Environmental Profile

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

Ecochain v3.5.80

Product:	3015155 - X-Stream PP Bend 30° BK 250 S/S
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	5.33E+0	1.29E-1	1.44E-2	5.48E+0	6.24E-2	2.07E+0	2.94E-2	-3.06E+0	4.58E+0
GWP-f	kg CO2 eq	5.31E+0	1.29E-1	1.46E-2	5.45E+0	6.24E-2	2.07E+0	2.94E-2	-3.05E+0	4.57E+0
GWP-b	kg CO2 eq	2.36E-2	7.81E-5	-1.54E-4	2.35E-2	3.79E-5	-2.50E-3	2.56E-5	-1.04E-2	1.07E-2
GWP-luluc	kg CO2 eq	1.59E-3	4.55E-5	1.49E-5	1.65E-3	2.21E-5	3.52E-4	5.07E-7	-5.96E-4	1.43E-3
ODP	kg CFC11 eq	1.50E-7	2.97E-8	8.23E-10	1.81E-7	1.44E-8	4.62E-8	7.38E-10	-1.53E-7	8.94E-8
AP	mol H+ eq	1.97E-2	7.33E-4	1.47E-4	2.06E-2	3.55E-4	1.95E-3	1.76E-5	-8.31E-3	1.46E-2
EP-fw	kg P eq	8.56E-5	1.06E-6	8.20E-7	8.75E-5	5.13E-7	1.02E-5	2.31E-8	-3.38E-5	6.44E-5
EP-m	kg N eq	3.23E-3	2.62E-4	1.55E-5	3.51E-3	1.27E-4	5.73E-4	1.15E-5	-1.48E-3	2.73E-3
EP-T	mol N eq	3.64E-2	2.89E-3	1.85E-4	3.95E-2	1.40E-3	6.31E-3	7.15E-5	-1.64E-2	3.09E-2
POCP	kg NMVOC eq	1.65E-2	8.26E-4	6.25E-5	1.74E-2	4.00E-4	1.99E-3	2.68E-5	-7.48E-3	1.23E-2
ADP-mm	kg Sb eq	8.33E-5	3.33E-6	1.96E-6	8.85E-5	1.61E-6	7.65E-6	1.78E-8	-2.01E-5	7.77E-5
ADP-f	MJ	1.81E+2	1.98E+0	1.35E-1	1.83E+2	9.57E-1	6.13E+0	5.39E-2	-9.35E+1	9.66E+1
WDP	m3 depriv.	3.58E+0	6.06E-3	5.20E-3	3.59E+0	2.94E-3	1.20E-1	2.94E-4	-1.65E+0	2.07E+0
PM	disease inc.	1.73E-7	1.16E-8	9.05E-10	1.86E-7	5.63E-9	3.20E-8	3.70E-10	-6.84E-8	1.55E-7
IR	kBq U-235 eq	1.06E-1	8.63E-3	1.01E-4	1.14E-1	4.18E-3	1.85E-2	2.49E-4	-4.52E-2	9.21E-2
ETP-fw	CTUe	3.97E+1	1.60E+0	1.20E+0	4.25E+1	7.77E-1	6.96E+0	4.53E-2	-1.21E+1	3.82E+1
HTP-c	CTUh	1.68E-9	5.71E-11	6.14E-11	1.80E-9	2.77E-11	8.74E-10	1.33E-12	-5.16E-10	2.18E-9
HTP-nc	CTUh	4.54E-8	1.91E-9	1.56E-9	4.89E-8	9.27E-10	1.05E-8	2.92E-11	-1.47E-8	4.57E-8
SQP	Pt	9.21E+0	1.69E+0	2.23E-1	1.11E+1	8.19E-1	4.90E+0	1.38E-1	-2.63E+0	1.43E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	2.15E+1	2.83E-2	2.39E+0	2.39E+1	1.37E-2	3.02E-1	2.07E-3	-1.18E+0	2.30E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	2.15E+1	2.83E-2	2.39E+0	2.39E+1	1.37E-2	3.02E-1	2.07E-3	-1.18E+0	2.30E+1
PENRE	MJ	1.94E+2	2.10E+0	1.44E-1	1.96E+2	1.02E+0	6.53E+0	5.72E-2	-1.01E+2	1.03E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.94E+2	2.10E+0	1.44E-1	1.96E+2	1.02E+0	6.53E+0	5.72E-2	-1.01E+2	1.03E+2
PET	MJ	2.16E+2	2.13E+0	2.54E+0	2.20E+2	1.03E+0	6.83E+0	5.92E-2	-1.02E+2	1.26E+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	5.62E-2	2.24E-4	1.45E-4	5.66E-2	1.08E-4	3.56E-3	6.63E-5	-2.43E-2	3.61E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.48E-5	5.05E-6	2.72E-11	2.98E-5	2.45E-6	1.00E-5	6.51E-8	-2.50E-5	1.74E-5
NHWD	kg	2.12E-1	1.22E-1	1.05E-4	3.34E-1	5.93E-2	3.12E-1	2.37E-1	-7.46E-2	8.68E-1
RWD	kg	9.91E-5	1.34E-5	1.09E-11	1.12E-4	6.51E-6	2.34E-5	3.51E-7	-4.10E-5	1.02E-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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