Environmental Profile

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

Ecochain v3.5.80

Product:	3042485 - X-Stream PP End Cap 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	1.22E+0	1.20E-2	2.14E-2	1.25E+0	1.51E-2	4.58E-1	7.13E-3	-7.16E-1	1.02E+0
GWP-f	kg CO2 eq	1.21E+0	1.20E-2	2.16E-2	1.25E+0	1.51E-2	4.58E-1	7.13E-3	-7.13E-1	1.02E+0
GWP-b	kg CO2 eq	7.11E-3	7.27E-6	-2.28E-4	6.89E-3	9.19E-6	-6.07E-4	6.22E-6	-2.52E-3	3.78E-3
GWP-luluc	kg CO2 eq	3.20E-4	4.24E-6	2.21E-5	3.46E-4	5.36E-6	8.52E-5	1.21E-7	-1.43E-4	2.93E-4
ODP	kg CFC11 eq	2.95E-8	2.76E-9	1.22E-9	3.35E-8	3.49E-9	1.11E-8	1.79E-10	-3.45E-8	1.37E-8
AP	mol H+ eq	4.29E-3	6.82E-5	2.18E-4	4.57E-3	8.62E-5	4.68E-4	4.27E-6	-1.99E-3	3.14E-3
EP-fw	kg P eq	1.79E-5	9.85E-8	1.22E-6	1.92E-5	1.25E-7	2.46E-6	5.55E-9	-8.15E-6	1.36E-5
EP-m	kg N eq	7.14E-4	2.44E-5	2.29E-5	7.62E-4	3.08E-5	1.36E-4	2.88E-6	-3.53E-4	5.79E-4
EP-T	mol N eq	7.99E-3	2.69E-4	2.74E-4	8.54E-3	3.40E-4	1.50E-3	1.73E-5	-3.91E-3	6.49E-3
POCP	kg NMVOC eq	3.71E-3	7.69E-5	9.27E-5	3.88E-3	9.72E-5	4.74E-4	6.50E-6	-1.79E-3	2.67E-3
ADP-mm	kg Sb eq	1.49E-5	3.10E-7	2.90E-6	1.81E-5	3.92E-7	1.85E-6	4.29E-9	-4.87E-6	1.55E-5
ADP-f	MJ	4.25E+1	1.84E-1	2.00E-1	4.29E+1	2.32E-1	1.48E+0	1.31E-2	-2.22E+1	2.24E+1
WDP	m3 depriv.	8.26E-1	5.64E-4	7.71E-3	8.34E-1	7.13E-4	2.90E-2	6.36E-5	-3.98E-1	4.66E-1
PM	disease inc.	3.77E-8	1.08E-9	1.34E-9	4.01E-8	1.37E-9	7.68E-9	8.98E-11	-1.65E-8	3.27E-8
IR	kBq U-235 eq	2.31E-2	8.03E-4	1.50E-4	2.41E-2	1.02E-3	4.46E-3	6.06E-5	-1.08E-2	1.88E-2
ETP-fw	CTUe	7.08E+0	1.49E-1	1.78E+0	9.01E+0	1.89E-1	1.68E+0	1.12E-2	-2.90E+0	7.99E+0
HTP-c	CTUh	3.01E-10	5.31E-12	9.11E-11	3.97E-10	6.71E-12	2.02E-10	3.18E-13	-1.23E-10	4.83E-10
HTP-nc	CTUh	8.40E-9	1.78E-10	2.31E-9	1.09E-8	2.25E-10	2.50E-9	7.10E-12	-3.54E-9	1.01E-8
SQP	Pt	1.62E+0	1.57E-1	3.31E-1	2.11E+0	1.99E-1	1.18E+0	3.35E-2	-6.26E-1	2.89E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.14E+0	2.64E-3	3.55E+0	5.69E+0	3.33E-3	7.29E-2	5.09E-4	-2.86E-1	5.48E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.14E+0	2.64E-3	3.55E+0	5.69E+0	3.33E-3	7.29E-2	5.09E-4	-2.86E-1	5.48E+0
PENRE	MJ	4.56E+1	1.95E-1	2.13E-1	4.60E+1	2.47E-1	1.58E+0	1.39E-2	-2.39E+1	2.39E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	4.56E+1	1.95E-1	2.13E-1	4.60E+1	2.47E-1	1.58E+0	1.39E-2	-2.39E+1	2.39E+1
PET	MJ	4.77E+1	1.98E-1	3.76E+0	5.17E+1	2.50E-1	1.65E+0	1.44E-2	-2.42E+1	2.94E+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	1.26E-2	2.08E-5	2.16E-4	1.28E-2	2.63E-5	8.56E-4	1.61E-5	-5.86E-3	7.89E-3

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.32E-6	4.70E-7	4.03E-11	5.79E-6	5.94E-7	2.41E-6	1.57E-8	-5.54E-6	3.26E-6
NHWD	kg	4.40E-2	1.14E-2	1.56E-4	5.56E-2	1.44E-2	7.33E-2	5.76E-2	-1.79E-2	1.83E-1
RWD	kg	2.13E-5	1.25E-6	1.62E-11	2.25E-5	1.58E-6	5.65E-6	8.53E-8	-9.76E-6	2.01E-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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