Environmental Profile

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

Ecochain v3.5.80

Product:	3016855 - X-Stream PP Reducer BK 800x600
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	2.50E+1	2.25E+0	4.43E-2	2.73E+1	7.16E-1	6.06E+1	3.37E-1	-3.77E+1	5.12E+1
GWP-f	kg CO2 eq	6.40E+1	2.25E+0	4.47E-2	6.63E+1	7.16E-1	2.10E+1	3.37E-1	-3.76E+1	5.09E+1
GWP-b	kg CO2 eq	-3.91E+1	1.37E-3	-4.72E-4	-3.91E+1	4.35E-4	3.95E+1	2.94E-4	-1.17E-1	3.32E-1
GWP-luluc	kg CO2 eq	3.60E-2	7.97E-4	4.57E-5	3.69E-2	2.53E-4	4.12E-3	5.73E-6	-2.33E-2	1.80E-2
ODP	kg CFC11 eq	2.36E-6	5.19E-7	2.53E-9	2.88E-6	1.65E-7	5.67E-7	8.46E-9	-1.93E-6	1.70E-6
AP	mol H+ eq	2.43E-1	1.28E-2	4.51E-4	2.56E-1	4.08E-3	2.39E-2	2.02E-4	-1.26E-1	1.58E-1
EP-fw	kg P eq	1.12E-3	1.85E-5	2.52E-6	1.14E-3	5.89E-6	1.19E-4	2.63E-7	-5.92E-4	6.72E-4
EP-m	kg N eq	4.47E-2	4.59E-3	4.75E-5	4.93E-2	1.46E-3	7.17E-3	1.31E-4	-2.53E-2	3.27E-2
EP-T	mol N eq	5.05E-1	5.06E-2	5.67E-4	5.56E-1	1.61E-2	7.91E-2	8.19E-4	-2.90E-1	3.62E-1
POCP	kg NMVOC eq	2.20E-1	1.45E-2	1.92E-4	2.34E-1	4.60E-3	2.46E-2	3.08E-4	-1.21E-1	1.43E-1
ADP-mm	kg Sb eq	8.80E-4	5.83E-5	6.02E-6	9.45E-4	1.85E-5	9.17E-5	2.03E-7	-3.02E-4	7.53E-4
ADP-f	MJ	2.11E+3	3.46E+1	4.15E-1	2.14E+3	1.10E+1	7.30E+1	6.18E-1	-1.12E+3	1.10E+3
WDP	m3 depriv.	4.02E+1	1.06E-1	1.60E-2	4.04E+1	3.37E-2	1.39E+0	3.10E-3	-1.96E+1	2.21E+1
PM	disease inc.	2.81E-6	2.03E-7	2.78E-9	3.02E-6	6.46E-8	3.85E-7	4.25E-9	-1.43E-6	2.05E-6
IR	kBq U-235 eq	1.43E+0	1.51E-1	3.11E-4	1.58E+0	4.80E-2	2.25E-1	2.86E-3	-7.17E-1	1.14E+0
ETP-fw	CTUe	4.93E+2	2.81E+1	3.70E+0	5.24E+2	8.92E+0	8.17E+1	5.17E-1	-2.87E+2	3.29E+2
HTP-c	CTUh	3.20E-8	9.99E-10	1.89E-10	3.32E-8	3.17E-10	1.04E-8	1.51E-11	-1.80E-8	2.60E-8
HTP-nc	CTUh	5.37E-7	3.35E-8	4.79E-9	5.75E-7	1.06E-8	1.23E-7	3.33E-10	-2.71E-7	4.37E-7
SQP	Pt	3.43E+3	2.96E+1	6.85E-1	3.46E+3	9.40E+0	5.82E+1	1.59E+0	-2.49E+3	1.04E+3
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	5.88E+2	4.96E-1	7.35E+0	5.96E+2	1.58E-1	3.54E+0	2.39E-2	-3.88E+2	2.12E+2
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	5.88E+2	4.96E-1	7.35E+0	5.96E+2	1.58E-1	3.54E+0	2.39E-2	-3.88E+2	2.12E+2
PENRE	MJ	2.26E+3	3.67E+1	4.42E-1	2.30E+3	1.17E+1	7.77E+1	6.55E-1	-1.21E+3	1.18E+3
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.26E+3	3.67E+1	4.42E-1	2.30E+3	1.17E+1	7.77E+1	6.55E-1	-1.21E+3	1.18E+3
PET	MJ	2.85E+3	3.72E+1	7.80E+0	2.89E+3	1.18E+1	8.13E+1	6.79E-1	-1.59E+3	1.39E+3
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	6.34E-1	3.91E-3	4.46E-4	6.38E-1	1.24E-3	4.22E-2	7.62E-4	-3.12E-1	3.71E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	5.52E-4	8.84E-5	8.36E-11	6.41E-4	2.81E-5	1.21E-4	7.44E-7	-4.31E-4	3.60E-4
NHWD	kg	4.05E+0	2.14E+0	3.23E-4	6.20E+0	6.81E-1	3.69E+0	2.72E+0	-2.17E+0	1.11E+1
RWD	kg	1.43E-3	2.35E-4	3.35E-11	1.66E-3	7.47E-5	2.87E-4	4.03E-6	-7.07E-4	1.32E-3
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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