Environmental Profile

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

Ecochain v3.5.80

Product:	3031594 - X-Stream PP Plug BK 150
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	8.24E-1	3.97E-3	4.80E-2	8.76E-1	1.04E-2	3.04E-1	4.91E-3	-4.86E-1	7.09E-1
GWP-f	kg CO2 eq	8.21E-1	3.96E-3	4.84E-2	8.73E-1	1.04E-2	3.04E-1	4.91E-3	-4.84E-1	7.09E-1
GWP-b	kg CO2 eq	2.77E-3	2.41E-6	-5.11E-4	2.26E-3	6.33E-6	-4.18E-4	4.29E-6	-1.73E-3	1.21E-4
GWP-luluc	kg CO2 eq	3.71E-4	1.40E-6	4.95E-5	4.22E-4	3.69E-6	5.86E-5	8.25E-8	-9.86E-5	3.85E-4
ODP	kg CFC11 eq	1.83E-8	9.13E-10	2.74E-9	2.19E-8	2.40E-9	7.64E-9	1.23E-10	-2.33E-8	8.79E-9
AP	mol H+ eq	2.85E-3	2.26E-5	4.89E-4	3.37E-3	5.94E-5	3.20E-4	2.94E-6	-1.37E-3	2.38E-3
EP-fw	kg P eq	1.16E-5	3.26E-8	2.73E-6	1.44E-5	8.58E-8	1.69E-6	3.80E-9	-5.61E-6	1.06E-5
EP-m	kg N eq	4.87E-4	8.08E-6	5.14E-5	5.47E-4	2.12E-5	9.32E-5	2.02E-6	-2.42E-4	4.22E-4
EP-T	mol N eq	5.43E-3	8.90E-5	6.14E-4	6.14E-3	2.34E-4	1.03E-3	1.19E-5	-2.67E-3	4.74E-3
POCP	kg NMVOC eq	2.52E-3	2.54E-5	2.08E-4	2.75E-3	6.69E-5	3.24E-4	4.47E-6	-1.22E-3	1.92E-3
ADP-mm	kg Sb eq	8.97E-6	1.03E-7	6.52E-6	1.56E-5	2.70E-7	1.27E-6	2.95E-9	-3.35E-6	1.38E-5
ADP-f	MJ	2.89E+1	6.08E-2	4.49E-1	2.94E+1	1.60E-1	1.02E+0	8.99E-3	-1.52E+1	1.54E+1
WDP	m3 depriv.	5.69E-1	1.87E-4	1.73E-2	5.86E-1	4.91E-4	2.00E-2	4.12E-5	-2.74E-1	3.33E-1
PM	disease inc.	2.52E-8	3.58E-10	3.01E-9	2.86E-8	9.41E-10	5.27E-9	6.18E-11	-1.13E-8	2.35E-8
IR	kBq U-235 eq	1.53E-2	2.66E-4	3.37E-4	1.59E-2	6.99E-4	3.06E-3	4.18E-5	-7.43E-3	1.23E-2
ETP-fw	CTUe	4.20E+0	4.94E-2	4.00E+0	8.25E+0	1.30E-1	1.16E+0	7.82E-3	-1.99E+0	7.55E+0
HTP-c	CTUh	1.78E-10	1.76E-12	2.04E-10	3.84E-10	4.62E-12	1.36E-10	2.17E-13	-8.46E-11	4.40E-10
HTP-nc	CTUh	5.08E-9	5.89E-11	5.19E-9	1.03E-8	1.55E-10	1.71E-9	4.90E-12	-2.43E-9	9.75E-9
SQP	Pt	1.22E+0	5.20E-2	7.42E-1	2.01E+0	1.37E-1	8.11E-1	2.31E-2	-4.29E-1	2.55E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.28E-1	8.73E-4	7.96E+0	8.49E+0	2.30E-3	5.01E-2	3.52E-4	-1.96E-1	8.35E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.28E-1	8.73E-4	7.96E+0	8.49E+0	2.30E-3	5.01E-2	3.52E-4	-1.96E-1	8.35E+0
PENRE	MJ	3.10E+1	6.46E-2	4.78E-1	3.16E+1	1.70E-1	1.08E+0	9.54E-3	-1.64E+1	1.65E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	3.10E+1	6.46E-2	4.78E-1	3.16E+1	1.70E-1	1.08E+0	9.54E-3	-1.64E+1	1.65E+1
PET	MJ	3.16E+1	6.55E-2	8.44E+0	4.01E+1	1.72E-1	1.13E+0	9.89E-3	-1.66E+1	2.48E+1
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	8.70E-3	6.88E-6	4.83E-4	9.19E-3	1.81E-5	5.88E-4	1.11E-5	-4.02E-3	5.78E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	3.67E-6	1.56E-7	9.05E-11	3.83E-6	4.09E-7	1.65E-6	1.08E-8	-3.69E-6	2.21E-6
NHWD	kg	3.34E-2	3.77E-3	3.49E-4	3.75E-2	9.92E-3	4.99E-2	3.96E-2	-1.23E-2	1.25E-1
RWD	kg	1.39E-5	4.14E-7	3.63E-11	1.43E-5	1.09E-6	3.88E-6	5.88E-8	-6.68E-6	1.26E-5
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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