Environmental Profile

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

Ecochain v3.5.80

Product:	3071026 - X-Stream PP End Cap BK 250 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	3.01E+0	4.14E-2	2.14E-2	3.07E+0	4.20E-2	2.65E+0	1.98E-2	-2.21E+0	3.57E+0
GWP-f	kg CO2 eq	4.04E+0	4.13E-2	2.16E-2	4.11E+0	4.20E-2	1.55E+0	1.98E-2	-2.31E+0	3.40E+0
GWP-b	kg CO2 eq	-1.04E+0	2.51E-5	-2.28E-4	-1.04E+0	2.55E-5	1.10E+0	1.73E-5	1.03E-1	1.68E-1
GWP-luluc	kg CO2 eq	2.23E-3	1.46E-5	2.21E-5	2.27E-3	1.49E-5	2.44E-4	3.35E-7	-1.65E-3	8.76E-4
ODP	kg CFC11 eq	1.25E-7	9.53E-9	1.22E-9	1.35E-7	9.68E-9	3.41E-8	4.97E-10	-1.25E-7	5.53E-8
AP	mol H+ eq	1.51E-2	2.35E-4	2.18E-4	1.55E-2	2.39E-4	1.44E-3	1.18E-5	-7.08E-3	1.02E-2
EP-fw	kg P eq	7.08E-5	3.40E-7	1.22E-6	7.23E-5	3.46E-7	7.09E-6	1.54E-8	-3.84E-5	4.14E-5
EP-m	kg N eq	2.73E-3	8.42E-5	2.29E-5	2.83E-3	8.56E-5	4.33E-4	7.82E-6	-1.38E-3	1.98E-3
EP-T	mol N eq	3.01E-2	9.28E-4	2.74E-4	3.13E-2	9.44E-4	4.77E-3	4.81E-5	-1.56E-2	2.15E-2
POCP	kg NMVOC eq	1.31E-2	2.65E-4	9.27E-5	1.35E-2	2.70E-4	1.49E-3	1.80E-5	-6.51E-3	8.77E-3
ADP-mm	kg Sb eq	4.68E-5	1.07E-6	2.90E-6	5.07E-5	1.09E-6	5.54E-6	1.19E-8	-1.64E-5	4.10E-5
ADP-f	MJ	1.31E+2	6.35E-1	2.00E-1	1.32E+2	6.45E-1	4.34E+0	3.62E-2	-6.76E+1	6.94E+1
WDP	m3 depriv.	2.64E+0	1.95E-3	7.71E-3	2.65E+0	1.98E-3	8.26E-2	1.76E-4	-1.29E+0	1.44E+0
PM	disease inc.	1.50E-7	3.73E-9	1.34E-9	1.55E-7	3.79E-9	2.31E-8	2.49E-10	-7.54E-8	1.07E-7
IR	kBq U-235 eq	8.32E-2	2.77E-3	1.50E-4	8.62E-2	2.82E-3	1.34E-2	1.68E-4	-4.36E-2	5.90E-2
ETP-fw	CTUe	4.12E+1	5.15E-1	1.78E+0	4.35E+1	5.24E-1	5.09E+0	3.06E-2	-2.05E+1	2.87E+1
HTP-c	CTUh	1.47E-9	1.83E-11	9.11E-11	1.58E-9	1.86E-11	6.30E-10	8.82E-13	-7.79E-10	1.45E-9
HTP-nc	CTUh	3.11E-8	6.14E-10	2.31E-9	3.40E-8	6.24E-10	7.52E-9	1.96E-11	-1.50E-8	2.71E-8
SQP	Pt	9.83E+1	5.43E-1	3.31E-1	9.92E+1	5.52E-1	3.44E+0	9.30E-2	-9.41E+1	9.24E+0
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.12E+1	9.10E-3	3.55E+0	2.47E+1	9.25E-3	2.10E-1	1.41E-3	-1.53E+1	9.70E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.12E+1	9.10E-3	3.55E+0	2.47E+1	9.25E-3	2.10E-1	1.41E-3	-1.53E+1	9.70E+0
PENRE	MJ	1.41E+2	6.74E-1	2.13E-1	1.42E+2	6.85E-1	4.62E+0	3.85E-2	-7.29E+1	7.41E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.41E+2	6.74E-1	2.13E-1	1.42E+2	6.85E-1	4.62E+0	3.85E-2	-7.29E+1	7.41E+1
PET	MJ	1.62E+2	6.83E-1	3.76E+0	1.66E+2	6.94E-1	4.83E+0	3.99E-2	-8.82E+1	8.38E+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	4.39E-2	7.18E-5	2.16E-4	4.41E-2	7.30E-5	2.51E-3	4.47E-5	-2.17E-2	2.51E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.51E-5	1.62E-6	4.03E-11	2.67E-5	1.65E-6	7.31E-6	4.36E-8	-2.47E-5	1.10E-5
NHWD	kg	2.07E-1	3.93E-2	1.56E-4	2.46E-1	4.00E-2	2.26E-1	1.60E-1	-9.85E-2	5.73E-1
RWD	kg	7.91E-5	4.31E-6	1.62E-11	8.34E-5	4.39E-6	1.71E-5	2.37E-7	-4.18E-5	6.34E-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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