Environmental Profile

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

Ecochain v3.5.80

Product:	3041482 - X-Stream PP End Cap BK 400
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	2.04E+0	1.08E-1	2.14E-2	2.17E+0	9.31E-2	9.30E+0	4.38E-2	-5.17E+0	6.44E+0
GWP-f	kg CO2 eq	8.54E+0	1.08E-1	2.16E-2	8.67E+0	9.30E-2	2.74E+0	4.39E-2	-5.15E+0	6.40E+0
GWP-b	kg CO2 eq	-6.50E+0	6.53E-5	-2.28E-4	-6.50E+0	5.65E-5	6.56E+0	3.82E-5	-1.53E-2	4.42E-2
GWP-luluc	kg CO2 eq	5.38E-3	3.81E-5	2.21E-5	5.44E-3	3.29E-5	5.39E-4	7.47E-7	-3.97E-3	2.05E-3
ODP	kg CFC11 eq	3.32E-7	2.48E-8	1.22E-9	3.58E-7	2.14E-8	7.52E-8	1.10E-9	-2.87E-7	1.68E-7
AP	mol H+ eq	3.27E-2	6.13E-4	2.18E-4	3.35E-2	5.30E-4	3.13E-3	2.62E-5	-1.79E-2	1.93E-2
EP-fw	kg P eq	1.55E-4	8.85E-7	1.22E-6	1.57E-4	7.65E-7	1.56E-5	3.42E-8	-8.99E-5	8.32E-5
EP-m	kg N eq	6.13E-3	2.19E-4	2.29E-5	6.37E-3	1.90E-4	9.33E-4	1.71E-5	-3.72E-3	3.79E-3
EP-T	mol N eq	6.88E-2	2.42E-3	2.74E-4	7.15E-2	2.09E-3	1.03E-2	1.07E-4	-4.23E-2	4.17E-2
POCP	kg NMVOC eq	3.03E-2	6.91E-4	9.27E-5	3.11E-2	5.97E-4	3.21E-3	4.00E-5	-1.76E-2	1.73E-2
ADP-mm	kg Sb eq	1.12E-4	2.78E-6	2.90E-6	1.18E-4	2.41E-6	1.21E-5	2.65E-8	-4.43E-5	8.78E-5
ADP-f	MJ	2.78E+2	1.65E+0	2.00E-1	2.79E+2	1.43E+0	9.59E+0	8.03E-2	-1.50E+2	1.40E+2
WDP	m3 depriv.	5.27E+0	5.07E-3	7.71E-3	5.28E+0	4.38E-3	1.81E-1	4.08E-4	-2.64E+0	2.83E+0
PM	disease inc.	3.69E-7	9.71E-9	1.34E-9	3.81E-7	8.40E-9	5.04E-8	5.52E-10	-2.19E-7	2.21E-7
IR	kBq U-235 eq	1.94E-1	7.22E-3	1.50E-4	2.01E-1	6.24E-3	2.98E-2	3.72E-4	-1.07E-1	1.31E-1
ETP-fw	CTUe	6.84E+1	1.34E+0	1.78E+0	7.16E+1	1.16E+0	1.07E+1	6.74E-2	-4.27E+1	4.08E+1
HTP-c	CTUh	4.82E-9	4.77E-11	9.11E-11	4.96E-9	4.13E-11	1.34E-9	1.96E-12	-3.09E-9	3.25E-9
HTP-nc	CTUh	7.34E-8	1.60E-9	2.31E-9	7.74E-8	1.38E-9	1.60E-8	4.33E-11	-4.06E-8	5.42E-8
SQP	Pt	5.58E+2	1.41E+0	3.31E-1	5.60E+2	1.22E+0	7.64E+0	2.06E-1	-4.64E+2	1.05E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	9.21E+1	2.37E-2	3.55E+0	9.57E+1	2.05E-2	4.63E-1	3.11E-3	-7.07E+1	2.55E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	9.21E+1	2.37E-2	3.55E+0	9.57E+1	2.05E-2	4.63E-1	3.11E-3	-7.07E+1	2.55E+1
PENRE	MJ	2.98E+2	1.75E+0	2.13E-1	3.00E+2	1.52E+0	1.02E+1	8.52E-2	-1.62E+2	1.50E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.98E+2	1.75E+0	2.13E-1	3.00E+2	1.52E+0	1.02E+1	8.52E-2	-1.62E+2	1.50E+2
PET	MJ	3.90E+2	1.78E+0	3.76E+0	3.96E+2	1.54E+0	1.07E+1	8.83E-2	-2.33E+2	1.75E+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	8.38E-2	1.87E-4	2.16E-4	8.42E-2	1.62E-4	5.47E-3	9.90E-5	-4.30E-2	4.69E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	7.96E-5	4.22E-6	4.03E-11	8.38E-5	3.65E-6	1.60E-5	9.68E-8	-6.76E-5	3.60E-5
NHWD	kg	5.86E-1	1.02E-1	1.56E-4	6.89E-1	8.85E-2	4.74E-1	3.54E-1	-3.63E-1	1.24E+0
RWD	kg	1.96E-4	1.12E-5	1.62E-11	2.07E-4	9.71E-6	3.81E-5	5.24E-7	-1.08E-4	1.47E-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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