Environmental Profile

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

Ecochain v3.5.80

Product:	3015158 - X-Stream PP Bend 30° BK 500 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	9.11E+0	7.81E-1	4.28E-2	9.94E+0	3.45E-1	3.25E+1	1.62E-1	-1.89E+1	2.41E+1
GWP-f	kg CO2 eq	3.13E+1	7.80E-1	4.32E-2	3.21E+1	3.44E-1	1.01E+1	1.62E-1	-1.88E+1	2.39E+1
GWP-b	kg CO2 eq	-2.22E+1	4.74E-4	-4.56E-4	-2.22E+1	2.09E-4	2.24E+1	1.41E-4	-5.69E-2	1.60E-1
GWP-luluc	kg CO2 eq	1.90E-2	2.76E-4	4.41E-5	1.93E-2	1.22E-4	1.99E-3	2.80E-6	-1.39E-2	7.57E-3
ODP	kg CFC11 eq	1.28E-6	1.80E-7	2.44E-9	1.47E-6	7.94E-8	2.76E-7	4.07E-9	-1.09E-6	7.40E-7
AP	mol H+ eq	1.20E-1	4.44E-3	4.36E-4	1.25E-1	1.96E-3	1.15E-2	9.73E-5	-6.48E-2	7.38E-2
EP-fw	kg P eq	5.60E-4	6.42E-6	2.43E-6	5.69E-4	2.83E-6	5.77E-5	1.28E-7	-3.24E-4	3.06E-4
EP-m	kg N eq	2.23E-2	1.59E-3	4.58E-5	2.39E-2	7.02E-4	3.42E-3	6.31E-5	-1.33E-2	1.48E-2
EP-T	mol N eq	2.51E-1	1.75E-2	5.48E-4	2.69E-1	7.73E-3	3.78E-2	3.95E-4	-1.51E-1	1.63E-1
POCP	kg NMVOC eq	1.10E-1	5.01E-3	1.85E-4	1.15E-1	2.21E-3	1.18E-2	1.48E-4	-6.33E-2	6.59E-2
ADP-mm	kg Sb eq	4.42E-4	2.02E-5	5.81E-6	4.68E-4	8.91E-6	4.45E-5	9.84E-8	-1.61E-4	3.61E-4
ADP-f	MJ	1.02E+3	1.20E+1	4.01E-1	1.03E+3	5.29E+0	3.53E+1	2.97E-1	-5.51E+2	5.23E+2
WDP	m3 depriv.	1.93E+1	3.68E-2	1.54E-2	1.94E+1	1.62E-2	6.67E-1	1.62E-3	-9.80E+0	1.03E+1
PM	disease inc.	1.35E-6	7.04E-8	2.68E-9	1.42E-6	3.11E-8	1.86E-7	2.05E-9	-7.76E-7	8.67E-7
IR	kBq U-235 eq	7.26E-1	5.23E-2	3.01E-4	7.79E-1	2.31E-2	1.09E-1	1.38E-3	-3.87E-1	5.25E-1
ETP-fw	CTUe	2.51E+2	9.72E+0	3.57E+0	2.65E+2	4.29E+0	3.94E+1	2.49E-1	-1.52E+2	1.57E+2
HTP-c	CTUh	1.73E-8	3.46E-10	1.82E-10	1.78E-8	1.53E-10	4.98E-9	7.36E-12	-1.08E-8	1.22E-8
HTP-nc	CTUh	2.69E-7	1.16E-8	4.63E-9	2.85E-7	5.12E-9	5.91E-8	1.61E-10	-1.46E-7	2.03E-7
SQP	Pt	1.91E+3	1.02E+1	6.62E-1	1.92E+3	4.52E+0	2.82E+1	7.63E-1	-1.59E+3	3.68E+2
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	3.18E+2	1.72E-1	7.10E+0	3.25E+2	7.58E-2	1.71E+0	1.15E-2	-2.42E+2	8.48E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.18E+2	1.72E-1	7.10E+0	3.25E+2	7.58E-2	1.71E+0	1.15E-2	-2.42E+2	8.48E+1
PENRE	MJ	1.09E+3	1.27E+1	4.27E-1	1.11E+3	5.61E+0	3.76E+1	3.16E-1	-5.93E+2	5.58E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	1.09E+3	1.27E+1	4.27E-1	1.11E+3	5.61E+0	3.76E+1	3.16E-1	-5.93E+2	5.58E+2
PET	MJ	1.41E+3	1.29E+1	7.53E+0	1.43E+3	5.69E+0	3.94E+1	3.27E-1	-8.35E+2	6.43E+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	3.07E-1	1.36E-3	4.31E-4	3.09E-1	5.98E-4	2.02E-2	3.66E-4	-1.58E-1	1.72E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.89E-4	3.06E-5	8.07E-11	3.19E-4	1.35E-5	5.88E-5	3.60E-7	-2.41E-4	1.51E-4
NHWD	kg	2.14E+0	7.42E-1	3.12E-4	2.88E+0	3.28E-1	1.75E+0	1.31E+0	-1.28E+0	4.99E+0
RWD	kg	7.45E-4	8.14E-5	3.24E-11	8.27E-4	3.59E-5	1.40E-4	1.94E-6	-3.89E-4	6.16E-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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