Environmental Profile

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

Ecochain v3.5.80

Product:	3071027 - X-Stream PP End Cap BK 200 Nor
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	1.82E+0	2.47E-2	2.14E-2	1.87E+0	2.47E-2	1.41E+0	1.16E-2	-1.28E+0	2.04E+0
GWP-f	kg CO2 eq	2.32E+0	2.47E-2	2.16E-2	2.36E+0	2.46E-2	8.81E-1	1.16E-2	-1.32E+0	1.96E+0
GWP-b	kg CO2 eq	-4.92E-1	1.50E-5	-2.28E-4	-4.92E-1	1.50E-5	5.25E-1	1.01E-5	4.84E-2	8.09E-2
GWP-luluc	kg CO2 eq	1.18E-3	8.75E-6	2.21E-5	1.21E-3	8.72E-6	1.42E-4	1.97E-7	-8.33E-4	5.28E-4
ODP	kg CFC11 eq	7.01E-8	5.70E-9	1.22E-9	7.70E-8	5.68E-9	1.97E-8	2.91E-10	-7.16E-8	3.11E-8
AP	mol H+ eq	8.63E-3	1.41E-4	2.18E-4	8.99E-3	1.40E-4	8.28E-4	6.94E-6	-3.99E-3	5.98E-3
EP-fw	kg P eq	3.99E-5	2.03E-7	1.22E-6	4.13E-5	2.03E-7	4.13E-6	9.04E-9	-2.08E-5	2.48E-5
EP-m	kg N eq	1.54E-3	5.04E-5	2.29E-5	1.61E-3	5.02E-5	2.48E-4	4.63E-6	-7.68E-4	1.15E-3
EP-T	mol N eq	1.72E-2	5.55E-4	2.74E-4	1.80E-2	5.53E-4	2.73E-3	2.82E-5	-8.62E-3	1.27E-2
POCP	kg NMVOC eq	7.48E-3	1.59E-4	9.27E-5	7.73E-3	1.58E-4	8.55E-4	1.06E-5	-3.65E-3	5.10E-3
ADP-mm	kg Sb eq	3.33E-5	6.40E-7	2.90E-6	3.68E-5	6.37E-7	3.20E-6	6.99E-9	-9.33E-6	3.13E-5
ADP-f	MJ	7.58E+1	3.80E-1	2.00E-1	7.63E+1	3.78E-1	2.52E+0	2.13E-2	-3.90E+1	4.02E+1
WDP	m3 depriv.	1.52E+0	1.16E-3	7.71E-3	1.53E+0	1.16E-3	4.82E-2	1.04E-4	-7.41E-1	8.35E-1
PM	disease inc.	8.44E-8	2.23E-9	1.34E-9	8.79E-8	2.22E-9	1.34E-8	1.46E-10	-4.10E-8	6.27E-8
IR	kBq U-235 eq	4.73E-2	1.66E-3	1.50E-4	4.92E-2	1.65E-3	7.74E-3	9.87E-5	-2.42E-2	3.45E-2
ETP-fw	CTUe	2.24E+1	3.08E-1	1.78E+0	2.45E+1	3.07E-1	2.94E+0	1.81E-2	-1.07E+1	1.70E+1
HTP-c	CTUh	8.32E-10	1.10E-11	9.11E-11	9.34E-10	1.09E-11	3.63E-10	5.18E-13	-4.10E-10	8.98E-10
HTP-nc	CTUh	1.80E-8	3.67E-10	2.31E-9	2.07E-8	3.66E-10	4.35E-9	1.15E-11	-8.28E-9	1.71E-8
SQP	Pt	4.78E+1	3.25E-1	3.31E-1	4.84E+1	3.24E-1	2.00E+0	5.46E-2	-4.50E+1	5.80E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.09E+1	5.44E-3	3.55E+0	1.45E+1	5.43E-3	1.22E-1	8.27E-4	-7.36E+0	7.24E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.09E+1	5.44E-3	3.55E+0	1.45E+1	5.43E-3	1.22E-1	8.27E-4	-7.36E+0	7.24E+0
PENRE	MJ	8.13E+1	4.03E-1	2.13E-1	8.19E+1	4.02E-1	2.68E+0	2.26E-2	-4.21E+1	4.30E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.13E+1	4.03E-1	2.13E-1	8.19E+1	4.02E-1	2.68E+0	2.26E-2	-4.21E+1	4.30E+1
PET	MJ	9.22E+1	4.08E-1	3.76E+0	9.64E+1	4.07E-1	2.81E+0	2.34E-2	-4.94E+1	5.02E+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	2.50E-2	4.29E-5	2.16E-4	2.52E-2	4.28E-5	1.46E-3	2.62E-5	-1.21E-2	1.46E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	1.48E-5	9.71E-7	4.03E-11	1.58E-5	9.67E-7	4.22E-6	2.56E-8	-1.36E-5	7.42E-6
NHWD	kg	1.23E-1	2.35E-2	1.56E-4	1.47E-1	2.34E-2	1.30E-1	9.37E-2	-5.26E-2	3.41E-1
RWD	kg	4.49E-5	2.58E-6	1.62E-11	4.75E-5	2.57E-6	9.89E-6	1.39E-7	-2.30E-5	3.71E-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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