Environmental Profile

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

Ecochain v3.5.80

Product:	3041483 - X-Stream PP End Cap BK 500
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	5.88E+0	2.18E-1	2.14E-2	6.12E+0	1.90E-1	1.69E+1	8.94E-2	-1.03E+1	1.30E+1
GWP-f	kg CO2 eq	1.70E+1	2.18E-1	2.16E-2	1.73E+1	1.90E-1	5.57E+0	8.95E-2	-1.02E+1	1.29E+1
GWP-b	kg CO2 eq	-1.12E+1	1.32E-4	-2.28E-4	-1.12E+1	1.15E-4	1.13E+1	7.79E-5	-3.11E-2	8.42E-2
GWP-luluc	kg CO2 eq	9.90E-3	7.71E-5	2.21E-5	1.00E-2	6.72E-5	1.09E-3	1.52E-6	-7.10E-3	4.06E-3
ODP	kg CFC11 eq	6.27E-7	5.02E-8	1.22E-9	6.78E-7	4.37E-8	1.51E-7	2.24E-9	-5.50E-7	3.25E-7
AP	mol H+ eq	6.49E-2	1.24E-3	2.18E-4	6.63E-2	1.08E-3	6.29E-3	5.35E-5	-3.47E-2	3.90E-2
EP-fw	kg P eq	3.01E-4	1.79E-6	1.22E-6	3.04E-4	1.56E-6	3.17E-5	6.98E-8	-1.70E-4	1.67E-4
EP-m	kg N eq	1.20E-2	4.44E-4	2.29E-5	1.25E-2	3.87E-4	1.87E-3	3.49E-5	-7.09E-3	7.66E-3
EP-T	mol N eq	1.36E-1	4.89E-3	2.74E-4	1.41E-1	4.26E-3	2.06E-2	2.17E-4	-8.04E-2	8.60E-2
POCP	kg NMVOC eq	5.94E-2	1.40E-3	9.27E-5	6.09E-2	1.22E-3	6.44E-3	8.15E-5	-3.38E-2	3.48E-2
ADP-mm	kg Sb eq	2.83E-4	5.63E-6	2.90E-6	2.91E-4	4.91E-6	2.44E-5	5.40E-8	-8.54E-5	2.35E-4
ADP-f	MJ	5.60E+2	3.34E+0	2.00E-1	5.63E+2	2.91E+0	1.94E+1	1.64E-1	-3.02E+2	2.84E+2
WDP	m3 depriv.	1.07E+1	1.03E-2	7.71E-3	1.07E+1	8.94E-3	3.68E-1	8.32E-4	-5.30E+0	5.75E+0
PM	disease inc.	7.16E-7	1.97E-8	1.34E-9	7.37E-7	1.71E-8	1.02E-7	1.13E-9	-4.09E-7	4.49E-7
IR	kBq U-235 eq	3.80E-1	1.46E-2	1.50E-4	3.94E-1	1.27E-2	5.99E-2	7.59E-4	-2.04E-1	2.63E-1
ETP-fw	CTUe	1.30E+2	2.71E+0	1.78E+0	1.35E+2	2.36E+0	2.16E+1	1.37E-1	-7.90E+1	7.97E+1
HTP-c	CTUh	9.04E-9	9.66E-11	9.11E-11	9.23E-9	8.42E-11	2.69E-9	4.01E-12	-5.55E-9	6.46E-9
HTP-nc	CTUh	1.41E-7	3.24E-9	2.31E-9	1.47E-7	2.82E-9	3.23E-8	8.83E-11	-7.64E-8	1.06E-7
SQP	Pt	9.66E+2	2.86E+0	3.31E-1	9.69E+2	2.49E+0	1.55E+1	4.20E-1	-8.00E+2	1.88E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.54E+2	4.80E-2	3.55E+0	1.57E+2	4.18E-2	9.40E-1	6.34E-3	-1.22E+2	3.59E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.54E+2	4.80E-2	3.55E+0	1.57E+2	4.18E-2	9.40E-1	6.34E-3	-1.22E+2	3.59E+1
PENRE	MJ	6.00E+2	3.55E+0	2.13E-1	6.04E+2	3.09E+0	2.07E+1	1.74E-1	-3.25E+2	3.03E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.00E+2	3.55E+0	2.13E-1	6.04E+2	3.09E+0	2.07E+1	1.74E-1	-3.25E+2	3.03E+2
PET	MJ	7.54E+2	3.60E+0	3.76E+0	7.61E+2	3.13E+0	2.16E+1	1.80E-1	-4.47E+2	3.39E+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	1.68E-1	3.78E-4	2.16E-4	1.69E-1	3.30E-4	1.11E-2	2.02E-4	-8.53E-2	9.50E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.59E-4	8.55E-6	4.03E-11	1.67E-4	7.45E-6	3.22E-5	1.97E-7	-1.26E-4	8.09E-5
NHWD	kg	1.20E+0	2.07E-1	1.56E-4	1.41E+0	1.81E-1	9.58E-1	7.22E-1	-6.58E-1	2.61E+0
RWD	kg	3.80E-4	2.27E-5	1.62E-11	4.02E-4	1.98E-5	7.66E-5	1.07E-6	-2.04E-4	2.95E-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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