg	7.70E-4	9.98E-5	1.62E-11	8.70E-4	3.99E-5	1.55E-4	2.15E-6	-3.80E-4	6.87E-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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